

SECTION 28 10 00

ACCESS CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This Section covers access control and alarm monitoring systems (ACAMSs).
- B. This Section covers wiring of electric door hardware provided under Division 8.
- C. The ACAMS shall consist of workstations and a hierarchy of Mercury Access Controllers that communicate with the existing Lenel On-Guard Access head-end servers utilizing Dartmouth's TCP/IP based Ethernet network.

1.2 RELATED SECTIONS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Additional related specification sections include:
 - 1. Section 28 05 00, Common Work Results for Electronic Security.
 - 2. Section 28 05 13, Conductors and Cables for Electronic Security.
 - 3. Section 28 05 28, Pathways for Electronic Security.
 - 4. Section 28 08 00, Commissioning of Electronic Security.
 - 5. Section 28 20 00, Video Surveillance
 - 6. Section 28 31 00, Intrusion Detection

1.3 QUALITY ASSURANCE

- A. The access control system contractor, the contractor's supervisors, and technicians shall meet the qualifications as defined in Section 28 05 00, Common Work Results for Electronic Security Systems.
- B. Qualifications of the Access Control System Contractor:
 - 1. The access control system installation company shall have field office located within a 100-mile radius of the Project with a minimum of two permanently employed persons with current access control system certification directly responsible for the installation and ongoing maintenance of the project.
 - 2. Installation of the access control system shall be provided by a person or persons having completed, as a minimum, the factory training recommended by the access control system manufacturer and have direct field experience in the installation of a minimum of 3 projects of similar scope and size within the past 5 years.
 - 3. The access control system Project Manager or Project Supervisor shall have direct field experience in installing at least 3 access control systems projects of similar scope and size within the past 5 years.
 - 4. Programming and configuration of the access control system shall be provided onsite by a person or persons having completed the access control system manufacturer's highest available certification program and have direct field experience in the programming and configuration of a minimum of 3 projects of similar scope and size within the past 5 years.

5. The access control system installation company shall be listed as an authorized dealer or business partner by Lenel and shall have been listed as such for at least 3 years.
6. For all major system database reconfigurations or upgrades the access control system contractor shall engage Lenel Systems for onsite professional services for final programming and configuration of the system. The manufacturer shall certify that the systems are installed, programmed, and configured correctly and are complete and fully functional. Professional services shall be engaged for sufficient time to certify the system.

1.4 SUBMITTALS

- A. See Section 28 05 00, Common Work Results for Electronic Security for additional requirements.
- B. Action Submittals:
 1. Product Data:
 - a) Provide product data sheets for equipment and materials in PDF format.
 2. Shop Drawings:
 - a) Include site and floor plans indicating equipment locations. Plans shall include equipment identification and either direct references to wiring details for each specific installation and wiring condition or a schedule that references the same.
 - b) Wiring diagrams shall indicate proposed connections of equipment, model numbers, and designations for cables and termination points.
 - c) Provide elevations of cabinet or rack-mounted equipment, showing the location of all specified electronics and include enlarged, to scale plan (top), and front views.
 - d) Provide elevations of wall-mounted equipment, showing the location of all specified electronics and include enlarged, to scale plan (top), and front views.
 - e) Provide project specific manufacturer shop drawings of fabricated or modified units, if any.
 - f) Provide riser diagrams indicating components of the system and proposed cabling between these components.
 - g) Provide block diagrams indicating the proposed interface between the access control system and all other Enterprise Systems.
 - h) Provide detailed project specific mounting diagram for each type of device including raceway and back box requirements. These details shall be referenced in the floor plans or schedules.
 - i) Provide a detailed loading schedule for each access control system panel indicating card readers (by Door Number, card reader modules, and input/outputs (I/O) modules identifying each device connected to the I/O modules.
- C. Informational Submittals:
 1. Resumes of key personnel that document the qualifications required. Include certificate of training or certifications.
 2. As required in Section 28 05 00, Common Work Results for Electronic Security.
- D. Close-out Submittals:

1. Functional Test Reports: Provide a spreadsheet with all access control system devices and major components listed in the first column by device designator (e.g., door number) with each test parameter listed by name (or code) in the remaining columns.
2. Operations and Maintenance Documentation Package: As required in Section 28 05 00, Common Work Results for Electronic Security.
3. Instruction of Operating Personnel:
 - a) The Security Systems Performance Verification Supervisor shall schedule, coordinate, assemble and deliver the documentation of the training required by this section.
 - b) Obtain receipt from the Owner acknowledging completion of each item of instruction.
 - c) See Section 28 05 00, Common Work Results for Electronic Security for additional requirements.

PART 2 - PRODUCTS

2.1 ACCESS CONTROL AND ALARM MONITORING SYSTEMS

A. General:

1. The system (hardware and software) shall support the quantity and types of devices specified herein and indicated in the Drawings.
2. Provide the quantity and type of software licenses required to support the readers, servers, and workstations at the levels of functionality specified herein, and as indicated on the Drawings.
3. Provide spare licenses and hardware to support 25% additional reader and IO capacity. The card reader controlling the door to the space housing the controller shall be connected to the LP1502 Controller. Reader boards shall be installed on the backplane only. All IO boards shall be installed on the inside of the door. When panels reach 75% capacity (12 doors for 16-door panels, 6 doors for 8-door panels) a new panel with an LP1502 Controller shall be provided.

2.2 APPLICATION SOFTWARE

- #### A. General: the existing Lenel OnGuard access control system software shall serve as the database manager, controlling badge data, access rights, time schedules, multiple operation modes, and alarm point information.
1. Wireless Lockset Integration:
 - a) The system shall support the integration of battery-operated wireless locksets with the security management system.
 - b) Once a lockset is installed and registered with the controller, it shall function in the security application as an access-controlled door.
 - c) It shall be possible to set configuration options for a wireless lockset to change its call-in and lockout behaviors.
 - d) It shall be possible to specify special-use formats for access cards to be used with wireless locksets.
 - e) The wireless lockset shall be able to send high priority events to the controller.
 - f) The system shall support low battery monitoring of the wireless lockset.

- g) It shall be possible to schedule an automatic unlock period for remote-lockset portals.
2. Graphic Maps:
- a) The ACAMS shall support graphic maps and icons to be displayed on the operator workstation monitor.
 - b) The system shall support a programmable, color graphic map display that:
 - 1) Shall be capable of showing the floor plan, the location of alarm devices, and alarm instructions for a facility.
 - 2) Shall be centralized in the system configuration and displayed on the operators' workstations.
 - 3) Shall allow various maps to be associated with different areas to create a hierarchy of maps.
 - 4) Shall support graphic maps having a resolution of 1920 x 1080 pixels or greater.
 - c) The ACAMS shall allow an update of the drawings, without additional reconfiguration.
- B. System Hardware:
- 1. Access control panels and interface boards:
 - a) Mercury LP1502 supports 2 readers, 8 inputs, and 4 outputs (preferred controller).
 - b) Mercury LP2500 Intelligent Controller board (No Onboard IO).
 - c) Mercury MR52 -S3 Reader interface board with 8 inputs and 6 outputs.
 - d) Mercury MR16IN-S3 interface panel supports 16 general-purpose input circuits.
 - e) Mercury MR16OUT-S3 interface panel provides 16 general purpose outputs as Form C relay contacts.
 - 2. The access control panel shall be housed in a unified enclosure with a Life Safety Power M-Class PS with intelligent network monitoring.
 - 3. Single Door (PoE+) Edge Network Controller:
 - a) The intelligent single door PoE edge network controller shall be the LP1501 supports 2 readers, 2 inputs, and 2 outputs provide access control processing, host functionality and power for a single door, including reader, lock, door status, request-to-exit device, and auxiliary sounder.
 - 4. The controller shall support the Security Industry Association's (SIA) Open Supervised Device Protocol (OSDP) compatible card readers.
 - 5. Manufacturer: Lenel OnGuard, with Mercury Series 3 hardware, and LifeSafety Power unified enclosure/power supply.

2.3 ACCESS CONTROL PERIPHERAL EQUIPMENT

A. Card and RFID Readers:

- 1. Card Readers:
 - a) Communication signals between the reader and the access control panel shall be encrypted and transmitted via RS-485 using the Security Industry Association's Open Supervised Device Protocol (SIA 2012 OSDP).

- b) Standard readers: HID 40.
- c) Mullion style readers: HID 20.
- d) Combination card plus PIN readers: HID 40K.
- e) Combination mullion style card plus PIN readers: HID 20K
- f) Manufacturer and Model: HID Signo smart card readers.

2.4 POWER SUPPLY EQUIPMENT

A. Power Supplies:

1. Power supplies shall be provided in a unified NEMA 1 hinged enclosure with the the control panels, reader interface boards and input/output boards.
2. Power supplies shall be Rated at 1.2 times the current draw for devices served. For door locking hardware, coordinate with the existing hardware for electrical power requirements.
3. Individually fused or PTC outputs to each device.
4. For lock power supplies provide input for connection to a UL listed fire alarm panel output, which upon initiation shall disconnect power to selectable lock outputs.
5. UL Class 2 rated outputs.
6. System Health and Performance Monitoring: Provide network interface module to allow monitoring of the following conditions and control functions:
 - a) Total System Health: Faults, output draw, battery state and temperatures.
 - b) Output Condition: Current draw, voltage level and output status.
 - c) Battery Activity: Charging current, discharge level, time to service.
 - d) Power History: AC outages, time stamped faults, and enclosure tampering
 - e) Fire Alarm activation.
 - f) Independent output control for remote reset functions
 - g) Scheduled or manual battery checks
 - h) AC loss or trouble faults.
 - i) Connected devices shall be able to be independently power cycled.
 - j) Live monitoring of status.
 - k) Remote manual battery testing.
7. Manufacturer: Life Safety Power M-Class Unified Intelligent Power Supply.

2.5 MISCELLANEOUS EQUIPMENT

A. Local door alarm:

1. Power: 12 - 24 VAC/VDC @ 250 ma. max.
2. Door header combination devices.
 - a) Kantech T-Rex #T.Rex-XL
3. Piezo only devices:
 - a) Amseco P.A.L - 328
 - b) Moose MPI47E

PART 3 - EXECUTION

3.1 GENERAL

- A. Configure field panel communications as indicated on the Drawings.
- B. Programming Requirements, Development, and Deliverables:
 - 1. Produce fill-in-the-blank forms for the Owner to solicit user input for programming the system. The questionnaires shall identify each programming item that requires user input to configure the ACAMS and recommendations for the responses. These questionnaires shall be finalized in a series of meetings with the Owner's designated agent until such time that the questionnaires are completed, and the Owner has authorized the information to be input into the ACAMS.
 - 2. The questionnaires shall include three series:
 - a) The first shall be to the Owner's IT Department for network connectivity requirements.
 - b) The second shall be dedicated to controller, alarm input and door programming, or hardware related programming and shall include:
 - 1) Controller naming schemes.
 - 2) Door and alarm input naming.
 - 3) Door unlock time and relock time.
 - 4) Door held open time.
 - 5) Door unlock and relock schedules.
 - c) The third shall be devoted to alarm responses and related interface programming with associated action and reaction requirements to include:
 - 1) External alarm signaling requirements.
 - 2) Graphic map development and door and alarm display.
 - d) The fourth shall be related to display of alarm messaging, map development and any requirements for alarm responses and reporting.
 - 3. Upon completion, the programming questionnaires and associated programming database sheets shall be included in the operation and maintenance documentation.
- C. Minimum Programming Requirements:
 - 1. Program the alarm bypass or shunt time (the time the door can remain open before an alarm event is created) for 30 seconds, unless directed otherwise by the Owner's representative.
 - 2. Program the door relock time (the time after which the door will relock unless opened) for 5 seconds, unless directed otherwise by the Owner's representative.
 - 3. Program alarm response fields, door names, and any other user-defined fields with terminology and descriptions provided by the Owner.
 - 4. Program access rights, password protection, system integration interfaces, holidays, area control, inputs and outputs, schedules, and elevator control.
- D. Graphics:
 - 1. Develop graphic maps that detail the facility and display inputs and outputs dynamically.
 - 2. Maps shall be nested according to the following levels:
 - a) Overall campus.
 - b) Building.
 - c) Floors.
 - d) Further subdivided in alarm device location.

3. Utilize AutoCAD architectural floor plans that show walls, doors, windows, room names, and room numbers.
- E. Control Panel Cybersecurity Configuration Requirements:
1. The following are minimum requirements:
 - a) Place the access control system components on a private network, in a secured enclosure, and with updated firmware matching the existing installation.
 - b) Enable HTTPS.
 - c) Remove default user login, create a unique user account with a strong password.
 - d) Add authorized IP Addresses.
 - e) Disable web service, unless specifically required for operation.
 - f) Disable discovery and SNMP services, unless specifically required for operation.
 - g) Disable unused USB and SD interfaces.
 - h) Enable AES or TLS encryption.
 - i) Provide additional configuration changes per manufacturer's requirements.
 2. Provide report manufacturer's certification that cybersecurity requirements have been met.
- F. System Integration and Interfaces:
1. Upon an alarm condition or event to include but not limited to, an access point, duress button or other alarm input, intercom call, emergency phone call, the ACAMS shall cause the video surveillance system to:
 - a) An alarm event message shall be transmitted to the associated workstations or consoles causing an audible and visual alarm signal.
 - b) Where a local door sounder is adjacent to the door, it shall be activated until reset at the workstation or console.
 - c) A graphical representation of the alarm scene (site or floor plan) with icons representing the open door, video camera, and other local devices shall be displayed on the graphical user interface (GUI). Icons representing active devices shall change color to indicate their state change (inactive to active).

