BUILDING SECURITY & ACCESS CONTROL

TECHNICAL GUIDELINES – APRIL 30, 2014

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Guideline Owner(s)

Electrical Planning Engineer Assistant Director – Asset Management

Advisors

Technical Trades and Service Manager Access Control Shop General Foreperson ITS Technical Representative

See Document XXX for the contact information for the current personnel.

REVISION HISTORY

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<td>April 30, 2014</td>
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<td>Description</td>
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<td>Door Access Control</td>
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<td>Security System Video system</td>
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<tr>
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Electrical Consultant Name: ___________________________________________
Electrical Consultant Signature: _________________________________________
Date:    ___________________________________________

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Electrical Planning Engineer Name: _________________________________________
Electrical Consultant Signature: _________________________________________
Date:    ___________________________________________

C:       Compliant
NC:      Non-Compliant
NA:      Not Applicable

If the guidelines or part of the guidelines cannot be attained or fulfilled (i.e. NC) during the design process, the Consultant shall provide reason(s) why such Guidelines are NOT met. Any modification or alteration to the design guidelines will need to be agreed / accepted by Facilities Management prior to inclusion in the design.
OBJECTIVE:

This technical guideline provides guidance to all those participating in the conceptual / final design requirements.

REFERENCES:

- Canadian Electrical Code
- Nova Scotia Building Code
- Dalhousie Building Security Performance Guidelines

ABBREVIATIONS/DEFINITIONS:

BF - Barrier Free Door Operator: Power door operator supplied and installed by the door hardware contractor, wired by the electrical contractor.

CX-33 Module: Smart relay interface module used when barrier free door operators are used in conjunction with door access control.

DC - Door Contact: Magnetic door contact flush mounted in door frame at top of door. Provide a 1" diameter hole in door frame for installation of door contacts located 3" from edge of door, opposite the hinge. Door contacts supplied, installed, wired and terminated by the electrical contractor. Contacts shall be equal to GEI interlogix 1078W series normally open magnetic contacts.

DH - Door Hold Open Device: Upon activation of a command (fire alarm, time of day schedule) the door hold open device shall release, allowing the door to close. Door hold open devices may be integrated into door closer or wall mounted. Door hold opens shall be tied into the fire alarm system, wired and terminated by the electrical contractor. Where door hold open devices are required to be tied into the access control system, low voltage hold opens are preferred.

EH – Electrified Transfer Hinge: Electrified hinge allows for transfer of power and signals to door mounted devices. Supplied and installed by the door hardware contractor, wired and terminated by the electrical contractor.

ES - Electric Strike: Electric door strike shall be mounted on the door frame, supplied and installed by the door hardware contractor, wired and terminated by the electrical contractor with a required 12V version. In doors equipped with handicapped operators, whereas the operator has the capability of providing power to an Electric strike, the voltage of the strike needs to be determined from Handicap operator product literature.
ELCK - Electrified Lock: Electrified lockset complete with integrated door contacts and RTE(EX), mounted on door, supplied and installed by door hardware contractor, wired and terminated by the electrical contractor. Electrified locks available in 12V or 24V. The 12V version shall be preferred as the Heartland system operates at 12V. When requiring 24V electrified locks, a separate 24V power supply must be installed.

ELCH - Electric Latch Retraction: Electric latch retraction complete with RTE(EX), mounted on door, supplied and installed by door hardware contractor, wired and terminated by the electrical contractor. A separate power supply must be provided as per the manufacturers door hardware specifications and installed with the distance limitations as per specification.

Elevator control sequence - Floor Tracking: Limits access to specific floors and tracks personnel’s travel throughout facility.

Elevator control sequence - Restricted USER Access: Limits access to elevator for authorized personnel and does not prevent floor to floor access on any restricted floors. A simple system to ensure only authorized personnel use the elevator and have full access to the facility.

Heartland Elevator Controller: A device manufactured specifically for elevator card access function.

HID - HID Proximity Reader: Proximity card reader equal to HID 5455 BGN00 mounted on a single gang backbox flush wall mounted at 42" A.F.F., supplied, installed, wired and terminated by the electrical contractor. Where requiring mullion mount, proximity card reader shall be equal to HID 6005 BGB00. Typical device used for most interior doors as per application guidelines Part 3.

HID/PIN - HID Proximity Reader with PIN pad: Combination proximity card reader complete with integrated PIN pad, HID 5355 AGK 00 (Must be 4 bit output keypad type) mounted on a single gang backbox flush wall mounted at 42" A.F.F., supplied, installed, wired and terminated by the electrical contractor. As per guidelines, the HID/PIN pad must be installed on all exterior card reader doors. Please see part 3 of application guidelines.

IDH MAX - BEST IDH Max Lockset: Electrified lockset complete with integrated HID Prox card reader, door contacts and RTE(EX), mounted on door, supplied and installed by door hardware contractor, wiring and termination by the electrical contractor. The IDH MAX comes complete with an interface card to be mounted in the door access control junction box.

