

1 GENERAL

1.1 RELATED WORK

- .1 This Section of the Specification forms part of the Contract Documents and is to be read, interpreted and coordinated with all other parts.
- .2 The Access Control Systems Contractor (ACSC) shall be identified and under contract by the Departmental Representative. The ACSC shall coordinate and course all construction activities with the Electrical Contractor (EC) as if the former is a direct sub-contractor of the EC.

1.2 PRODUCT DATA

- .1 Submit product data in accordance with Section 26 05 00.

1.3 RELATED SECTIONS

- .1 Section 260532 Outlet Boxes, Conduit Boxes and Fittings.

1.4 SCOPE

- .1 Provide new access control door equipment at new locations as indicated on the drawings.
- .2 Division 28 is to provide all necessary conduit rough in and electrical cabling materials and labor to support new access control system locations
- .3 Program the access control system to meet the door interlocking and monitoring requirements of the Departmental Representative as shown on the drawings and described herein.
- .4 Interface the elevator access control system with the new door access control system.

1.5 GENERAL REQUIREMENTS

- .1 Systems to be complete with all necessary components to provide functions required whether or not each and every item is necessarily mentioned. All components to be production proven models. Custom designed units will only be considered for those items that are not currently available on commercial market. System to be supplied and installed by an established communications contracting firm that is approved by the Departmental Representative and vendor.
- .2 Before proceeding with installation, successful system installer to submit to the Departmental Representative for approval a complete detailed proposal as outlined in Section 26 05 00 Shop Drawings.
- .3 Division 26 to be responsible for supply and installation of all conduit, wire, device boxes and terminal panels where required.
- .4 All wiring for systems to be PVC insulated, shielded, twisted pair, multi conductor or coaxial, as called for or as required. All wiring for systems to be plenum rated where required. System wiring to be terminated by Security Contractor.
- .5 Selection of type of cable to be at discretion of system installer but the system, when complete, must perform to the complete satisfaction of the Departmental Representative and must be free of all interference from cross-talk, hum, switch and relay noise, etc. All wiring to be terminated on terminal strips or blocks, and to be neatly installed, laced and tagged where required. All terminals in terminal panels and junction boxes to be made with solderless connectors to terminal blocks with a separate terminal for each conductor.
- .6 The contractor shall be fully trained and factory certified on all security systems as required by this document.

- .7 All hardware and software (including the Windows operating system) required to make programming changes to the system(s) shall be included with the system. Hard copies of all software license documentation shall be provided within shop drawing submission.
- .8 Each new system shall have new power supplies sized to operate the system and the manufacturers' recommended power for the system shall be less than 80% of the power supply rated power output.
- .9 New access control components shall be provided with battery back-up. Connect battery backup units to existing emergency circuits in the building.
- .10 Maintain current programming configurations and extend system labeling methodology to new devices.

1.6 WARRANTY

- .1 System installer to include with his base tender price a guarantee stating:
 - .1 A full warranty will be provided for a period of one (1) year.
 - .2 Service to be provided on system within 24 hours of call origination during the warranty period.
 - .3 During warranty period system installer at his expense to repair and replace all such defective work and other work to new system damaged thereby which fails or becomes defective during term of warranty, provided that such failure is not caused by improper usage or physical damage.
 - .4 Warranty date to commence from date of Final Acceptance of this work.

1.7 SYSTEM REQUIREMENTS

- .1 System to control access of specified door(s) based on programmed time schedule, through use of personnel ID cards, or operator requests and provide hard copy of events.
- .2 Hardware and software to be provided to facilitate following functions:
 - .1 to secure door(s).
 - .2 to monitor door status.
 - .3 to release door(s) under fire alarm conditions.
 - .4 to release door(s) when valid ID card is presented to card reader.
 - .5 to place door(s) in a secure or unsecured mode automatically from software time schedule as specified by the Departmental Representative.
 - .6 to place door(s) in a secure or unsecured mode via the terminal keyboard.
 - .7 to manually release door(s) for exiting.
 - .8 to verify valid ID cards, unlock door, display entry on CRTs and provide hard copy of event.
 - .9 to monitor intrusion alarms.
 - .10 to monitor security alarms.
 - .11 to prioritize alarm conditions.
 - .12 to provide remote monitoring and annunciation through telephone lines.