3.2 MISCELLANEOUS EQUIPMENT

- A. Fire/Life Safety Interface:
1. Locking devices controlling emergency exits connected to the building fire alarm system, if locked in the direction of egress, shall unlock upon initiation of an alarm signal at the building fire alarm control panel or upon loss of primary power to the building.
 2. The use of battery or emergency power shall not be used to keep emergency exits locked in the direction of egress.
- B. End-of-Line Supervision:
1. Provide end-of-line resistors to monitor 4-state supervision (cutline, short-circuit, switch open, and switch closed) at each intrusion detection input device.
 2. Resistors shall be installed at the monitored device location, not at the control panel.
 3. Provide pre-manufactured resistor packs, or devices with integral resistor networks.

3.3 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. Program an access card to open all doors in the system. Program a second access card to open all doors in the system, but then classify the card as lost or stolen. Attempt to access each door using the valid card first, and the card classified as lost or stolen card second.
2. For access-controlled doors, test the following parameters or functions:
 - a) A valid card read by an authorized user unlocks the door.
 - b) A valid card read by an authorized user shunts or bypass doors forced alarm.
 - c) Valid card read of a card reported lost or stolen creates an unauthorized use of lost card event in the system.
 - d) A door forced open (or unlocked with a key) without the use of a valid card creates a "door forced" event and displays event on security workstation with operator instructions.
 - e) Door held open beyond the door alarm shunt time creates a "door propped" event and displays event on security workstation with operator instructions.
 - f) Where a local door sounder is located adjacent to the door, the event activates the sounder alarm until reset at the workstation or console.
 - g) On the GUI, the event causes icons representing active devices to change color to indicate their state change (inactive to active).
 - h) Door forced or door prop event automatically calls up the associated video camera image(s) (if any) on the designated video surveillance monitor(s).

B. Test Reports:

1. Print a report showing the valid card's activity during the test period as well as the alarm activity for the test period. Confirm that the report shows a valid access for each door in the system for the valid card, and that the card classified as lost or stolen generated an appropriate alarm or exception report for each door in the system. Present this report to the Owner.
2. Access control system functional test reports.

3.4 INSTRUCTION OF OPERATING PERSONNEL

- A. System manufacturer certified trainers shall give operating and maintenance instructions on the access control system. Each session shall last at least 8 hours.
- B. See Section 28 05 00, Common Work Results for Electronic Security for additional requirements.

END OF SECTION 28 10 00

GENERAL NOTES:

1. SECURITY CABLING SHALL BE INSTALLED IN CONDUIT IN WALLS AND CEILINGS WHERE ROUTED THROUGH NON-RESTRICTED (PUBLIC SPACE). WHERE ROUTED THROUGH ACCESSIBLE CEILINGS IN RESTRICTED SPACE SECURITY CABLES MAY BE SUPPORTED BY J-HOOKS SPACED NO MORE THAN 5' APART OR BY CABLE TRAY. RESTRICTED SPACE IS THAT SPACE THAT CANNOT BE ENTERED WITHOUT PASSING THROUGH A CARD READER CONTROLLED DOOR.
2. WHERE CABLES PASS THROUGH SPACES WITH EXPOSED CEILING OR ABOVE INACCESSIBLE CEILING, INSTALL CABLES IN CONDUIT.
3. PROVIDE CONDUIT SLEEVES THROUGH ALL WALL PENETRATIONS AND FIRESTOP AS REQUIRED FOR PARTITION TYPE.
4. CABLING INSTALLED ON J-HOOKS, AND CONDUIT RUNS SHALL BE ROUTED PARALLEL OR PERPENDICULAR TO WALLS AND STRUCTURAL ELEMENTS. RUNNING CABLING OR CONDUIT DIAGONALLY ACROSS ANY SPACE, INCLUDING AREAS CONCEALED ABOVE FINISHED CEILING, SHALL NOT BE PERMITTED. ROUTE CABLING ON J-HOOKS OR IN TELECOM CABLE RUNWAY IN A NEAT BUNDLE HELD TOGETHER WITH PLENUM RATED VELCRO FASTENERS.
5. CONDUIT, WIRING, AND ASSOCIATED JUNCTION BOXES SHALL BE CONCEALED WITHIN WALLS, FLOORS, OR CEILINGS UNLESS OTHERWISE NOTED. PROVIDE PULL STRING SECURED ON BOTH SIDES IN ALL CONDUIT DURING ROUGH-IN.
6. HOMERUNS FOR MULTIPLE LIKE DEVICES CAN BE COMBINED INTO A SINGLE CONDUIT AS LONG AS THE OVERALL CAPACITY OF THE HOMERUN IS EQUAL TO OR LARGER THAN THE CAPACITY (AREA) OF THE INDIVIDUAL CONDUITS IT INCORPORATES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CALCULATE THE CONDUIT CAPACITY REQUIRED TO INCLUDE CABLING FROM MULTIPLE DOORS, CAMERAS, OR INTERCOMS TO ENSURE THAT THE NEC REQUIRED FILL IS NOT EXCEEDED.
7. BACK BOXES SHALL BE FLUSH MOUNTED UNLESS OTHERWISE NOTED, AND WHERE REQUIRED, COMPLY WITH THE ABAAG HEIGHT SPECIFICATIONS.
8. JUNCTION BOXES SHALL BE INSTALLED AT LOGICAL, ACCESSIBLE LOCATIONS WITH NO MORE THAN 180 DEGREES OF BENDS BETWEEN PULL BOXES DURING INSTALLATION, OR NO MORE THAN 200' DISTANCE BETWEEN PULL BOXES.
9. CONDUIT PENETRATIONS THROUGH NON FIRE RATED WALLS SHALL BE CAULKED ON BOTH SIDES WITH RESILIENT NON-HARDENING SEALANT.



**Dartmouth College
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& Management**

Title GENERAL REQUIREMENTS

System VIDEO SURVEILLANCE

Date 2/14/2024

Revision 1.0

Scale NTS

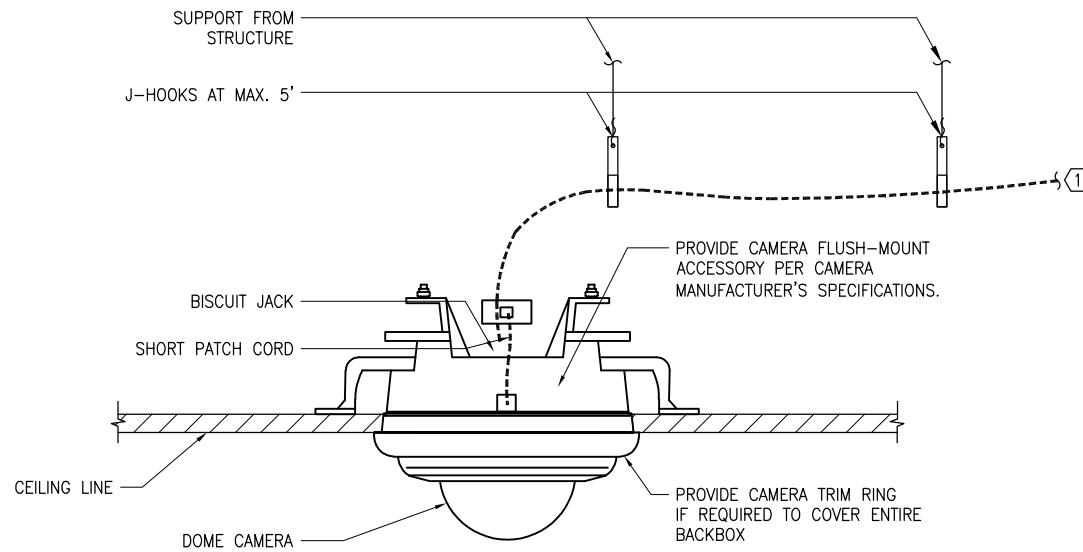
VSS-GEN1

GENERAL NOTES:

1. REFERENCE DRAWING VSS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.

KEYED NOTES:

- ① CATEGORY 6 CABLING TO TELECOMMUNICATION ROOM PROVIDED BY DARTMOUTH COLLEGE IT DEPARTMENT. INSTALL ON DEDICATED J-HOOKS OR CABLE TRAY.



Dartmouth College
Facilities Operations
& Management

Title TYPICAL FLUSH CEILING MOUNTED CAMERA

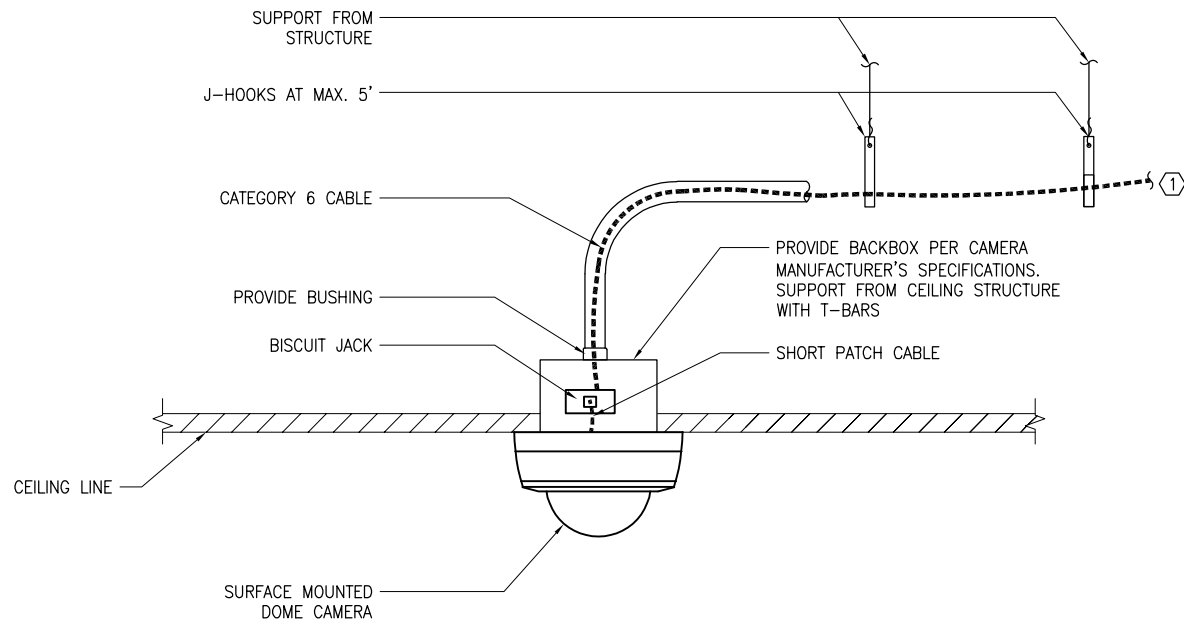
System VIDEO SURVEILLANCE

Date 2/14/2024

Revision 1.0

Scale NTS

VSS-CFM



GENERAL NOTES:

1. REFERENCE DRAWING VSS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.

KEYED NOTES:

- ① CATEGORY 6 CABLING TO TELECOMMUNICATION ROOM PROVIDED BY DARTMOUTH COLLEGE IT DEPARTMENT. INSTALL IN CONDUIT, ON DEDICATED J-HOOKS, OR IN TELECOM CABLE TRAY.



Dartmouth College
Facilities Operations
& Management

Title TYPICAL CEILING SURFACE MOUNTED CAMERA

System VIDEO SURVEILLANCE

Revision 1.0

Date 2/14/2024

Scale NTS

VSS-CSM

SUPPORT J-HOOKS FROM
STRUCTURAL BUILDING ELEMENTS
INSTALL AT MAX. 5' SPACING

CATEGORY 6 CABLE
1" CONDUIT TO ACCESSIBLE
CEILING SPACE

ACCESSIBLE CEILING LINE
WHERE APPLICABLE

BISCUIT JACK

SINGLE GANG FLUSH MOUNTED
BACKBOXAT 96" A.F.F. U.O.N.
ON FLOOR PLANS

SHORT PATCH CABLE

DOME CAMERA

FINISHED WALL

GENERAL NOTES:

1. REFERENCE DRAWING VSS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.

KEYED NOTES:

- ① CATEGORY 6 CABLING TO TELECOMMUNICATION ROOM PROVIDED BY DARTMOUTH COLLEGE IT DEPARTMENT. INSTALL IN CONDUIT, ON DEDICATED J-HOOKS, OR IN TELECOM CABLE TRAY.