JB - Junction Box: Similar to a 10"x10"x6" Hoffman Cat. # AA-10N106, mounted within 6" of the underside of the ceiling in accessible ceiling space on "secure" side of door. In areas without ceilings, the junction box shall be installed 8'-0" to the bottom of the junction box. Maximum cable length between junction box and card reader shall be 15'-0". Provide and install a #6awg insulated copper bonding conductor from junction box to nearest bond bus.

Multi Door Controller: Heartland Door access multi door controller, supplied by the owner, installed, wired and terminated by the electrical contractor. Termination point for all Remote I/O
units in the field. Each multi-door controller is capable of controlling or monitoring 8, 16, 24 or 32 doors, depending on configuration.

**Remote IO:** Heartland Door access remote interface board installed in the door access control junction box. Remote IO is supplied by the owner, installed, wired and terminated by the electrical contractor. Termination point for all Remote I/O units in the field. Each multi-door controller is capable of controlling or monitoring 8, 16, 24 or 32 doors, depending on configuration.

**RTE(EX) - Request to Exit in Exit Device:** Request to exit device integral to the door hardware exit device or electrified lock. Wiring and termination by the electrical contractor.

**RTE(IR) - Infrared Request to Exit Device:** Infrared Request to Exit device equal to Kantech T.Rex Series, Cat. No. T.TREX-LT2 complete with T-REX-PLATE for mounting over a standard device box, supplied, installed, wired and terminated by the electrical contractor. Device to be mounted above the door frame opposite the latch side of the door as per the manufacturer's recommendations. Coordinate the exact location with site conditions.

**SSV- Security system video:** The term used to identify the network of IP video devices and cameras throughout campus.

**PB - Barrier Free Door Operator Push Button:** Barrier free door operator push button, supplied and installed by the door hardware contractor, wired and terminated by the electrical contractor at 36" A.F.F.

**P/S - Power Supply:** Power supply for electrified locks, electric latches, electric strikes, and door hold open device. Supplied by the door hardware contractor, installed, wired and terminated by the electrical contractor. In facilities equipped with emergency power, all power supplies to be fed from an emergency source.

**P/S (Heartland) - Heartland Power Supply:** Door access control power supply complete with battery backup will be supplied by the owner and installed, wired, and terminated by the electrical contractor. In facilities equipped with emergency power, all power supplies to be fed from an emergency source.

**DOOR ACCESS CONTROL:**

1. **Door Access Control:** For new construction, the door access control system shall be based on the "Heartland" electronic door control system consisting of the following components:
   
   1.1. **Multi Door Controllers:** Each multi-door controller is capable of controlling or monitoring 8, 16, 24 or 32 doors, depending on configuration. Typically, there would be a multi-door controller installed on each level of the building. The multi-door controllers shall be installed in the communication rooms serving the respective floor. At each multi-door controller, provide the following:
1.1.1. One FT4 rated Cat. 6 cable (Blue) from the data patch panel to a surface mount data outlet located within 12" of the multi-door controller. If this cable passes through a return air plenum system, this cable shall be rated FT6 as per the NBCC.

1.1.2. Two FT4 rated Cat. 6 cables (yellow) from the Heartland BIX field location in the main communication room to the multi-door controller. Leave 10' slack cable at the Heartland BIX field location and 3' at the door controller location for future termination by the owner. If these cables pass through a return air plenum system, these cables shall be rated FT6 as per the NBCC.

1.2. **Remote I/O units**: installed in the door access control junction box and powered from multi door controller. Refer to standard wiring diagrams for specific details on wiring requirements.

1.3. **Power Supplies**:

1.3.1. **Multi door controllers**: require a separate power supply (P/S (Heartland)). The Heartland system uses a central 12V power supply complete with battery backup suitable for most needs. These power supplies shall be hardwired to a dedicated 120V circuit (emergency power when available) and mounted adjacent to the multi door controller.

1.3.2. **Door Hold Open Device**: The system shall be wired and terminated with a low Voltage DC standalone power supply located in proximity to the hold open device; installed by the electrical contractor.

1.3.3. **ES - Electric Strike**: requires a separate power supply. A 12V DC version is preferred for all applications with the intent to utilize a central power supply. This central power supply is typically installed adjacent to the multi door controller power supply. In doors equipped with handicapped operators, whereas the operator has the capability of providing power to an Electric strike, the voltage of the strike needs to be determined from Handicap operator product literature.

1.3.4. **ELCK - Electrified Lock**: requires a separate power supply. A 12V DC version is preferred for all applications with the intent to utilize a central power supply. This central power supply is typically installed adjacent to the multi door controller power supply. When 24V electrified locks are required, a separate 24V central power supply must be installed.

Note: Item 1.1.3 and 1.3.4 can be fed from the same central power supply unit, provided the overall Amp hour requirements are properly calculated and unit sized correctly.