- .3 Authorized personnel will be supplied with a valid ID card to gain access through specified access control security doors during controlled hours.
- .4 Individual points will be controllable via the local intelligent field panel unit to place in a secure or non-secure mode. All points shall be able to be grouped to be controlled on an “if then” basis where one event will trigger another. Each input and output to be able to be controlled in this way on a system-wide basis.
- .5 All exit doors with magnetic locks to be released under fire alarm conditions. Coordinate exact requirements with door hardware supplier and building maintenance personnel.
- .6 Coordinate software programming requirements, time schedules, ID's, operators and display with Departmental Representative prior to system programming.
- .7 System software to be able to cause actions based on inputs/outputs and time schedules.
- .8 Provide software application programming to lock and unlock specified door(s) via valid ID cards, manual requests, by software time schedules, exit pushbuttons, security sensor bars, or key switches and provide status of each specified door.

2 PRODUCTS

2.1 STANDARDS OF ACCEPTANCE

- .1 Intelligent Field Reader Controllers (IFRC), Intelligent Field Input/Output Controllers (IFIOC), proximity card readers and proximity cards shall conform and be fully compatible with the requirements of the existing Keyscan Vantage Access Control System.

2.2 SECURITY WIRING

- .1 All wiring and cable installed and connected to any piece of equipment which forms part of the security system to be electrically supervised and shall indicate a fault or tampering (open, ground) and provide a unique display of circuit trouble in the system on the display screen.
- .2 Conduit must be used for security cabling within the secured holding space.
- .3 Cable tray may be utilized to run security wiring outside of secured spaces.
- .4 Unless otherwise specified, security systems do not require conduit – except in exposed or exterior locations. However all wiring used must comply with the Canadian Electrical Code Part I and if run in return air plenums shall be rated for this use or shall be in conduit.
- .5 All field security controllers shall be located in a secure, accessible location within the protected space (i.e. – panels and equipment shall not be mounted in electrical or data rooms that are not within the protected space).
- .6 All cable and equipment supplied, and all installation methods used, shall be as specified by the equipment manufacturer.
- .7 All systems shall be wired using FT6 rated cable.
- .8 A proposed wiring layout shall be submitted for approval before start of work.
- .9 No splices shall be permitted in the wiring except where a connection is made to a device. All connections shall be made using “B” clips, stakons or approved equivalent (no marrettes).
- .10 All wiring shall be concealed and protected unless otherwise authorized by the Departmental Representative.

- .11 All cables shall be permanently identified and listed on as-built drawings as follows:
 - .1 Cable number
 - .2 Source
 - .3 Destination
- .12 Electrical panel circuit number shall be clearly identified on all system panels.
- .13 All work shall be installed in a neat and workmanlike manner. The contractor is responsible for clean-up and disposal of all garbage and debris caused as a result of their work. There are no extras for removal work.

2.3 LABELLING

- .1 All equipment units (field panels, access control units, etc.) to have lamicoid description label. Description to be in code as directed by Departmental Representative.
- .2 All wire and cable to be labelled with suitable identification code affixed to cable jacket near terminations. Label to be permanently affixed, vinyl, plastic or similar material.

2.4 WIRE AND CABLE

- .1 Wiring for door control system may be smaller than #14 AWG copper providing voltage drop is not greater than 5 per cent when devices are in operation.
- .2 Multi-conductor cables to be complete with outer PVC jacket.