Dartmouth College
Facilities Operations
& Management

Title TYPICAL SURFACE WALL MOUNTED CAMERA

System VIDEO SURVEILLANCE

Date 2/14/2024

Revision 1.0

Scale NTS

VSS-WSM

SUPPORT J-HOOKS FROM
STRUCTURAL BUILDING ELEMENTS
INSTALL AT MAX. 5' SPACING

CATEGORY 6 CABLE
1" CONDUIT TO ACCESSIBLE
CEILING SPACE

ACCESSIBLE CEILING LINE
WHERE APPLICABLE

SHORT WALL MOUNT

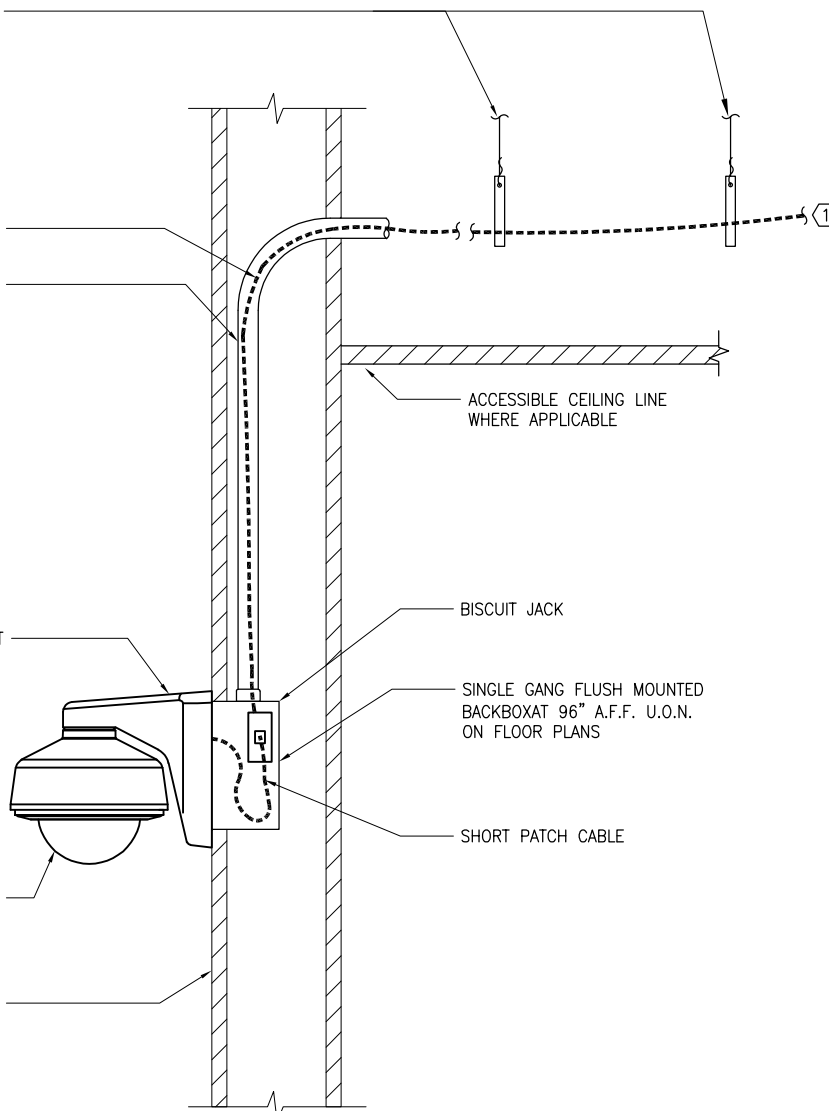
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SINGLE GANG FLUSH MOUNTED
BACKBOX AT 96" A.F.F. U.O.N.
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GENERAL NOTES:

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Dartmouth College
Facilities Operations
& Management

Title TYPICAL WALL PENDANT MOUNTED CAMERA

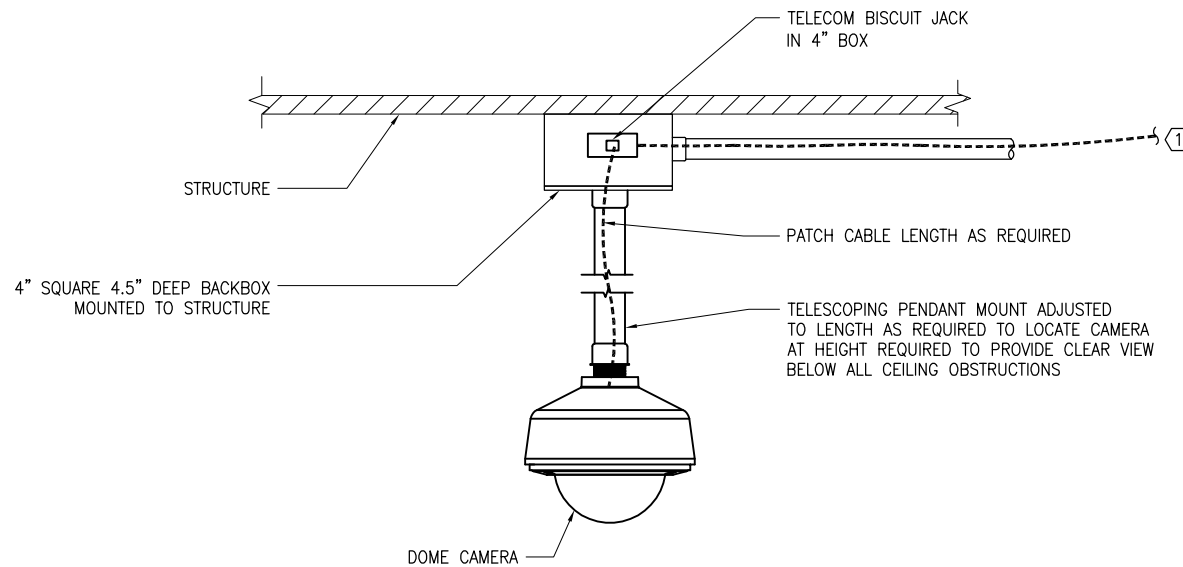
System VIDEO SURVEILLANCE

Revision 1.0

Date 2/14/2024

Scale NTS

VSS-WPM



GENERAL NOTES:

1. REFERENCE DRAWING VSS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.

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Dartmouth College
Facilities Operations
& Management

Title TYPICAL CEILING PENDANT MOUNTED CAMERA

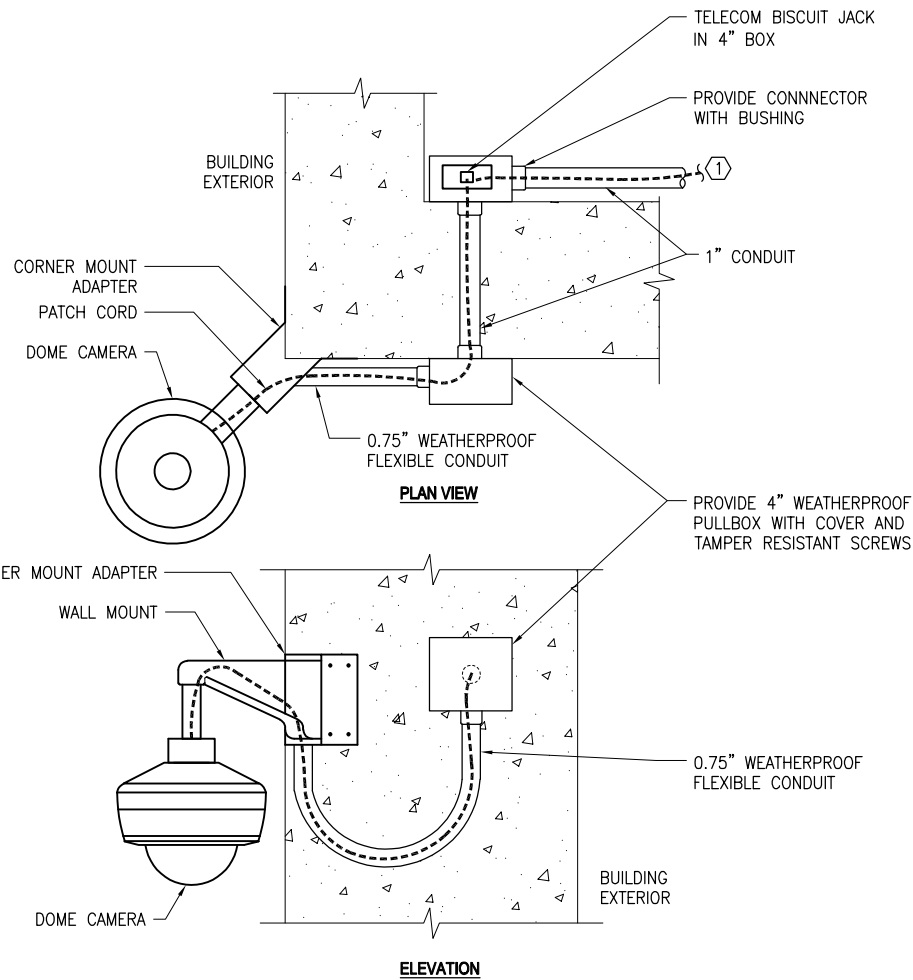
System VIDEO SURVEILLANCE

Date 2/14/2024

Revision 1.0

Scale NTS

VSS-CPM



GENERAL NOTES:

1. REFERENCE DRAWING VSS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.

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GENERAL NOTES:

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3. PROVIDE CONDUIT SLEEVES THROUGH ALL WALL PENETRATIONS AND FIRESTOP AS REQUIRED FOR PARTITION TYPE.
4. CABLING INSTALLED ON J-HOOKS, AND CONDUIT RUNS SHALL BE ROUTED PARALLEL OR PERPENDICULAR TO WALLS AND STRUCTURAL ELEMENTS. RUNNING CABLING OR CONDUIT DIAGONALLY ACROSS ANY SPACE, INCLUDING AREAS CONCEALED ABOVE FINISHED CEILING, SHALL NOT BE PERMITTED. ROUTE CABLING ON J-HOOKS OR IN TELECOM CABLE RUNWAY IN A NEAT BUNDLE HELD TOGETHER WITH PLENUM RATED VELCRO FASTENERS.
5. CONDUIT, WIRING, AND ASSOCIATED JUNCTION BOXES SHALL BE CONCEALED WITHIN WALLS, FLOORS, OR CEILINGS UNLESS OTHERWISE NOTED. PROVIDE PULL STRING SECURED ON BOTH SIDES IN ALL CONDUIT DURING ROUGH-IN.
6. HOMERUNS FOR MULTIPLE LIKE DEVICES CAN BE COMBINED INTO A SINGLE CONDUIT AS LONG AS THE OVERALL CAPACITY OF THE HOMERUN IS EQUAL TO OR LARGER THAN THE CAPACITY (AREA) OF THE INDIVIDUAL CONDUITS IT INCORPORATES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CALCULATE THE CONDUIT CAPACITY REQUIRED TO INCLUDE CABLING FROM MULTIPLE DOORS, CAMERAS, OR INTERCOMS TO ENSURE THAT THE NEC REQUIRED FILL IS NOT EXCEEDED.
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DOOR HARDWARE NOTES:

1. COORDINATE DOOR ROUGH-IN AND WIRING REQUIREMENTS WITH THE FINAL DOOR SCHEDULE AND DOOR HARDWARE SPECIFICATIONS.
2. UNLESS OTHERWISE NOTED, DOOR LOCKS SHALL BE POWERED BY THE LOCKING HARDWARE POWER SUPPLIES LOCATED WITH THE SECURITY ENCLOSURES. EACH DOOR LOCK SHALL BE CONNECTED TO AN INDIVIDUALLY FUSED CLASS 2 RATED POWER CONNECTION AT THE LIFE SAFETY POWER SUPPLY DOOR CONTROL MODULE. DO NOT DOUBLE LUG.
3. SIZE POWER CONDUCTORS BETWEEN THE DOOR LOCKING HARDWARE POWER SUPPLIES AND THE LOCK SUCH THAT THE VOLTAGE LOSS DOES NOT EXCEED 10%.
4. CONFIGURE LOCK POWER SUPPLY DOOR CONTROL MODULE(S) TO RELEASE DOORS THAT ARE LOCKED IN THE DIRECTION OF EGRESS UPON FIRE ALARM OR POWER FAILURE. COORDINATE WITH FIRE ALARM DRAWINGS AND EGRESS PLANS.
5. MOUNT DOOR JUNCTION BOX ABOVE ACCESSIBLE CEILING ON SECURE SIDE OF DOOR. FOR DOORS WITH FINISHED CEILINGS ON SECURE SIDE MOUNT IN NEAREST ACCESSIBLE CEILING SPACE.
6. 120VAC BY ELECTRICAL CONTRACTOR.
7. COORDINATE EXIT DEVICE TYPE WITH FINAL DOOR HARDWARE SCHEDULE AND DOOR HARDWARE CONTRACTOR. DOORS EQUIPPED WITH ELECTRIC LATCH RETRACTION TYPE LOCKING HARDWARE SHALL BE POWERED BY STANDALONE POWER SUPPLIES LOCATED AT EACH DOOR PROVIDED UNDER DIVISION 8 SPECIFICATIONS. EXIT DEVICES WITH LOW CURRENT DRAW MOTOR DRIVEN RETRACTION OR ELECTRIC TRIM SHALL BE POWERED FROM THE DOOR LOCKING HARDWARE POWER SUPPLY AT THE SECURITY ENCLOSURES. EXIT DEVICE POWER SUPPLY PROVIDED UNDER DIVISION 8 SPECIFICATIONS. COORDINATE WITH THE FINAL DOOR HARDWARE SCHEDULE FOR LOCATIONS WHERE REQUIRED. TYPICALLY WITH QEL TYPE EXIT DEVICES THE HARDWARE CAN BE POWERED BY THE LOCK POWER SUPPLY AT THE SECURITY ENCLOSURES. FOR DOOR PAIRS WHERE BOTH LEAVES ARE ELECTRICALLY UNLOCKED A LOCAL POWER SUPPLY WILL BE REQUIRED.
8. COORDINATE WITH USER GROUPS AND/OR DEPARTMENT OF SAFETY AND SECURITY FOR LOCATIONS WHERE LOCAL DOOR ALARM SOUNDER IS REQUIRED.
9. COORDINATE EXIT DEVICE TYPE WITH FINAL DOOR HARDWARE SCHEDULE AND DOOR HARDWARE CONTRACTOR. DOORS EQUIPPED WITH ELECTRIC LATCH RETRACTION TYPE LOCKING HARDWARE SHALL BE POWERED BY STANDALONE POWER SUPPLIES LOCATED AT EACH DOOR PROVIDED UNDER DIVISION 8 SPECIFICATIONS. EXIT DEVICES WITH LOW CURRENT DRAW MOTOR DRIVEN RETRACTION OR ELECTRIC TRIM SHALL BE POWERED FROM THE DOOR LOCKING HARDWARE POWER SUPPLY AT THE SECURITY ENCLOSURES.