1.3.5. **ELCH - Electric Latch Retraction**: A separate power supply must be provided as per the manufacturer’s door hardware specifications with assurance it is installed within the distance limitations as per specification.
1.4. **Media Converter, 10 Channel Repeater, Heartland BIX Field:** Space is to be provided in the main communication room for the Heartland BIX Field, 10 Channel repeater and media converter - all supplied, installed and terminated by the owner. Identify the locations of these devices in the communication room. All yellow multi door controller backbone cables shall run to the Heartland BIX field with 10' slack cable left for owner terminations. Cabling and terminations between the Heartland BIX field and the repeater and from the repeater to the media converter are by the owner. Dalhousie Network and Systems shall provide and install a fiber patch cord from the fiber switch to the media converter.

1.5. **Junction Box complete with Remote IO, Signal Concentrator; Specific Door devices:** At each door tied to the multi door controller, install a 10" x 10" x 6" junction above the door on the secure side with a minimum a Belden Cat. No. 8446 cable run. Refer to Appendix "A" for typical door control details for additional information on components, locations and cabling requirements.

1.6. **Wiring / Cabling:** Wiring and cabling for the door access control system shall be installed on a raceway system consisting of wire basket tray and/or J-hooks in accessible ceiling space and EMT conduit where run concealed in inaccessible ceiling areas such as drywall ceilings or bulkheads. Where the door access control cables are installed in a wire basket shared with communication cables, they shall be bundled together with Velcro cable wraps and identified as door access control cables.

1.7. **Barrier free door operators:** when installed on exterior doors, the operator shall be tied into the card access system controller to prevent damage to the motor. When the door has been locked, the outside barrier free operator button shall be disabled. Upon presentation of the proper credentials, the door access control system shall enable the outside door operator button for 5 seconds. Upon activation of the barrier free operator pushbutton, the door will open. After 5 seconds, the outside door operator button shall once again be disabled.

1.7.1. **Sequence:** Upon presentation of the proper credentials, the door access control system shall enable the outside door operator button for 5 seconds. Once the barrier free operator pushbutton is activated, the door will open. After 5 seconds, the outside door operator button is once again disabled.
1.8. **Card access control in an elevator cab:** The elevator controls must have the ability to accept external inputs (i.e. dry contacts) from the Heartland Elevator Controller and shall also send a signal back to the Heartland Elevator Controller via dry contacts.

1.8.1. **Elevator control sequence -Floor Tracking (preferred):** The elevator floor selection buttons shall be interlocked with the Heartland elevator controller. When the occupant pushes a floor selection button, the elevator controller sends an output signal (dry contact) to the Heartland Elevator Controller indicating a request to travel to the specific selected floor. The Heartland system will then check the user credentials. If the user has permission to travel to the selected floor, the Heartland Elevator Controller will send a signal (dry contact) to the elevator controller via the Heartland I/O device thus enabling the floor selection and allowing the user to travel to the selected floor. If the user does not have permission to travel to the selected floor, the floor selection times out through the elevator controller and the elevator remains stationary.

1.8.2. **Option #2, Elevator control sequence-Restricted USER Access:** The elevator floor selection buttons shall be interlocked with the Heartland elevator controller. Certain facilities may be configured to restrict access to all or specific floors through the elevator. When the occupants provides credentials requesting to travel, the Heartland system checks the user credentials. If the user has permission to travel to the selected floor, the Heartland elevator Controller will send a signal (dry contact) to the elevator controller via the Heartland I/O device thus enabling the floor selection and allowing the user to travel to the selected floor. This configuration does not prevent users from accessing other restricted floors.

1.9. **Card access control at the elevator call button** (hallway or elevator lobby): The elevator must have the ability to accept external inputs (i.e. dry contacts) from the Heartland Door Controller. The elevator call buttons will be disabled until proper credentials have been presented at the card reader mounted in each of the elevator lobbies.

1.9.1. **Sequence:** When a user presents credentials at the reader, the IO sends them to the Heartland Door Controller. The Heartland system checks the credentials. If the user has permission to use the elevator from that floor, the Heartland Door Controller will send a signal to the elevator controller via the I/O device enabling the elevator call button and will call the elevator. The elevator call button shall light up to indicate to the user that the elevator has been called. If the user does not have permission to use the elevator, the floor selection remains disabled and the elevator remains stationary.
1.10. **Symbols and definitions:** For consistency, all definitions, acronyms and legends contained within this document must be utilized in all related door access control system documents or drawings supplied as part of any construction process.

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**SECURITY SYSTEM VIDEO SYSTEM:**

2. **Security System Video System:**

2.1. The Security System Video System shall consist of the following components:

2.1.1. IP Based, Power Over Ethernet (POE), fixed and Pan-Tilt-Zoom (PTZ) type cameras compatible for use with Dalhousie’s Security System Video System. Coordinate with the project manager on a case by case basis.

2.1.2. Network Video Recorder (NVR)

2.1.3. Uninterruptible Power Supply (UPS)

2.1.4. Secure SSV rack to house the NVR and UPS.

2.2. **Cameras:** Ceiling mounted shall be the preferred location for interior cameras; however, wall mounted cameras will be acceptable in areas with obstructions or no ceilings. Cameras shall be IP Based with Power Over Ethernet (POE). The cameras shall use HTTP over port 80 or RSTP over port 80 but not over multiple ports. The video format shall be H.264. Cameras shall be compatible with Dalhousie Security System Video System. Coordinate compatible cameras during the project design basis with the Project Manager.