2.5 DOOR CONTROL POWER SUPPLY

- .1 Door control power supply to provide 24 volts DC with automatic battery charging output circuit to maintain standby batteries. Power supply to have integral transient over voltage protection and surge suppression complete with ground fault detection and alarm. Power supplies to be located in field control panels or in separate cabinets beside field control panel.
- .2 Battery backup system to be complete with batteries sized to maintain operation of all doors in system for not less than 10 minutes. System to be complete with fusing and transfer relays.
- .3 Door control power supply is to provide power to the following:
 - .1 Door security control including all door hardware, card readers, LED's control circuits and security detection equipment. Power supplies to come complete with fire alarm release relay capable of accepting a dry contact input and an under voltage release time delay 0 to 60 seconds relay to open doors if emergency power fails to come on line.
 - .2 Power supplies to be rated at 125% of total capacity of load connected.

2.6 DATA/COMMUNICATIONS PROTECTION

- .1 System is to automatically reboot with no operator intervention at momentarily loss of power, or is reset by voltage surge and is to immediately come back on line. If downstream intelligent controllers lose memory it will request and receive a parameter download from the host PC or master intelligent controller.
- .2 Each intelligent controller to come with watchdog timing circuit which will automatically reset controller if the controller gets hung up.
- .3 Communications between devices on system to have checksum or algorithm to verify data and acknowledge this to the transmitting device.

3 EXECUTION

3.1 TESTS AND ADJUSTMENTS

- .1 Upon completion of system installation, tests to be conducted by the system installer to determine system conformity to the requirements of the specification. Tests to be conducted in presence of Departmental Representative who may suspend or discontinue tests at any time performance is considered unsatisfactory. Resumption of testing to cover the previously untested elements and any completed elements at the discretion of the Departmental Representative.
- .2 All equipment or wiring provided by system installer which tests prove to be defective or operating improperly to be corrected or replaced promptly at no additional cost to the Departmental Representative.

3.2 TRAINING

- .1 System installer to conduct training program for designated maintenance and operating personnel. This program to include but not be limited to the following:
 - .1 Operation: designated personnel to be trained to accomplish and understand all aspects of system operation.
 - .2 Maintenance: designated personnel to be trained to perform routine maintenance on the system.
 - .3 Training period schedule to be established by Departmental Representative. Training periods to take place after building completion and prior to system use.
 - .4 Total training time required is 4 hours. This amount will be split up as the client sees fit over the various security system (Access Control, Intrusion, etc.). Provide addenda and training program for Departmental Representative review prior to beginning any user training.
 - .5 Contractor shall provide the Departmental Representative with a training attendance sign-off sheet. This sheet shall identify the site, time and date as well as a listing of all those in attendance.

END OF SECTION

1 GENERAL

1.1 RELATED WORK

- .1 This Section of the Specification forms part of the Contract Documents and is to be read, interpreted and coordinated with all other parts.
- .2 The Intrusion Detection Systems Contractor (IDSC) shall be identified and under contract by the Departmental Representative. The IDSC shall coordinate and course all construction activities with the Electrical Contractor (EC) as if the former is a direct sub-contractor of the EC.

1.2 SCOPE

- .1 Provide new Intrusion Detection and Alarm System devices for the secured space interfaced with the existing central intrusion panel.
- .2 The access control system shall be interfaced with the intrusion alarm system, so that access cards can disarm the intrusion alarm system.

1.3 SHOP DRAWINGS

- .1 Shop drawings to be submitted as outlined herein and contain all items within one complete submission. Refer to Section 26 05 00 for submission details and the following:
 - .1 Shop drawings which are submitted incomplete will be returned to Contractor without review.
 - .2 Shop drawings to include a complete material list with manufacturer, style, model number and quantity. Wire and cable to be included in material list.
 - .3 Shop drawings to include manufacturer's specification sheets with photographic depiction of all system components. Specification and descriptive data to include dimension, weight, appearance, connection provisions, materials, metal gauges and operating specification, characteristics, features and controls.
 - .4 Shop drawings to include the following diagrams:
 - .1 Elevations to indicate component layouts, cable routing and component functions.
 - .2 System room plan drawings depicting backboards and cable routing.
 - .3 Layout drawings for all splice boxes.
 - .4 Cable details, including type and electrical characteristics.
 - .5 Complete engineering drawings of all custom made components indicating all materials, gauges, finishes and wiring diagrams.
 - .6 Complete system wire and cable designation schedule indicating origin, terminus, origin terminal identification, terminus terminal identification, cable function, cable type and cable designation, at each demarcation point.
 - .7 Under no circumstances will wiring schematics or typical wiring details be considered as circuit diagrams.
- .2 Shop drawings to include full schematic and bill of quantities.