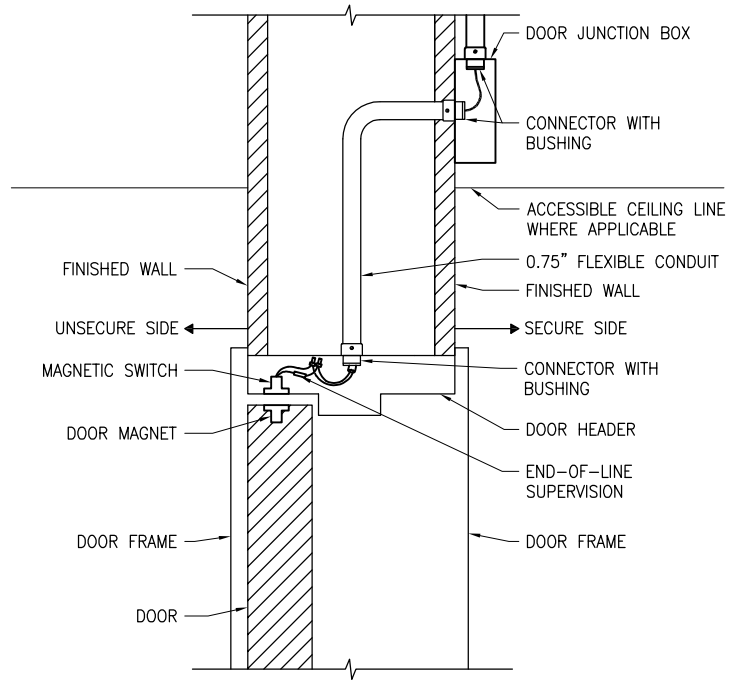
SECURITY DEVICE SYMBOLS AND ROUGH-IN REQUIREMENTS

	BACKBOX TYPE	DRAWING SYMBOL	MOUNTING HEIGHT	NOTES
CARD READER	SINGLE GANG		42" A.F.F.	
RTE MOTION	SINGLE GANG		CEILING	
DOOR POSITION SENSOR	N/A		N/A	STUB INTO HEADER
REQUEST TO EXIT PUSHBUTTON	SINGLE GANG		42" A.F.F.	
LOCAL DOOR ALARM	SINGLE GANG		42" A.F.F.	
AUTOMATIC DOOR ACTUATOR	SINGLE GANG		42" A.F.F.	ADJACENT TO CARD READER

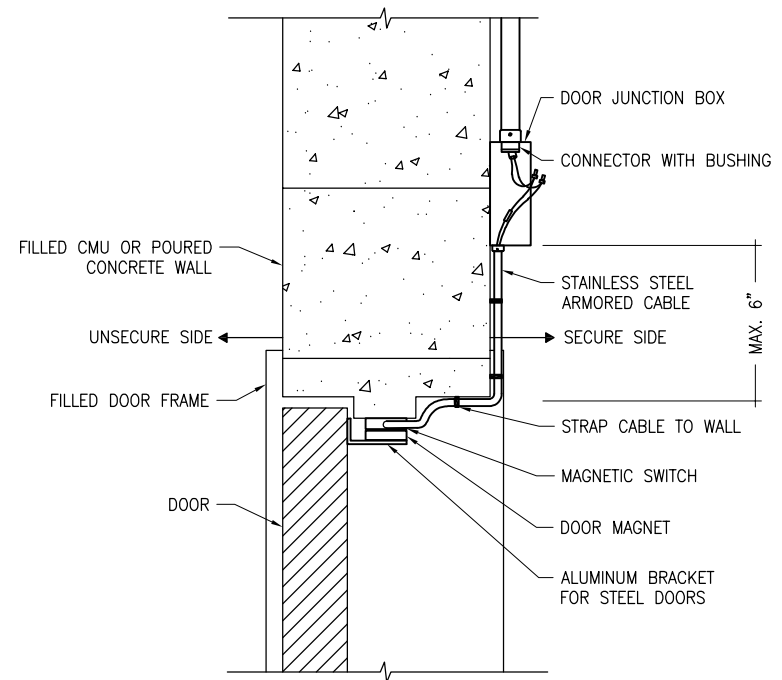
GENERAL NOTES:

1. FOR ALL DOOR HARDWARE STUB CONDUIT INTO DOOR FRAME OR HEADER AS INDICATED



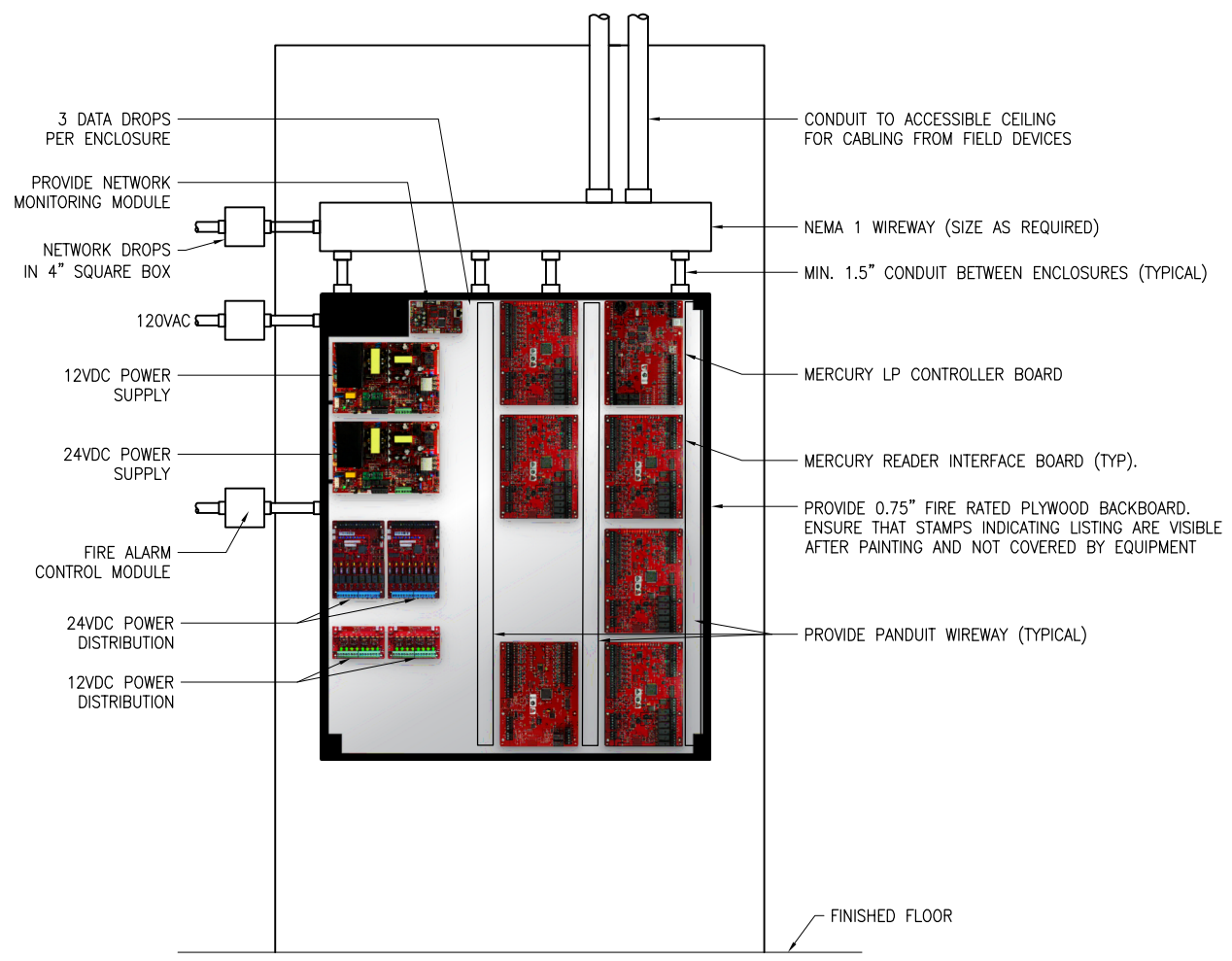


1 RECESSED MAGNETIC SWITCH
N.T.S.



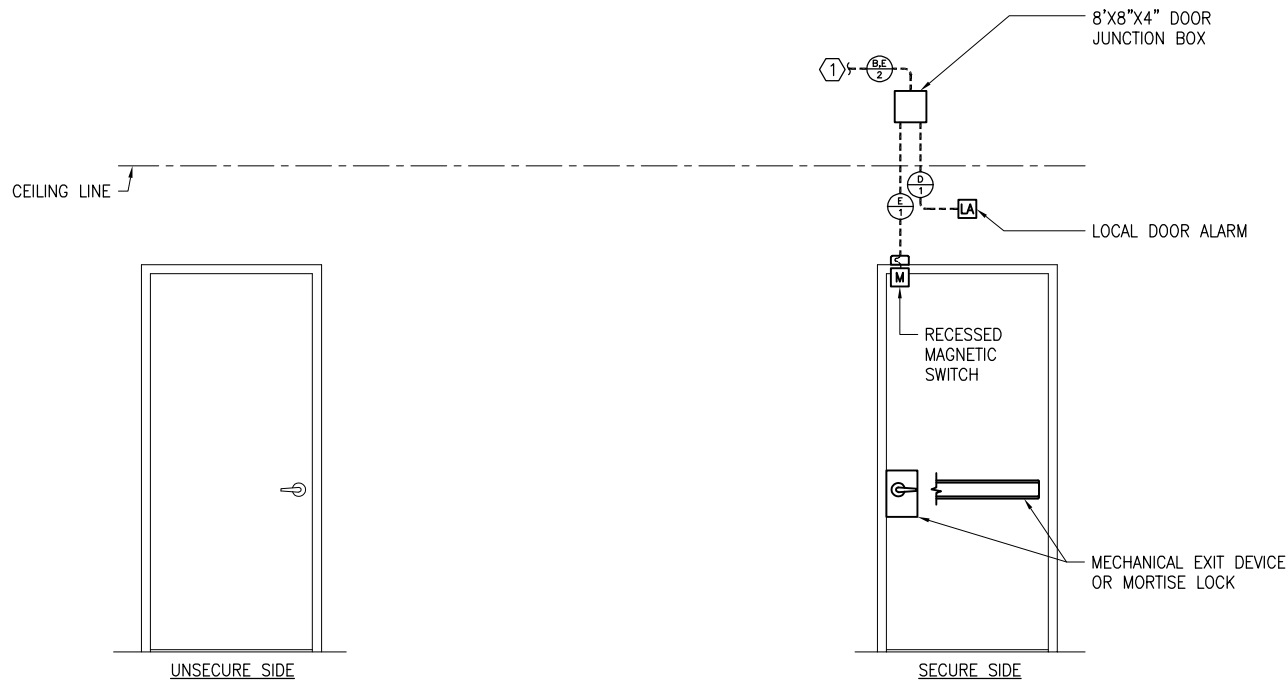
2 SURFACE MOUNTED MAGNETIC SWITCH
N.T.S.





- NOTES:**
1. DETAIL INDICATES GENERIC LAYOUT AND EQUIPMENT QUANTITIES. COORDINATE WITH ACCESS CONTROL SHOP, TYPE OF EQUIPMENT PROVIDED AND FIELD CONDITIONS.
 2. FOR EACH LOCATION PROVIDE MINIMUM 16-DOOR ENCLOSURE WITH READER AND I/O BOARD CONFIGURED FOR THE DOORS SUPPORTED AT THE TIME OF INSTALLATION. PROVIDE 25% SPARE CAPACITY. IF THE NUMBER OF BOARDS EXCEED THE THRESHOLD OF SPARE CAPACITY, PROVIDE AN ADDITIONAL 16-DOOR ENCLOSURE WITH FULLY LOADED POWER CONFIGURATION AND AN LP1502 CONTROLLER BOARD.
 3. CONFIGURE ACS PANEL TO MONITOR AC POWER FAILURE AND LOW BATTERY CONDITION OF EACH POWER SUPPLY.