2.2.1. Fixed type interior cameras - ceiling mounted: Ceiling mounted, interior fixed type cameras shall be fixed dome cameras.

2.2.2. Fixed type interior cameras - wall mounted: Wall mounted, interior fixed type cameras shall be complete with wall mount bracket. Mount camera at 8'-0" A.F.F. to the bottom of the dome unless indicated otherwise.

2.2.3. PTZ type interior cameras - ceiling mounted: Ceiling mounted, interior PTZ type cameras shall be, Pan-Tilt-Zoom (PTZ) dome drive camera, complete with suspended ceiling installation kit.

2.2.4. PTZ type interior cameras - wall mounted: Wall mounted, interior PTZ type cameras shall be Pan-Tilt-Zoom (PTZ) dome drive camera, complete with wall mount and integral 120/24V transformer.

2.2.5. PTZ type exterior cameras - wall mounted: Wall mounted, exterior PTZ type cameras shall be Pan-Tilt-Zoom (PTZ) dome drive camera, stainless steel environmental pendant style complete with heater, fan and sun shield. Provide and install a heavy duty stainless steel mount. Camera shall be supplied complete with a 100VA, 120/24V remote power supply installed in a NEMA 1 enclosure for the dome drive. Mount camera at 12'-0" A.F.F. unless indicated otherwise.
2.3. **SSV Rack:** The SSV rack shall be equal to Middle Atlantic Cat No. EWR-8-22SD complete with Middle Atlantic FC-4-1C Fan Controller, two (2) Middle Atlantic Guards, two (2) Middle Atlantic Fan (4-1/4", 105 CFM). The rack will be supplied by the owner, received and installed by the contractor. Provide and install, within the rack enclosure, two duplex CSA5-20R receptacles fed from a dedicated 20A circuit, one data jack complete with Cat. 6 (Blue) cable back to the data patch panel for the UPS and one data jack complete with Cat. 6 (Blue) cable back to the data patch panel for each NVR system installed in the rack.

2.4. **Uninterruptible Power Supply (UPS):** The UPS shall be equal to Minuteman Cat No. E1000RM2RU complete with Minuteman SNMP-NET (NIC CARD), Part Number 90000716. The rack will be supplied by the owner, received and installed by the contractor. Connect the UPS into the receptacle in the SSV rack and provide and install a Cat. 6 patch cord to connect into the Dalhousie Network. The UPS shall be complete with rack mount adapters.

2.5. **Network Video Recorder (NVR):** The SSV NVR shall be supplied and installed by the owner. Exact requirements for the NVR shall be coordinated during the project design basis with Dalhousie University Facilities Management. The electrical contractor shall provide and install a Cat. 6 patch cord between each NVR and the corresponding data jack.

2.6. **Cabling Requirements:** At each camera location, provide and install a data jack complete with a blue Cat. 6 communication cable back to the respective floor data patch panel. In addition to the Cat. 6 cable, for PTZ type cameras provide and install 2#16LVT from the 24V power supply to the camera for the dome drive. Exterior cameras with dome heaters require an additional 120V power supply.

2.7. Refer to Appendix "B" for a typical SSV camera details.

**INTRUSION ALARM SYSTEM:**

3. **Intrusion Alarm System:**

3.1. The Intrusion Alarm System shall be based on a DSC Maxsys system. The Intrusion Alarm System shall consist of a complete end to end system consisting of raceways, backboxes, cabling, devices, termination and testing all supplied and installed by the electrical contractor.

3.2. The intrusion alarm system shall consist of the following components:

3.2.1. DSC Maxsys Model #PC4020 control panels complete with TL250 T-Link alarm communicator, batteries, and alarm output to Dalhousie Security via Simplex MapNET interface.

3.2.2. Zone Expander: DSC Maxsys Model #PC4108A 8 hardwire zone expanders (16 zone expanders will not be acceptable)

3.2.3. Output Module: DSC Maxsys #PC4216 Low Current Output Modules complete with 16 programmable outputs.

3.2.4. Power Supply / Relay Output / Combus Repeater Module: Maxsys PC4204CX

3.2.5. Relay Board: DSC RL4-LC Low Current 4 Relay Board

3.2.7. Motion detectors: Equal to DSC #BV-601 motion detectors, ceiling or wall mount, complete with built-in tamper switch and wall or ceiling mount as required (based on site conditions).

3.2.8. Door contacts: Equal to Sentrol #SR-1078 series concealed 1” door contacts for man doors.

3.2.9. PC-TAB Security Sensor: Computer Security Products Inc. #PCT-SNSR.2 complete with connecting wires, RJ-11 adapter and EOL terminators to make a complete system. PC-Tab bases shall be epoxied in place. Coordinate exact location on equipment with the Dalhousie Project Manager.

3.2.10. Signal horns: DSC #SD15W Siren

3.2.11. Signal strobes: DSC #F34K Amber Warning Strobe

3.3. The main intrusion alarm panel shall be installed in the main communication room. If not requiring an intrusion alarm in the building at the time of construction, the design shall allow space in the main communication room for two 24"W x 30"H custom intrusion alarm panels.