1.4 OPERATING & MAINTENANCE DATA

- .1 In accordance with Section 26 05 00.

1.5 SYSTEM DESCRIPTION

- .1 A complete list of material and spare parts shall be provided to the Departmental Representative prior to installation.

- .2 The intrusion alarm and detection system shall have a module linking all of the components and shall be equipped with a digital device to relay signals to the central monitoring station through a telephone line.

1.6 WARRANTY/SERVICE

- .1 System warranty to cover one-year parts and labour from date of substantial performance. Manufacturers extended warranties on equipment shall apply if typically longer than one year.
- .2 System supplier to include a guarantee that service will be provided on the system within 24 hours of call origination during the warranty period.
- .3 During the warranty period the system installer at his expense will repair and replace all such defective work and other work to the new system, which fails or becomes defective during the term of warranty, provided that such failure is not caused by the improper usage or physical damage.

1.7 TRAINING

- .1 Provide complete and comprehensive training and demonstration sessions for the Departmental Representative.
- .2 Instruct personnel in operation, adjustment, and maintenance of equipment and systems, using provided operation and maintenance data as the basis for instruction.
- .3 Include for up to 3 hours of system training for the users, divided into 2 sessions – 1.5 hour session up front after installation and a 1.5 hour sessions 30 days or more afterwards.
- .4 System installer to come back 90 days after training sessions have been complete and system in use for follow up sessions and Q&A session. Allow for 1 additional session.

2 PRODUCTS

2.1 INTRUSION ALARM SYSTEM

- .1 The protected space shall be provided with a complete intrusion alarm system. Intrusion protection shall be provided by way of door contact switches, glass break sensors and motion sensors as required. The intrusion alarm system is designed to detect unauthorized entry into protected spaces. The system shall conform to the requirements of this document.
- .2 The intrusion alarm system may be broken into separate partitions (areas).
- .3 Home-run all devices to the alarm panel. Do not gang or group devices unless otherwise authorized by the Departmental Representative.
- .4 The system shall have the capacity to provide one access code per person for the full occupancy of the protected space.
- .5 When partitioned, the intrusion alarm system will have as a minimum the following devices:
 - .1 Door contact
 - .2 Glass break sensor, dual technology (breakage and impact)
 - .3 Motion sensor, dual technology, 360-degree coverage
- .6 All devices (including the panel) shall be supervised with tamper switches and end of line resistors.
- .7 EOL devices shall be installed at the device – not in the panel.
- .8 A copy of the zone descriptors shall be left inside the alarm panel.

.9 Standard of Acceptance:

.1 Keyscan

2.2 PROGRAMMING

.1 The contractor shall be responsible for all programming of the alarm system. This includes all user codes; all zone definitions and establishing a connection to the remote monitoring station.

.2 The Departmental Representative shall supply the contractor with all access codes and phone numbers to be programmed into the alarm system.

.3 The contractor shall program the following:

.1 Restoral to follow zone closure

.2 User code required to bypass zones

.3 Daily test transmission (early morning – not on the hour)

.4 Bell time-out shall be set at 4 minutes

.5 Home-away enabled

.6 All panels shall be programmed to auto-arm and auto-disarm daily at the times specified by the Departmental Representative.

.4 Upon completion of programming the installer shall initiate an upload of the panel programming to the Departmental Representative's authorized monitoring agent.

.5 The contractor shall not access the system either physically or by modem without the Departmental Representative's approval.

2.3 MONITORING

.1 The Departmental Representative retains the right to monitor their alarm systems in the manner of their choosing and will not be locked into any other monitoring arrangements.

.2 All telephone jacks used for alarm/security systems shall be wired and installed to industry standards.