DOOR SEQUENCE OF OPERATION:

FROM BOTH SIDES: OPENING THE DOOR SHALL START A FORCED DOOR SEQUENCE. THE SYSTEM SHALL IMMEDIATELY ACTIVATE THE LOCAL AUDIBLE DEVICE, GENERATE A FORCED DOOR ALARM LOGGED TO TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

GENERAL NOTES:

1. THIS DETAIL IS ONLY TO BE USED FOR NEW EMERGENCY EGRESS ONLY DOORS.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



Dartmouth College
Facilities Operations
& Management

Title DOOR TYPE S1

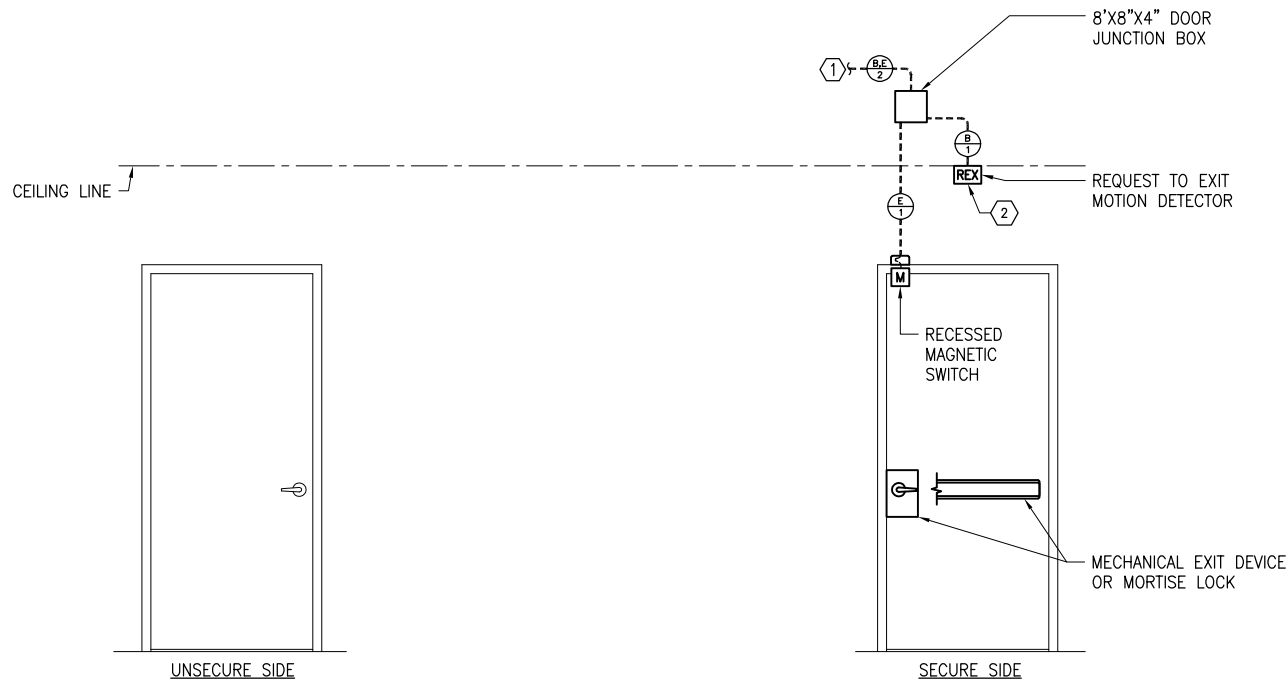
System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-S1



DOOR SEQUENCE OF OPERATION:

FROM THE EXTERIOR: NO ENTRY IS PROVIDED.

FROM THE SECURE SIDE: FREE EGRESS IS PROVIDED. ACTIVATION OF THE REQUEST TO EXIT MOTION DETECTOR SHALL BYPASS THE DOOR CONTACT AND ALLOW FREE EGRESS.

DOOR HELD OPEN SEQUENCE (FOR EXTERIOR DOORS): SIXTY SECONDS (PROGRAMMABLE) FROM A DOOR POSITION CHANGE OF STATE, THE SYSTEM SHALL ACTIVATE THE LOCAL AUDIBLE DEVICE. NINETY SECONDS (PROGRAMMABLE) FROM DOOR POSITION CHANGE OF STATE A DOOR HELD OPEN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY

DOOR FORCED ALARM SEQUENCE FOR EXTERIOR DOORS): OPENING THE DOOR WITHOUT A VALID REQUEST TO EXIT SIGNAL SHALL START A FORCED DOOR SEQUENCE. THE SYSTEM SHALL IMMEDIATELY ACTIVATE THE LOCAL AUDIBLE DEVICE, GENERATE A FORCED DOOR ALARM LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

GENERAL NOTES:

1. THIS DETAIL IS ONLY TO BE USED FOR EXISTING DOOR WHERE THE EXISTING HARDWARE CANNOT BE REPLACED.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② REQUEST TO EXIT SENSOR SHALL HAVE INTEGRATED PIEZO ALARM.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



Dartmouth College
Facilities Operations
& Management

Title DOOR TYPE S2

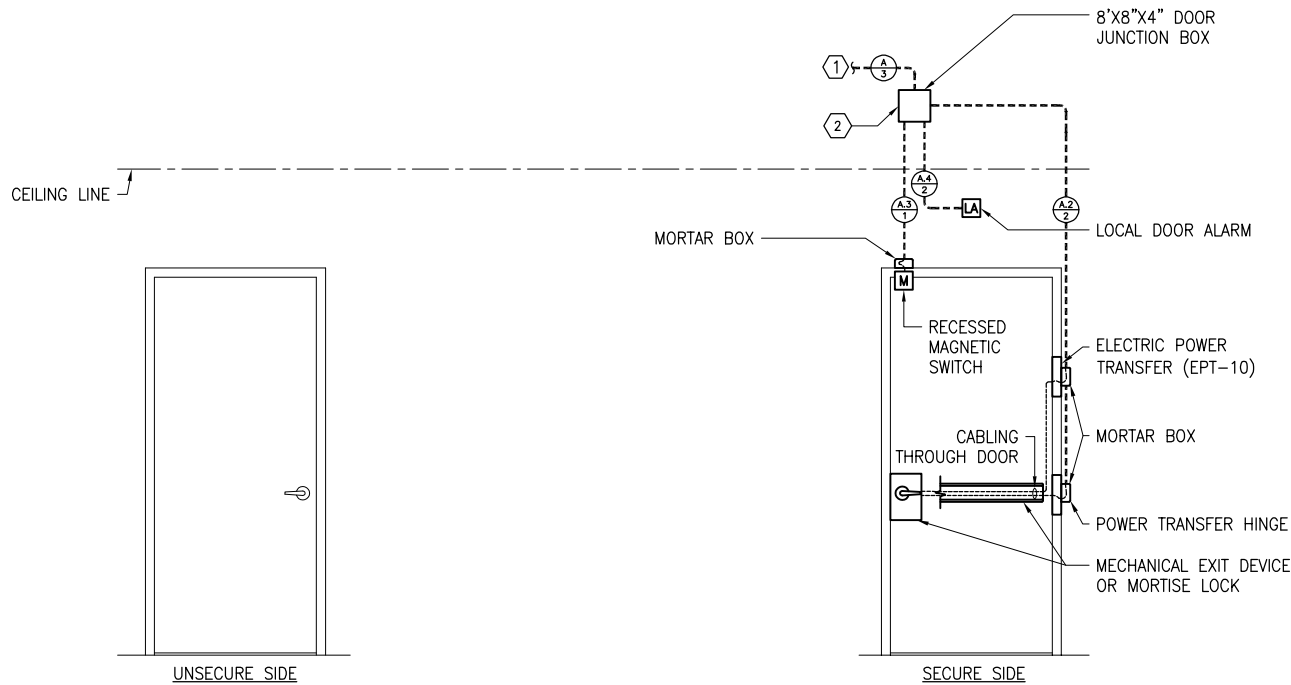
System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-S2



DOOR SEQUENCE OF OPERATION:

FROM THE EXTERIOR: NO ENTRY IS PROVIDED.

FROM THE SECURE SIDE: FREE EGRESS IS PROVIDED. ACTIVATION OF THE REQUEST TO EXIT MOTION DETECTOR SHALL BYPASS THE DOOR CONTACT AND ALLOW FREE EGRESS.

DOOR HELD OPEN SEQUENCE (FOR EXTERIOR DOORS): SIXTY SECONDS (PROGRAMMABLE) FROM A DOOR POSITION CHANGE OF STATE THE SYSTEM SHALL ACTIVATE THE LOCAL AUDIBLE DEVICE. NINETY SECONDS PROGRAMMABLE) FROM DOOR POSITION CHANGE OF STATE A DOOR HELD OPEN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY

DOOR FORCED ALARM SEQUENCE FOR EXTERIOR DOORS): OPENING THE DOOR WITHOUT A VALID REQUEST TO EXIT SIGNAL SHALL START A FORCED DOOR SEQUENCE. THE SYSTEM SHALL IMMEDIATELY ACTIVATE THE LOCAL AUDIBLE DEVICE, GENERATE A FORCED DOOR ALARM LOGGED TO TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

GENERAL NOTES:

1. THIS DETAIL IS ONLY TO BE USED FOR NEW EXIT ONLY DOORS WHERE FREE EGRESS IS REQUIRED BUT DOOR HELD OPEN MUST BE MONITORED.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② CARD READER CABLE FROM COMPOSITE CABLE SHALL BE COILED UP AS SPARE IN THE DOOR JUNCTION BOX. PROVIDE SUFFICIENT LENGTH TO REACH FUTURE CARD READER.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



Dartmouth College
Facilities Operations
& Management

Title DOOR TYPE S3

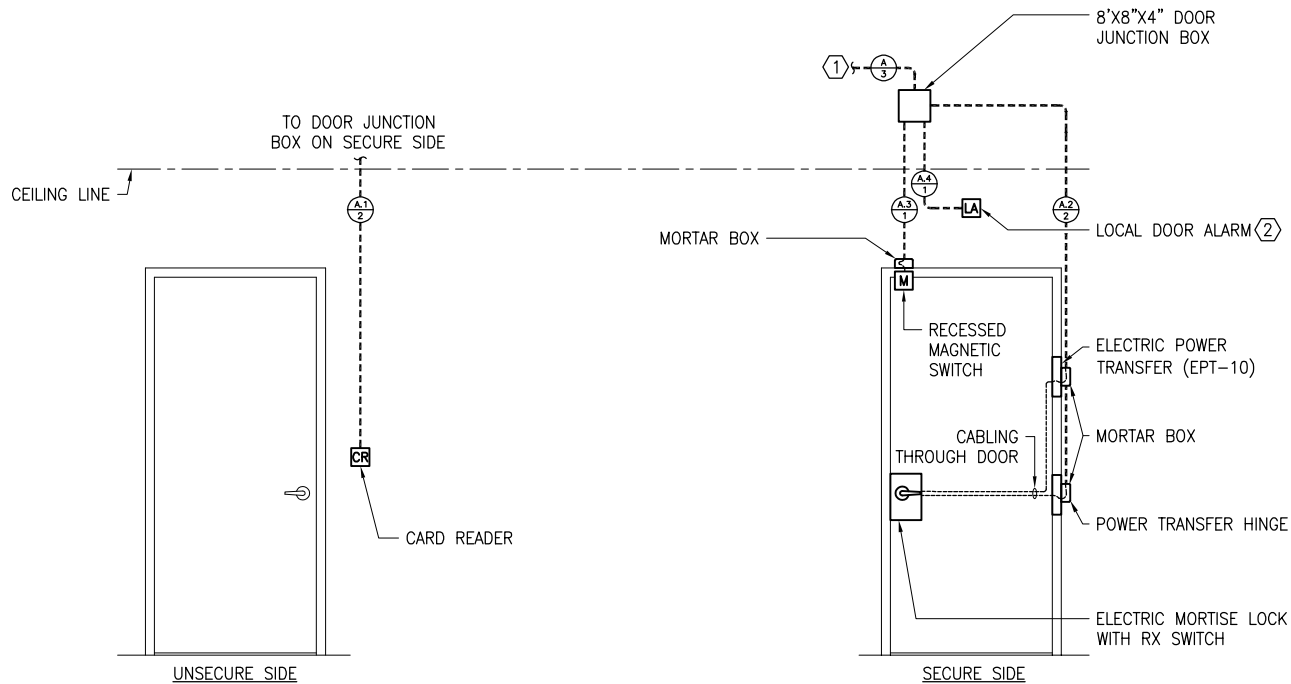
System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-S3



DOOR SEQUENCE OF OPERATION:

FROM THE UNSECURE SIDE: UPON A VALID CARD READ THE ACS SHALL UNLOCK THE DOOR AND SHUNT THE DOOR CONTACT. AFTER THE DOOR IS OPENED THE LOCK SHALL IMMEDIATELY RELOCK.