3.4. Provide 4" backboxes adjacent these panels for mounting low voltage power supplies. The boxes may be powered from one dedicated circuit.

3.5. Provide two data jacks adjacent to the main intrusion alarm panels.

3.6. Zone expanders or additional intrusion alarm panels shall be mounted in the sub-communication rooms. If there is no requirement for intrusion alarm in the building at the time of construction, allow space for two 12" x 12" custom security panels.

3.7. Provide 4" backboxes adjacent to the panels in the sub-communication room for mounting low voltage power supplies. The boxes may be powered from one dedicated circuit.

3.8. Device description and associated wiring:

3.8.1. Motion Sensors: Infrared motion sensors shall be mounted at 8'-0" A.F.F., preferably at or near the corner of the room. Provide and install a single gang backbox complete with grommeted stainless steel coverplate at 8'-0" A.F.F.. Motion sensors shall be fed with a four conductor #22AWG unshielded cable. Motion sensors shall have a dedicated home run to the intrusion alarm panel.

3.8.2. Door Contacts: Magnetic door contact shall be flush mounted in door frame at top of door. Provide a 1" diameter hole in door frame for installation of door contacts. Where monitoring the by the access control system, a second set of contacts or a two pole version of the single 1" diameter contact shall be required. The owner's prefer to have only one door contact device installed at the top of the door. Coordinate with Dalhousie Facilities Management. Standard intrusion alarm door contacts shall be fed with a four conductor #22AWG unshielded cable. Each door shall have a dedicated home run back to the intrusion alarm panel.

3.8.3. Strobe: Provide and install a single gang backbox, flush ceiling mounted outside of the monitored space, generally at the door near the keypad. Alarm strobes shall be fed with a two conductor #18AWG unshielded cable equal to Belden Cat. No. 8461.
3.8.4. Siren: Provide and install a single gang backbox, flush ceiling mounted inside of the monitored space, generally above the keypad. Alarm sirens shall be fed with a two conductor #18AWG unshielded cable equal to Belden Cat. No. 8461.

3.8.5. PC Tab: For floor, desk or wall mounted equipment (monitors, computers, AV equipment, etc.) provide and install a single gang backbox at 18" A.F.F.. For ceiling mount applications (overhead projector), the single gang backbox shall be flush ceiling mounted. PC Tabs shall be fed with a four conductor #22AWG unshielded cable. Each PC Tab grouping (podium, ceiling projector, computer lab row of desks, etc.) shall have a dedicated home run back to the intrusion alarm panel location. Each home run for PC Tabs shall have a maximum of 10 PC Tabs for the home run.

3.8.6. Alarm Keypad: Provide and install a single gang backbox, flush wall mounted at 48" A.F.F. in an accessible location within the monitored space. Feed with a four conductor #22AWG unshielded cable. A global keypad shall be installed at the building main entrance to assist security personnel with locating an alarm condition as they enter the building.

3.9. All zones shall be complete with double end-of-line terminations

3.10. The main panel for the building security system shall be connected to Dalhousie Security via a Simplex Mapnet interface. The monitoring shall be full 24 hour monitoring and shall include a complete indication of all alarms. Provide the necessary modules in the panel to interface with Dalhousie Security. Supply of Simplex Devices and final termination shall be by Dalhousie Facilities Management. Co-ordinate the installation of the same with Dalhousie Facilities Management.

3.11. The system shall include a complete programming package and all necessary software to implement the system features. Access to the programming shall be via restricted levels of security. Coordinate the programming of the system with Dalhousie Facilities Management.

3.12. Each partition has its own strobe by its associated main keypad and visible by security. Sirens shall be setup at each partition unless a siren can serve multiple partitions close together. Each partition has its own keypad or multiple keypads.

3.13. All MAXSYS panels shall be connected with a TLink board and a network connection to allow for updates and monitoring from DLS software.

3.14. RL4 relays shall be used to tie outputs into the input board from the 4216 which controls the siren and strobes.

3.15. Refer to Appendix "C" for a typical intrusion alarm riser
APPENDIX A - DOOR ACCESS CONTROL DETAILS:
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NOTES:
Consult with Dalhousie Electrical Planning Engineer and Technical Trades and Service Manager for any questions regarding access control and security guidelines.

PROJECT:
ACCESS CONTROL AND SECURITY GUIDELINES

C.P. #
W.O. #
PROJECT MANAGER:

SCALE:

DRAWING:

DRAWN BY:
DATE: 24/10/2016
NOT FOR CONSTRUCTION

DAC-1
TYPICAL DOOR ACCESS CONTROL RISER

NOTES:
Consult with Dalhousie Electrical Planning Engineer and Technical Trades and Service Manager for any questions regarding access control and security guidelines.

PROJECT:
ACCESS CONTROL AND SECURITY GUIDELINES

C.P. #
W.O. #
PROJECT MANAGER:
SCALE:
DRAWN BY: 24/10/2016
NOT FOR CONSTRUCTION

DAC-2
CABLES TO DOOR CONTROLLER IN COMMUNICATION ROOM. ROUTE CABLES ON WIRE BASKET AND J-HOOKS IN ACCESSIBLE CEILING SPACE.