.3 All 8-position jacks shall be installed with a tamper loop, ahead of the demark block.

2.4 ALARM ANNUNCIATION

.1 The system shall include sufficient interior alarm sirens to provide an audible alarm warning throughout the protected space; more than one siren may be required. Allow for minimum of 2 sirens within each floor wing. The contractor shall supply any additional sirens should the space require them to meet the above criterion. (Interior sirens to be minimum 15 watt.)

.2 All sirens and strobes to be on isolated power supply.

.3 All systems shall be programmed for 4-minute bell duration.

.4 An audible warning shall be provided when the system is armed or during the exit delay period. The armed warning tone shall be different from the alarm siren sound and shall be audible throughout the protected space. This may require additional sirens or tone devices to be added throughout the protected space so that all staff can hear the alert.

.5 Minimum Standards of Acceptance:
Interior Sirens – Honeywell WAVE-F, Ademco 746

2.5 MOTION DETECTORS

- .1 Motion detectors shall only be dual technology type (PIR and microwave).
- .2 All motion detectors shall be field-adjusted as per manufacturer's specifications for full coverage pattern of the protected spaces.
- .3 All motion detectors shall have LED's disabled after initial testing is done.
- .4 Minimum Standards of Acceptance:
Optex MX, DSC Force II, Honeywell DT series

2.6 DOOR CONTACTS

- .1 Every door which leads to the protected space shall be fitted with a door contact switch.
- .2 All grade level or easily accessible opening windows shall be equipped with a contact.
- .3 All door contacts shall be installed at the top of the door, opposite the hinge side of the door.
- .4 All door and window contacts must be "wide gap" type.
- .5 All door and window contacts must be concealed unless otherwise directed by the Departmental Representative. If installed in wood or similar material, allow for expansion. Fill all voids with silicone sealant or equivalent.
- .6 Minimum Standards of Acceptance:
 - .1 GE Sen1078 series, Amseco AMS-25A/B
 - .2 Overhead doors: GE SEN2200, Amseco ODC-59A/B

2.7 DOCUMENTATION

- .1 The contractor shall return the following documentation to the Departmental Representative:
 - .1 As-built drawings showing location of all devices, controls, splice points, demarcation connection, panels and card readers. All zones shall be clearly identified on the drawings. Electrical panel circuit breaker shall be clearly identified and noted on both the panel cover and as-built drawings.
 - .2 An installation manual.
 - .3 A hard-copy printout of the panel download.
 - .4 Device verification sign-off sheets.
 - .5 Manufacturer's cut sheets for all devices.
 - .6 Electrical inspection permit and report.
 - .7 Training session attendance sheet.

2.8 TRAINING

- .1 The contractor shall allow for a minimum two (2) hour training session on site at the Departmental Representative's convenience. Contractor shall provide the Departmental Representative with a training attendance sign-off sheet. This sheet shall identify the site, time and date as well as a listing of all those in attendance.

3 EXECUTION

3.1 INSTALLATION

- .1 Unless otherwise specified, security systems do not require conduit – except in exposed or exterior locations. However all wiring used must comply with the BC Electrical Code Part I, and if run in return air plenums shall be rated for this use or shall be in conduit.
- .2 All cable and equipment supplied, and all installation methods used, shall be as specified by the equipment manufacturer.
- .3 All systems shall be wired using cable acceptable to the authority having jurisdiction for the building.
- .4 A proposed wiring layout shall be submitted to for approval before start of work.
- .5 No splices shall be permitted in the wiring except where a connection is made to a device. All connections shall be made using "B" clips, stakons or approved equivalent (no marrettes).
- .6 All wiring shall be concealed unless otherwise authorized by the Departmental Representative.
- .7 All cables shall be permanently identified and listed on as-built drawings as follows:
 - .1 Cable number
 - .2 Source
 - .3 Destination
- .8 Electrical panel circuit number shall be clearly identified on all system panels.
- .9 All work shall be installed in a neat and workmanlike manner. The Contractor is responsible for clean up and disposal of all garbage and debris caused as a result of their work.

END OF SECTION