FROM THE SECURE SIDE: FREE EGRESS IS PROVIDED. PRESSING THE DOOR HANDLE SHALL SHUNT THE DOOR CONTACT AND ALLOW FREE EGRESS.

DOOR HELD OPEN SEQUENCE (FOR EXTERIOR DOORS): SIXTY SECONDS (PROGRAMMABLE) FROM A DOOR POSITION CHANGE OF STATE THE SYSTEM SHALL ACTIVATE THE LOCAL AUDIBLE DEVICE. NINETY SECONDS (PROGRAMMABLE) FROM DOOR POSITION CHANGE OF STATE A DOOR HELD OPEN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY

DOOR FORCED ALARM SEQUENCE FOR EXTERIOR DOORS): OPENING THE DOOR WITHOUT A VALID CARD READ OR REQUEST TO EXIT SIGNAL SHALL START A FORCED DOOR SEQUENCE. THE SYSTEM SHALL IMMEDIATELY ACTIVATE THE LOCAL AUDIBLE DEVICE, GENERATE A FORCED DOOR ALARM LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

GENERAL NOTES:

1. THIS DETAIL IS INTENDED TO BE USED FOR NEW CARD ACCESS CONTROLLED DOORS WITH ELECTRIC LOCKS, WHERE FREE EGRESS IS REQUIRED BUT DOOR HELD OPEN MUST BE MONITORED.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② PROVIDE ONLY AT EXTERIOR DOORS OR WHERE SPECIFICALLY REQUESTED BY USERS.

CABLE TYPE LEGEND:

- A – OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 – COMPOSITE CABLE AWG22-4C (CR)
- A.2 – COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 – COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 – COMPOSITE CABLE AWG22-4C (REX PIR)
- B – AWG18-4C
- C – AWG18-2C
- D – AWG22-4C
- E – AWG22-2C
- F – AWG22-4C OSDP
- G – AWG22-6C

CONDUIT LEGEND:

- 1 – 0.5" CONDUIT
- 2 – 0.75" CONDUIT
- 3 – 1" CONDUIT



Dartmouth College
Facilities Operations
& Management

Title DOOR TYPE S4

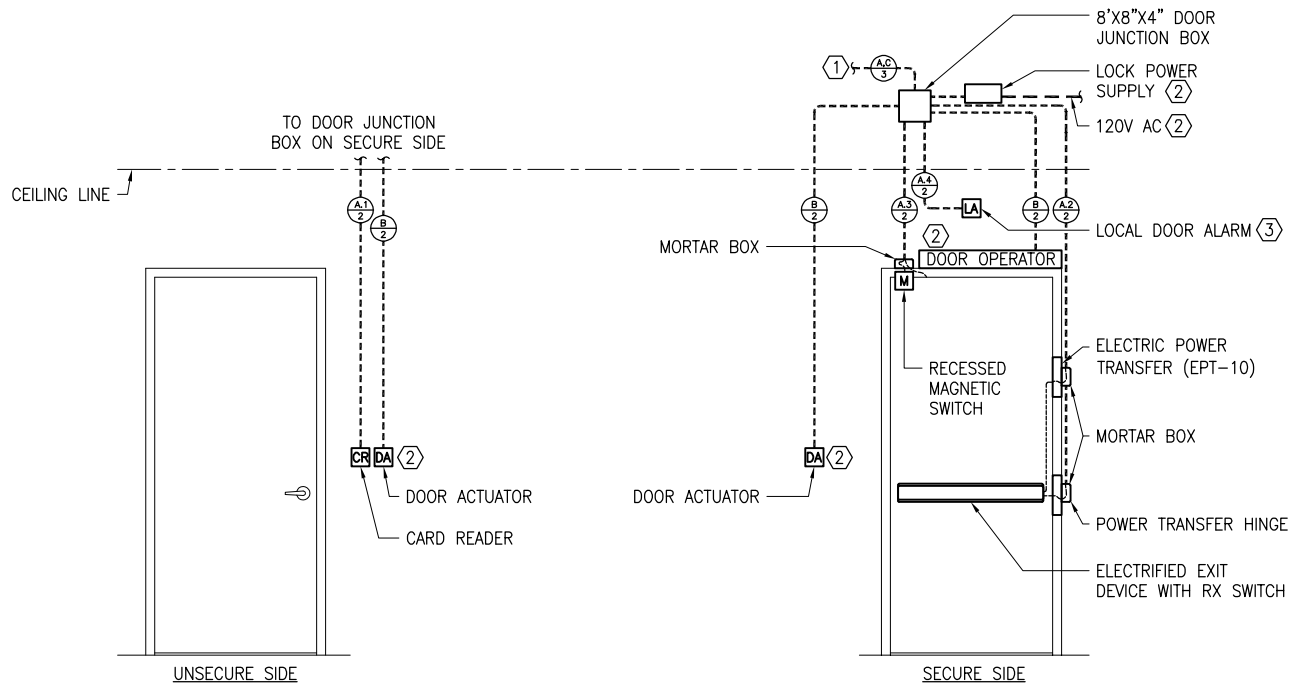
System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-S4



DOOR SEQUENCE OF OPERATION:

FROM THE UNSECURE SIDE: UPON A VALID CARD READ THE ACS SHALL UNLOCK THE DOOR AND SHUNT THE DOOR CONTACT. AS SOON AS THE DOOR IS OPENED THE LOCK SHALL AUTOMATICALLY RELOCK.

FROM THE SECURE SIDE: FREE EGRESS IS PROVIDED. DEPRESSING THE EXIT DEVICE SHALL SEND A REQUEST TO EXIT SIGNAL TO THE ACS TO SHUNT THE DOOR CONTACT AND ALLOW FREE EGRESS.

DOOR ACTUATOR FUNCTIONS: THE EXTERIOR DOOR ACTUATOR SHALL BE ONLY ACTIVE WHEN THE LOCK IS IN THE UNLOCKED POSITION. THE INTERIOR DOOR ACTUATOR SHALL BE PROVIDED WITH DPDT SWITCH TO ALLOW A SIGNAL TO BE SENT TO THE OPERATOR AND ANOTHER SIGNAL TO BE SENT TO THE ACS FOR REQUEST TO EXIT.

DOOR HELD OPEN SEQUENCE (FOR EXTERIOR DOORS): SIXTY SECONDS (PROGRAMMABLE) FROM A DOOR POSITION CHANGE OF STATE THE SYSTEM SHALL ACTIVATE THE LOCAL AUDIBLE DEVICE. NINETY SECONDS (PROGRAMMABLE) FROM DOOR POSITION CHANGE OF STATE A DOOR HELD OPEN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY

DOOR FORCED ALARM SEQUENCE FOR EXTERIOR DOORS): OPENING THE DOOR WITHOUT A VALID CARD READ OR REQUEST TO EXIT SIGNAL SHALL START A FORCED DOOR SEQUENCE. THE SYSTEM SHALL IMMEDIATELY ACTIVATE THE LOCAL AUDIBLE DEVICE, GENERATE A FORCED DOOR ALARM LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

GENERAL NOTES:

1. THIS DETAIL IS INTENDED TO BE USED FOR NEW CARD ACCESS CONTROLLED DOORS WITH ELECTRIFIED EXIT DEVICE WHERE FREE EGRESS IS REQUIRED BUT AND DOOR HELD IS MONITORED WITH LOCAL ALARM.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② PROVIDED ONLY AT DOORS WITH DOOR OPERATORS.
- ③ PROVIDE ONLY AT EXTERIOR DOORS OR WHERE SPECIFICALLY REQUESTED BY USERS.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



**Dartmouth College
Facilities Operations
& Management**

Title DOOR TYPE S5

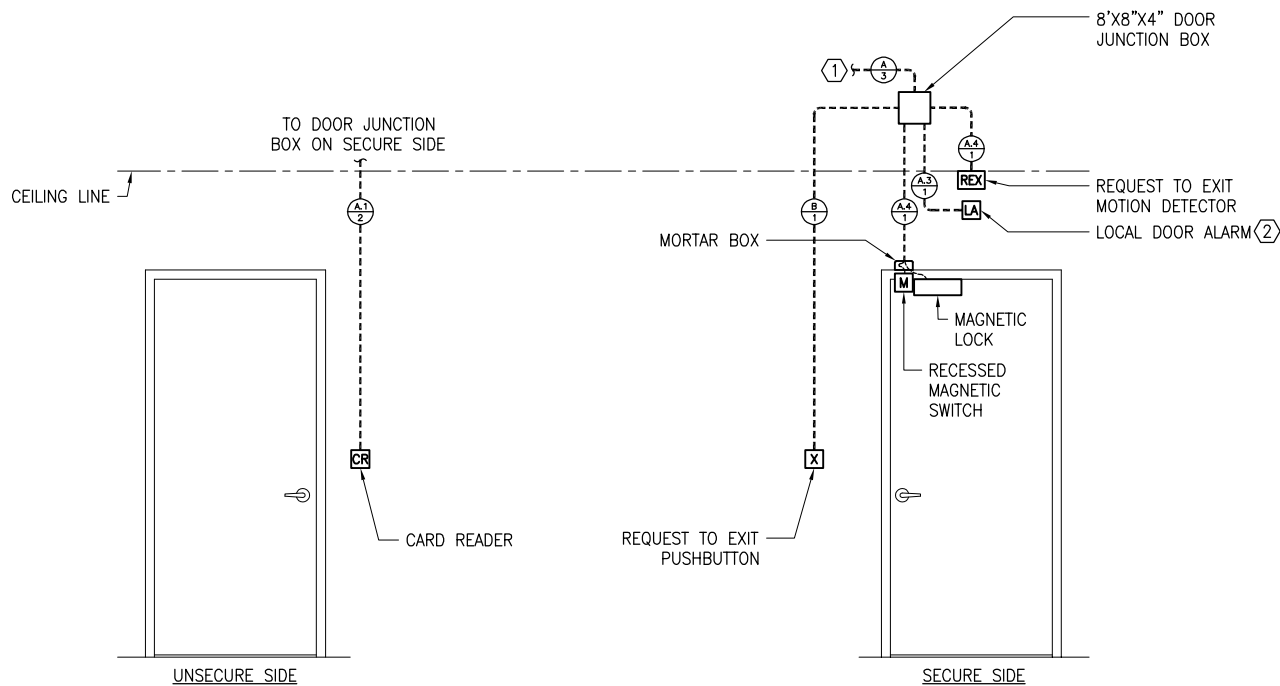
System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-S5



DOOR SEQUENCE OF OPERATION:

FROM THE UNSECURE SIDE: UPON A VALID CARD READ THE ACS SHALL RELEASE THE MAGLOCK AND SHUNT THE DOOR CONTACT. AS SOON AS THE DOOR IS OPENED THE MAGLOCK SHALL AUTOMATICALLY RE-ENERGIZE.

FROM THE SECURE SIDE: FREE EGRESS IS PROVIDED. UPON APPROACHING THE DOOR THE REQUEST TO EXIT MOTION SENSOR SHALL SEND A SIGNAL TO THE ACS TO RELEASE THE MAGLOCK AND SHUNT THE DOOR CONTACT TO ALLOW FREE EGRESS.

REQUEST TO EXIT PUSHBUTTON WIRING: WIRE THE REQUEST TO EXIT BUTTON SUCH THAT ONE POLE SHALL DIRECTLY INTERRUPT LOCK POWER UPON ACTIVATION, THE OTHER POLE SHALL CONNECT TO THE SAME REQUEST TO EXIT SIGNAL WIRE AS THE MOTION DETECTOR.

FIRE ALARM: CONFIGURE THE LOCK POWER SUPPLY TO RELEASE THE MAGNET ON FIRE ALARM ACTIVATION OR ON LOSS OF BUILDING PRIMARY POWER.

DOOR HELD OPEN SEQUENCE: SIXTY SECONDS (PROGRAMMABLE) FROM A DOOR POSITION CHANGE OF STATE THE SYSTEM SHALL ACTIVATE THE LOCAL AUDIBLE DEVICE. NINETY SECONDS PROGRAMMABLE) FROM DOOR POSITION CHANGE OF STATE A DOOR HELD OPEN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY

DOOR FORCED ALARM SEQUENCE: OPENING THE DOOR WITHOUT A VALID CARD READ OR REQUEST TO EXIT SIGNAL SHALL START A FORCED DOOR SEQUENCE. THE SYSTEM SHALL IMMEDIATELY ACTIVATE THE LOCAL AUDIBLE DEVICE, GENERATE A FORCED DOOR ALARM LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

GENERAL NOTES:

1. THIS DETAIL IS INTENDED TO BE USED FOR NEW CARD ACCESS CONTROLLED SINGLE DOORS WITH MAGNETIC LOCK AND FREE EGRESS. LOCAL ALARM IS OPTIONAL. THESE SHOULD USED ONLY AS LAST OPTION AS THEY ARE NOT CONSIDERED TO BE SECURE MEANS TO LOCK A DOOR, THEY ARE EASILY DEFEATABLE.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② PROVIDE ONLY AT EXTERIOR DOORS OR WHERE SPECIFICALLY REQUESTED BY USERS.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



**Dartmouth College
Facilities Operations
& Management**

Title DOOR TYPE S6

System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-S6

DOOR SEQUENCE OF OPERATION:

FROM THE UNSECURE SIDE: THE DOOR SHALL BE LOCKED AND DELAYED EGRESS SYSTEM SHALL BE ARMED.