### Exterior Main Entrance with Card Access, Barrier Free and Push/Pull Operation During Daytime Hours

**Notes:**
Consult with Dalhousie Electrical Planning Engineer and Technical Trades and Service Manager for any questions regarding access control and security guidelines.

**Project:**
Access Control and Security Guidelines

**Drawing:**

**C.P. #**

**W.O. #**

**Project Manager:**

**Scale:**

**Drawn By:**

**Date:** 24/10/2016

**Not for Construction**

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**DALHOUSSIE UNIVERSITY**

**Inspiring Minds**

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U:\EVERYONE\CAD MANAGEMENT\ANDREW\LOGAN\ACCESS CONTROL\16.10.21 NEW PLANS.DWG
CABLES TO DOOR CONTROLLER IN COMMUNICATION ROOM.
ROUTE CABLES ON WIRE BASKET AND J-HOOKS IN
ACCESSIBLE CEILING SPACE.

#6 BOND

TO 120V CIRCUIT

1/2" C's

EXTERIOR SECONDARY ENTRANCE WITH CARD
ACCESS AND PUSH/PULL OPERATION DURING
DAYTIME HOURS

NOTES:
Consult with Dalhousie Electrical Planning Engineer and Technical
Trades and Service Manager for any
questions regarding access control
and security guidelines.

PROJECT:
ACCESS CONTROL AND
SECURITY GUIDELINES

C.P. #
W.O. #
PROJECT MANAGER:
SCALE:
DRAWN BY:
DATE: 24/10/2016
NOT FOR CONSTRUCTION

DAC-4
CABLES TO DOOR CONTROLLER IN COMMUNICATION ROOM.
ROUTE CABLES ON WIRE BASKET AND J-HOOKS IN ACCESSIBLE CEILING SPACE.

#6 BOND
TO 120V CIRCUIT

1/2" C's

EXTERIOR ENTRANCE WITH PUSH/PULL OPERATION DURING DAYTIME HOURS

NOTES:
Consult with Dalhousie Electrical Planning Engineer and Technical Trades and Service Manager for any questions regarding access control and security guidelines.

PROJECT:
ACCESS CONTROL AND SECURITY GUIDELINES

C.P. #
W.O. #
PROJECT MANAGER:
SCALE: 1/2" = 1'-0"
DRAWN BY:
DATE: 24/10/2016
NOT FOR CONSTRUCTION

DAC-5
CABLES TO DOOR CONTROLLER IN COMMUNICATION ROOM.
ROUTE CABLES ON WIRE BASKET AND J-HOOKS IN ACCESSIBLE CEILING SPACE.

#6 BOND

EXTERIOR DOOR — EXIT ONLY

NOTES:
Consult with Dalhousie Electrical Planning Engineer and Technical Trades and Service Manager for any questions regarding access control and security guidelines.

PROJECT:
ACCESS CONTROL AND SECURITY GUIDELINES

DRAWING:

C.P. #
W.O. #
PROJECT MANAGER:
SCALE: 1/2" - 1' - 0"
DRAWN BY:
DATE: 24/10/2016

DALHOUSIE UNIVERSITY
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DAC-6
CABLES TO DOOR CONTROLLER IN COMMUNICATION ROOM. ROUTE CABLES ON WIRE BASKET AND J-HOOKS IN ACCESSIBLE CEILING SPACE.

INTERIOR FIRE RATED ENTRANCE WITH CARD ACCESS, BARRIER FREE AND PUSH/PULL OPERATION DURING DAYTIME HOURS

NOTES:
Consult with Dalhousie Electrical Planning Engineer and Technical Trades and Service Manager for any questions regarding access control and security guidelines.

PROJECT:
ACCESS CONTROL AND SECURITY GUIDELINES

C.P. #

W.O. #

PROJECT MANAGER:
SCALE: 1/2" - 1'-0"

DRAWING:
DRAWN BY:
DATE: 24/10/2016
NOT FOR CONSTRUCTION

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DAC-7
INTERIOR FIRE RATED ENTRANCE WITH CARD ACCESS AND PUSH/PULL OPERATION DURING DAYTIME HOURS
INTERIOR ENTRANCE WITH CARD ACCESS AND PUSH/PULL OPERATION DURING DAYTIME HOURS

NOTES:
Consult with Dalhousie Electrical Planning Engineer and Technical Trades and Service Manager for any questions regarding access control and security guidelines.

PROJECT:
ACCESS CONTROL AND SECURITY GUIDELINES

C.P. #
W.O. #
PROJECT MANAGER:
SCALE: 1/2" = 1'-0"
DRAWN BY:
DATE: 24/10/2016
NOT FOR CONSTRUCTION

DAC-9
CABLES TO DOOR CONTROLLER IN COMMUNICATION ROOM.
ROUTE CABLES ON WIRE BASKET AND J-HOOKS IN ACCESSIBLE CEILING SPACE.