IN AN EMERGENCY: UPON DEPRESSING THE PUSH BAR A WARNING SOUND SHALL SOUND ALERTING THE USER. IF THE BAR IS RELEASED THE WARNING SHALL AUTOMATICALLY RESET. HOLDING THE PUSH BAR SHALL START THE DELAYED EGRESS TIMER (15 OR 30 SECONDS) AND THE LOCAL SOUNDER ALARM. AN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY AFTER THE TIMER EXPIRES THE DOOR PUSHBALL SHALL RELEASE, ALLOWING EGRESS.

FROM THE UNSECURE SIDE: UPON A VALID CARD READ THE ACS SHALL BYPASS THE DELAYED EGRESS SYSTEM, RELEASE THE PUSHBALL AND SHUNT THE DOOR CONTACT.

FROM THE SECURE SIDE: FREE EGRESS IS PROVIDED. UPON ACTIVATION OF THE REQUEST TO EXIT MOTION DETECTOR OR PRESSING THE REQUEST TO EXIT BUTTON THE ACS SHALL BYPASS THE DELAYED EGRESS SYSTEM, UNLOCK THE DOOR AND SHUNT THE DOOR CONTACT.

DOOR HELD OPEN SEQUENCE: IF THE DOOR IS HELD OPEN LONGER THAN THE PREPROGRAMMED ALLOWED TIME, A DOOR HELD OPEN ALARM SHALL BE GENERATED, THE DELAYED EGRESS ALARM SHALL SOUND AND AND ALARM EVENT SHALL BE LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

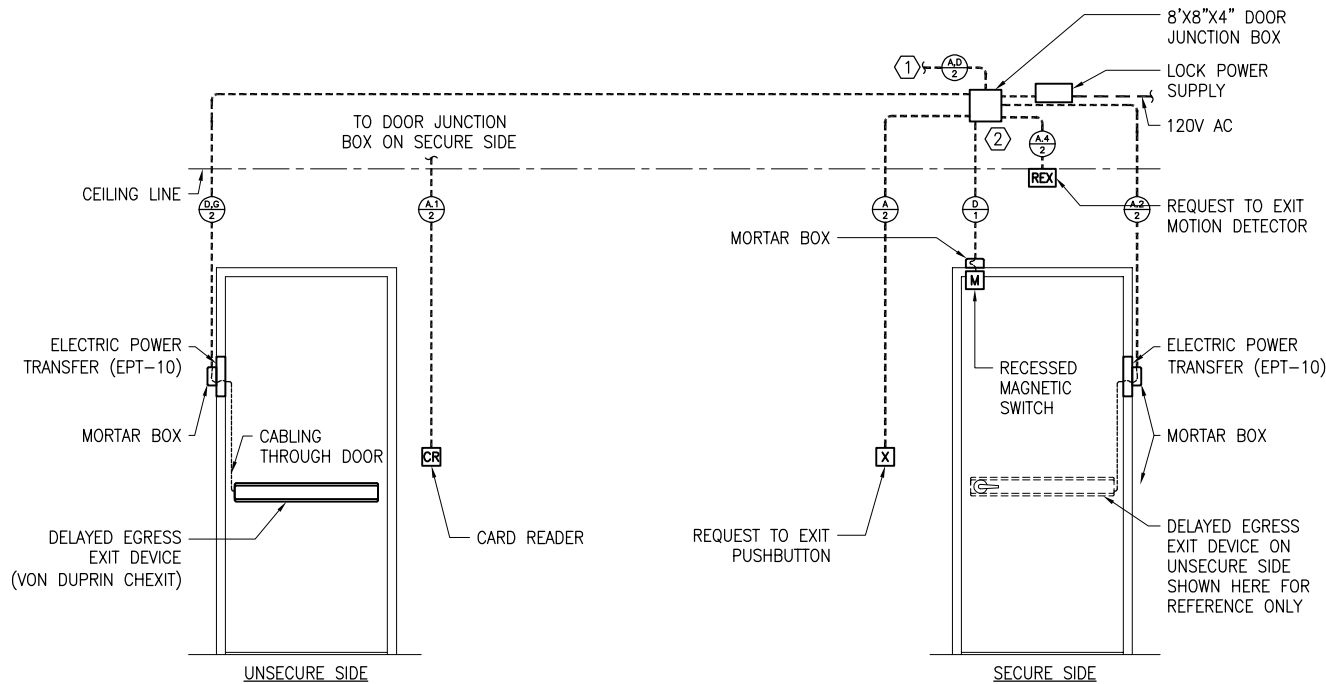
FIRE ALARM: CONNECT FIRE ALARM RELAY DIRECTLY TO THE FIRE ALARM INPUT ON THE DELAYED EGRESS EXIT DEVICE TO ALLOW IMMEDIATE RELEASE IN A FIRE ALARM CONDITION.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



GENERAL NOTES:

1. THIS DETAIL IS INTENDED TO BE USED FOR NEW CARD ACCESS CONTROLLED SINGLE DOORS WITH DELAYED EGRESS IN THE CONTROLLED ACCESS DIRECTION AND FREE EGRESS.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② PROVIDE FIRE ALARM CONNECTION TO ALLOW IMMEDIATE DOOR RELEASE UPON FIRE ALARM CONDITION.



**Dartmouth College
Facilities Operations
& Management**

Title DOOR TYPE S7

System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-S7

DOOR SEQUENCE OF OPERATION:

FROM THE UNSECURE SIDE: THE DOOR SHALL BE LOCKED AND DELAYED EGRESS SYSTEM SHALL BE ARMED.

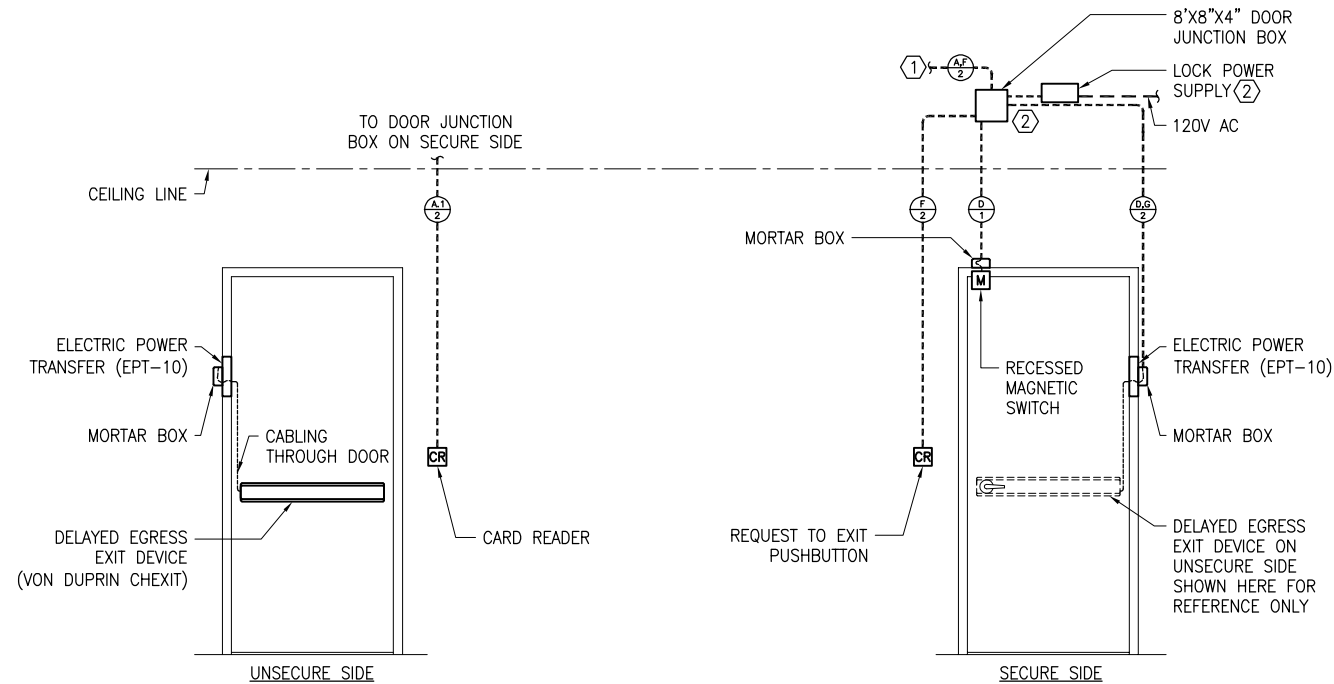
IN AN EMERGENCY: UPON DEPRESSING THE PUSH BAR A WARNING SOUND SHALL SOUND ALERTING THE USER. IF THE BAR IS RELEASED THE WARNING SHALL AUTOMATICALLY RESET. HOLDING THE PUSH BAR SHALL START THE DELAYED EGRESS TIMER (15 OR 30 SECONDS) AND THE LOCAL SOUNDER ALARM. AN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY AFTER THE TIMER EXPIRES THE DOOR PUSHBAR SHALL RELEASE, ALLOWING EGRESS.

FROM THE UNSECURE SIDE: UPON A VALID CARD READ THE ACS SHALL BYPASS THE DELAYED EGRESS SYSTEM, RELEASE THE PUSHBAR AND SHUNT THE DOOR CONTACT.

FROM THE SECURE SIDE: UPON A VALID CARD READ THE ACS SHALL BYPASS THE DELAYED EGRESS SYSTEM, UNLOCK THE DOOR AND SHUNT THE DOOR CONTACT.

DOOR HELD OPEN SEQUENCE: IF THE DOOR IS HELD OPEN LONGER THAN THE PREPROGRAMMED ALLOWED TIME, A DOOR HELD OPEN ALARM SHALL BE GENERATED, THE DELAYED EGRESS ALARM SHALL SOUND AND AND ALARM EVENT SHALL BE LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

FIRE ALARM: CONNECT FIRE ALARM RELAY DIRECTLY TO THE FIRE ALARM INPUT ON THE DELAYED EGRESS EXIT DEVICE TO ALLOW IMMEDIATE RELEASE IN A FIRE ALARM CONDITION.



GENERAL NOTES:

1. THIS DETAIL IS INTENDED TO BE USED FOR NEW CARD ACCESS CONTROLLED SINGLE DOORS WITH DELAYED EGRESS EXIT HARDWARE AND CONTROLLED ACCESS IN BOTH DIRECTIONS.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② PROVIDE FIRE ALARM CONNECTION TO ALLOW IMMEDIATE DOOR RELEASE UPON FIRE ALARM CONDITION.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



**Dartmouth College
Facilities Operations
& Management**

Title DOOR TYPE S8

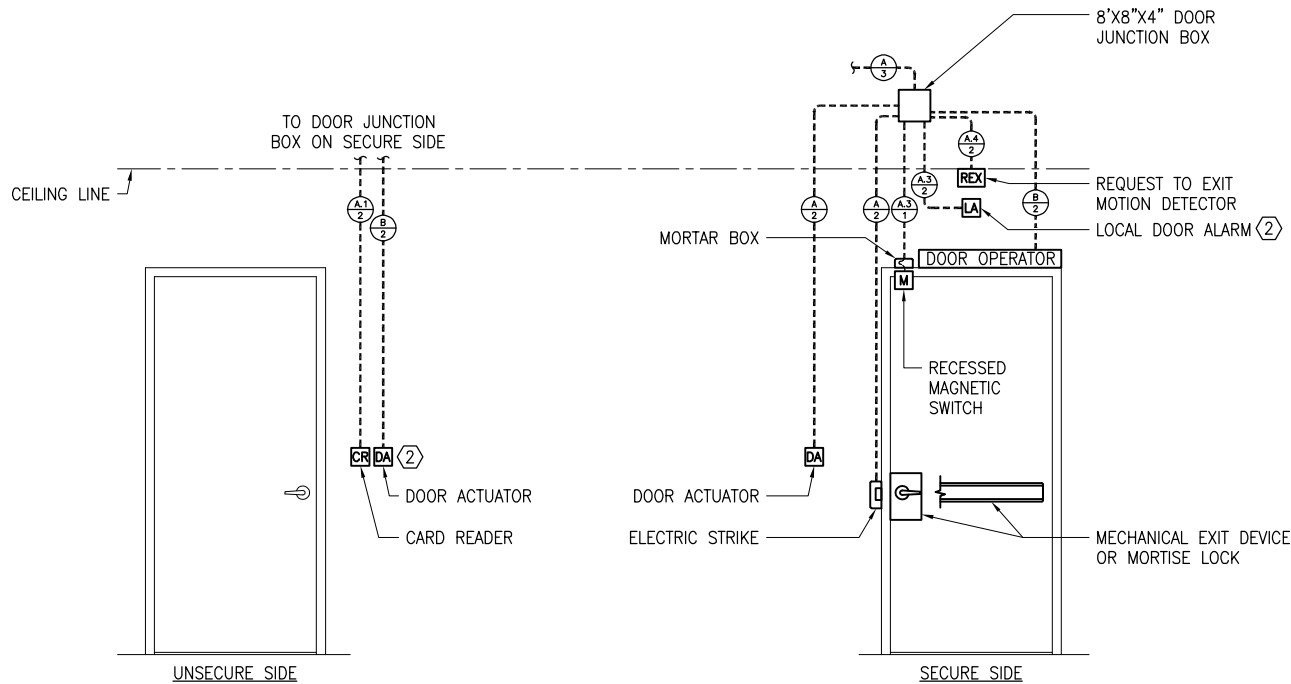
System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-S8



DOOR SEQUENCE OF OPERATION:

FROM THE UNSECURE SIDE: UPON A VALID CARD READ THE ACS SHALL UNLOCK THE STRIKE AND SHUNT THE DOOR CONTACT ALLOWING ENTRY.