TO LOCK POWER SUPPLY

1/2"C C/W
4 #18 AWG SHIELDED

NOTE: BOTH REQUEST TO EXIT AND DOOR CONTACT INTEGRATED INTO LOCK. DOOR HARDWARE CONSULTANT SHALL ENSURE THAT DOOR IS PREPARED FOR ELECTRIFIED HINGE.

INTERIOR DOOR WITH SELF CONTAINED ELECTRIFIED LOCK, DC AND RTE(EX)
CABLES TO DOOR CONTROLLER IN COMMUNICATION ROOM.
ROUTE CABLES ON WIRE BASKET AND J-HOOKS IN ACCESSIBLE CEILING SPACE.

NOTE: BOTH REQUEST TO EXIT AND DOOR CONTACT INTEGRATED INTO LOCK. DOOR HARDWARE CONSULTANT SHALL ENSURE THAT DOOR IS PREPARED FOR ELECTRIFIED HINGE.

INTERIOR DOOR WITH ELECTRIFIED LOCK,
INTEGRATED DC AND RTE(Ex)
CABLES TO DOOR CONTROLLER IN COMMUNICATION ROOM. ROUTE CABLES ON WIRE BASKET AND J-HOOKS IN ACCESSIBLE CEILING SPACE.

TO LOCK POWER SUPPLY

#6 BOND

1/2" C's

INTERIOR DOOR WITH CARD ACCESS, ELECTRIC STRIKE RTE (EX) MOTION AND DC

NOTES:
Consult with Dalhousie Electrical Planning Engineer and Technical Trades and Service Manager for any questions regarding access control and security guidelines.
BOTH POWER SUPPLY AND HEARTLAND ELEVATOR CONTROLLER SHALL BE MOUNTED IN ACCESSIBLE CEILING SPACE.

ELECTRICAL CONTRACTOR SHALL CONNECT POWER SUPPLY BATTERY BACKUP WITHIN THE POWER SUPPLY.

120V C/T.

CABLE BACK TO DOOR ACCESS CONTROL BIX FIELD MOUNTED IN COMMUNICATION ROOM.

BLUE CAT 6 TO DATA PATCH PANEL

NOTES:
1. WIRING FROM I/O TO ELEVATOR CONTROLLER BY ELECTRICAL CONTRACTOR. TERMINATIONS AT ELEVATOR CONTROLLER BY ELEVATOR MANUFACTURER. COORDINATE WITH ELEVATOR MANUFACTURER.
2. ALL OTHER WIRING AND TERMINATIONS BY ELECTRICAL CONTRACTOR.
3. ALL DEVICES TO BE MOUNTED IN ACCESSIBLE CEILING SPACE. COORDINATE FINAL CONNECTIONS WITH ELEVATOR MANUFACTURER.
4. COORDINATE PROGRAMMING WITH BOTH ELEVATOR MANUFACTURER AND OWNER.

SEQUENCE OF OPERATION
1. ELEVATOR CAB FLOOR BUTTON IS PRESSED.
2. ELEVATOR SIGNALS THE CARD SYSTEM WITH A MOMENTARY DRY CONTACT OUTPUT TO THE CORRESPONDING FLOOR 10 (HEARTLAND).
3. USER PRESENTS THEIR CARD.
4. CARD CREDENTIALS FOR REQUESTED FLOOR ARE ACCESSED BY THE HEARTLAND SYSTEM.
5. IF CARD FAILS, THEN NOTHING IS SENT TO THE ELEVATOR.
6. IF CARD PASSES THEN HEARTLAND SYSTEM SIGNALS THE ELEVATOR WITH A DRY CONTACT MOMENTARY OUTPUT FROM THE CORRESPONDING FLOOR TO 10 (HEARTLAND).
7. ELEVATOR BUTTON LIGHTS AND CAB TRAVELS TO THE ACCESS GRANTED FLOOR.

NOTES:
Consult with Dalhousie Electrical Planning Engineer and Technical Trades and Service Manager for any questions regarding access control and security guidelines.

PROJECT:
ACCESS CONTROL AND SECURITY GUIDELINES
DRAWING:

C.P. #
W.O. #
PROJECT MANAGER:
SCALE:
DRAWN BY:
DATE: 24/10/2016
NOT FOR CONSTRUCTION

DAC-14

DALHOUSIE UNIVERSITY
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CABLES TO DOOR CONTROLLER IN COMMUNICATION ROOM.
ROUTE CABLES ON WIRE BASKET AND J-HOOKS IN ACCESSIBLE CEILING SPACE.

1. WIRING FROM I/O TO ELEVATOR CONTROLLER BY ELECTRICAL CONTRACTOR. TERMINATIONS AT ELEVATOR CONTROLLER BY ELEVATOR MANUFACTURER. COORDINATE WITH ELEVATOR MANUFACTURER.

2. ALL OTHER WIRING AND TERMINATIONS BY ELECTRICAL CONTRACTOR.

3. ALL DEVICES TO BE MOUNTED IN ACCESSIBLE CEILING SPACE. COORDINATE FINAL CONNECTIONS WITH ELEVATOR MANUFACTURER.

4. COORDINATE PROGRAMMING WITH BOTH ELEVATOR MANUFACTURER AND OWNER.

SEQUENCE OF OPERATION

NOTES:
Consult with Dalhousie Electrical Planning Engineer and Technical Trades and Service Manager for any questions regarding access control and security guidelines.

PROJECT:
ACCESS CONTROL AND SECURITY GUIDELINES

C.P. #
W.O. #

PROJECT MANAGER:
SCALE:

DRAWING:
DRAWN BY: DATE: 24/10/2016
NOT FOR CONSTRUCTION

DALHOUSIE UNIVERSITY
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DAC-15
APPENDIX B SECURITY SYSTEM VIDEO SYSTEM DETAILS:
CAT 6 MDVO MOUNT WITHIN THE 4.11/16" SQUARE BACKBOX.

TYPICAL INTERIOR CEILING DOME CCTV CAMERA SUPPORT SYSTEM

SCALE : N.T.S.
TYPICAL INTERIOR CEILING DOME DRIVE (PTZ) CCTV CAMERA SUPPORT SYSTEM

SCALE: N.T.S.
TYPICAL INTERIOR WALL MOUNT FIXED
DOME CCTV CAMERA SUPPORT SYSTEM

CAT 6 CABLE TO DATA PATCH PANEL

4.11/16" SQUARE BACKBOX C/W
SINGLE GANG TILE RING FLUSH WALL
MOUNTED 8" ABOVE CAMERA MOUNT
BRACKET. PROVIDE AND INSTALL A
BLANK STAINLESS STEEL
COVERPLATE.

CAT-6 MDVO MOUNTED ON CABLE.

CAT 6 CABLE, BLUE

WALL MOUNT BRACKET

FIXED DOME CAMERA

SCALE : N.T.S.

NOTES:

PROJECT: CCTV GUIDELINES

DRAWING: WALL MOUNTED DOME, FIXED

SCALE: NTS

DATE: NOV, 2012

DRAWN BY: TRP

REV. 2

FILE NAME: 

DALHOUSIE UNIVERSITY

Inspiring Minds

CCTV-3
TYPICAL INTERIOR WALL MOUNT DOME DRIVE (PTZ) CCTV CAMERA SUPPORT SYSTEM

SCALE: N.T.S.
CAT.6 CABLE (BLUE) TO DATA PATCH PANEL.

4.11/16" SQUARE JUNCTION BOX IN ACCESSIBLE CEILING SPACE. MOUNT CAT.6 MVDO INSIDE JUNCTION BOX.

2#12+12 BOND – 1/2°C TO 120V CCT.

HEAVY DUTY STAINLESS STEEL WALL MOUNT BRACKET

STAINLESS STEEL DOME C/W HEATER

CONDUIT SLEEVES

TYPICAL OUTDOOR WALL MOUNT DOME
CCTV CAMERA SUPPORT SYSTEM

SCALE: N.T.S.
TYPICAL OUTDOOR WALL MOUNT DOME
CCTV CAMERA SUPPORT SYSTEM WITH PTZ

SCALE: N.T.S.

NOTES:

PROJECT: CCTV GUIDELINES

SCALE: NTS

DATE: MAY, 2012

DRAWING: OUTDOOR WALL MOUNTED DOME WITH PTZ

FILE NAME: CCTV-6

DRAWN BY: TRP

REV.: 1
APPENDIX C - INTRUSION ALARM DETAILS:
 ELECTRICAL LEGEND

SECURITY KEYPAD FLUSH WALL MOUNTED AT 46" A.F.F..

CONCEALED DOOR CONTACT FOR INTRUSION ALARM SYSTEM

INTRUSION ALARM MOTION SENSOR FLUSH WALL MOUNTED AT 8'-0" A.F.F..

PC TAB SECURITY DEVICE, CEILING MOUNT OR FLUSH WALL MOUNTED 18" A.F.F..

INTRUSION ALARM HORN, WALL MOUNTED 7'-6" A.F.F..

INTRUSION ALARM STROBE, WALL MOUNTED 7'-6" A.F.F..

BELDEN #8461 (2 CONDUCTOR #18AWG, JACKETED) OR EQUIVALENT.

BELDEN #9418 (4 CONDUCTOR #18AWG, JACKETED) OR EQUIVALENT.

PROVO #2422NR-WH (4 CONDUCTOR #22AWG, JACKETED) OR EQUIVALENT.

NOTES:
Consult with Dalhousie Electrical Planning Engineer and Technical Trades and Service Manager for any questions regarding access control and security guidelines.
Consult with Dalhousie Electrical Planning Engineer and Technical Trades and Service Manager for any questions regarding access control and security guidelines.
Provide and install a 12"x12" box in basement communication room. Coil 6' slack cable in box. Cables shall continue unbroken from the intrusion alarm panel to the Mapnet device location.

Level 1
Communication Room

Classroom

Mapnet Modules Main Electrical Room

Notes:
Consult with Dalhousie Electrical Planning Engineer and Technical Trades and Service Manager for any questions regarding access control and security guidelines.