FROM THE SECURE SIDE: FREE EGRESS IS PROVIDED. UPON APPROACHING THE DOOR THE REQUEST TO EXIT MOTION DETECTOR SHALL SEND A SIGNAL TO THE ACS TO SHUNT THE DOOR CONTACT TO ALLOW FREE EGRESS. THE STRIKE SHALL NOT BE ENERGIZED.

DOOR ACTUATOR FUNCTIONS: THE EXTERIOR DOOR ACTUATOR SHALL BE ONLY ACTIVE WHEN THE DOOR IS UNLOCKED. THE INTERIOR DOOR ACTUATOR SHALL BE PROVIDED WITH DPDT SWITCH TO ALLOW A SIGNAL TO BE SENT TO THE OPERATOR AND ANOTHER SIGNAL TO BE SENT TO THE ACS FOR REQUEST TO EXIT.

DOOR HELD OPEN SEQUENCE (FOR EXTERIOR DOORS): SIXTY SECONDS (PROGRAMMABLE) FROM A DOOR POSITION CHANGE OF STATE THE SYSTEM SHALL ACTIVATE THE LOCAL AUDIBLE DEVICE. NINETY SECONDS (PROGRAMMABLE) FROM DOOR POSITION CHANGE OF STATE A DOOR HELD OPEN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

DOOR FORCED ALARM SEQUENCE FOR EXTERIOR DOORS: OPENING THE DOOR WITHOUT A VALID CARD READ OR REQUEST TO EXIT SIGNAL SHALL START A FORCED DOOR SEQUENCE. THE SYSTEM SHALL IMMEDIATELY ACTIVATE THE LOCAL AUDIBLE DEVICE, GENERATE A FORCED DOOR ALARM LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

GENERAL NOTES:

1. THIS DETAIL IS INTENDED TO BE USED FOR NEW CARD ACCESS CONTROLLED SINGLE DOORS WITH ELECTRIC STRIKE AND FREE EGRESS. LOCAL ALARM IS OPTIONAL.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② PROVIDE ONLY AT EXTERIOR DOORS OR WHERE SPECIFICALLY REQUESTED BY USERS.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



**Dartmouth College
Facilities Operations
& Management**

Title DOOR TYPE S9

System ACCESS CONTROL

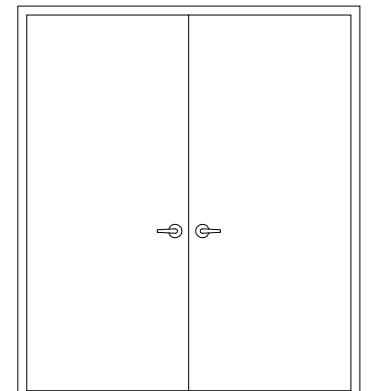
Date 2/14/2024

Revision 1.0

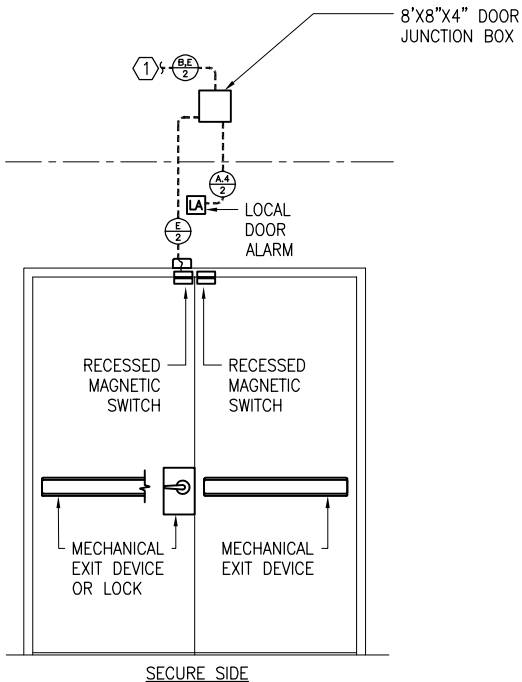
Scale NTS

ACS-S9

CEILING LINE



UNSECURE SIDE



SECURE SIDE

DOOR SEQUENCE OF OPERATION:

FROM BOTH SIDES: OPENING THE DOOR SHALL START A FORCED DOOR SEQUENCE. THE SYSTEM SHALL IMMEDIATELY ACTIVATE THE LOCAL AUDIBLE DEVICE, GENERATE A FORCED DOOR ALARM LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

GENERAL NOTES:

1. THIS DETAIL IS ONLY TO BE USED FOR NEW EMERGENCY EGRESS ONLY DOORS.

KEYED NOTES:

① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



Dartmouth College
Facilities Operations
& Management

Title DOOR TYPE D1

System ACCESS CONTROL

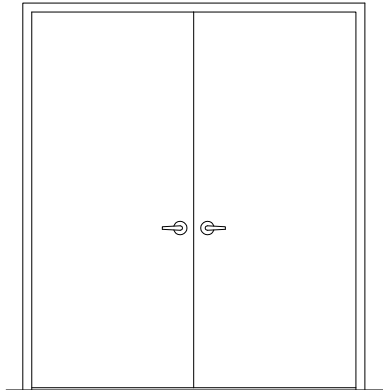
Date 2/14/2024

Revision 1.0

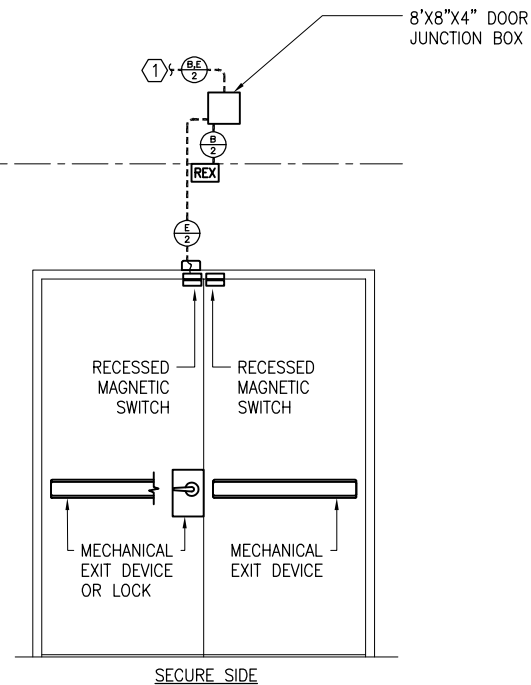
Scale NTS

ACS-D1

CEILING LINE



UNSECURE SIDE



8'x8'x4" DOOR JUNCTION BOX

SECURE SIDE

DOOR SEQUENCE OF OPERATION:

FROM THE EXTERIOR: NO ENTRY IS PROVIDED.

FROM THE SECURE SIDE: FREE EGRESS IS PROVIDED. ACTIVATION OF THE REQUEST TO EXIT MOTION DETECTOR SHALL BYPASS THE DOOR CONTACT AND ALLOW FREE EGRESS.

DOOR HELD OPEN SEQUENCE (FOR EXTERIOR DOORS): SIXTY SECONDS (PROGRAMMABLE) FROM A DOOR POSITION CHANGE OF STATE THE SYSTEM SHALL ACTIVATE THE LOCAL AUDIBLE DEVICE. NINETY SECONDS (PROGRAMMABLE) FROM DOOR POSITION CHANGE OF STATE A DOOR HELD OPEN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY

DOOR FORCED ALARM SEQUENCE FOR EXTERIOR DOORS): OPENING THE DOOR WITHOUT A VALID REQUEST TO EXIT SIGNAL SHALL START A FORCED DOOR SEQUENCE. THE SYSTEM SHALL IMMEDIATELY ACTIVATE THE LOCAL AUDIBLE DEVICE, GENERATE A FORCED DOOR ALARM LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

GENERAL NOTES:

1. THIS DETAIL IS ONLY TO BE USED FOR EXISTING DOOR WHERE THE EXISTING HARDWARE CANNOT BE REPLACED.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② REQUEST TO EXIT SENSOR SHALL HAVE INTEGRATED PIEZO ALARM.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



Dartmouth College
Facilities Operations
& Management

Title DOOR TYPE D2

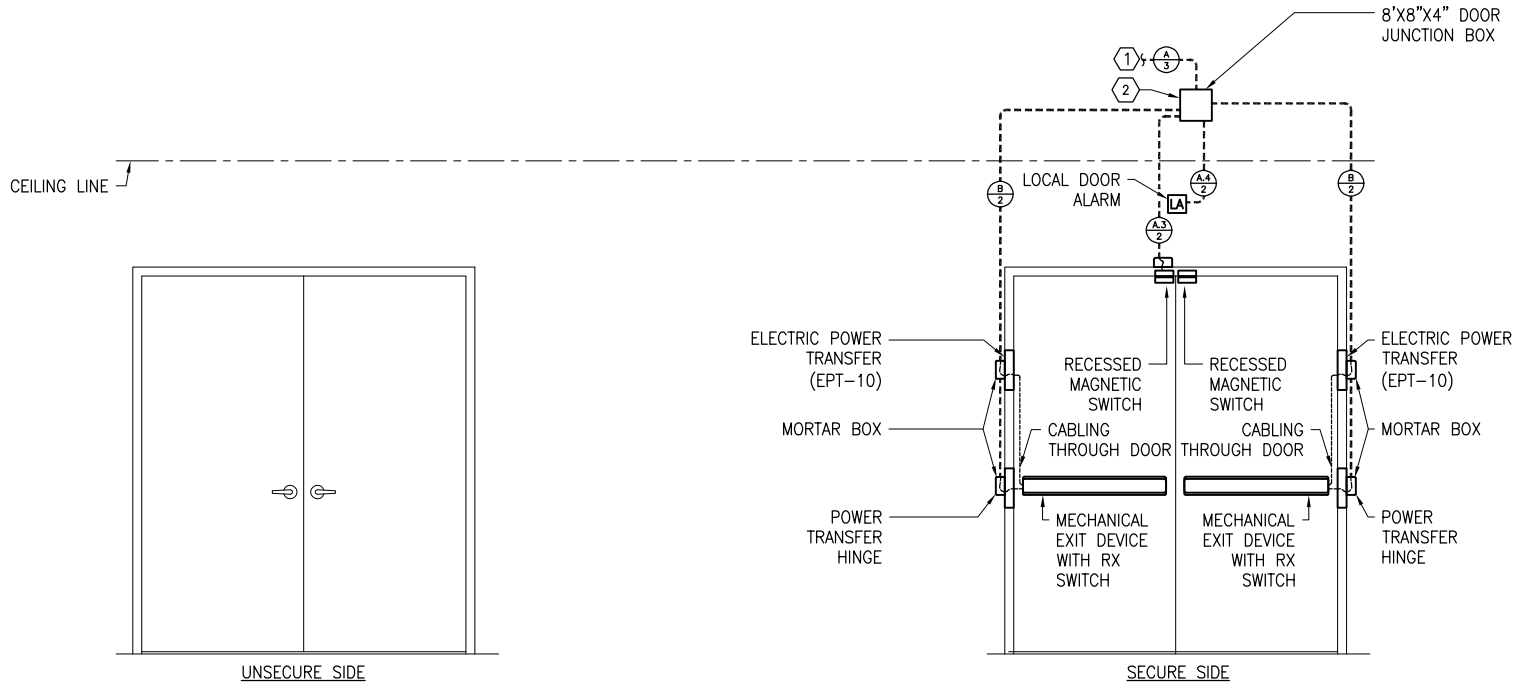
System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-D2



DOOR SEQUENCE OF OPERATION:

FROM THE EXTERIOR: NO ENTRY IS PROVIDED.

FROM THE SECURE SIDE: FREE EGRESS IS PROVIDED. PRESSING THE EXIT DEVICE SHALL SEND A REQUEST TO EXIT SIGNAL TO THE ACS TO BYPASS THE DOOR CONTACT AND ALLOW FREE EGRESS.

DOOR HELD OPEN SEQUENCE (FOR EXTERIOR DOORS): SIXTY SECONDS (PROGRAMMABLE) FROM A DOOR POSITION CHANGE OF STATE THE SYSTEM SHALL ACTIVATE THE LOCAL AUDIBLE DEVICE. NINETY SECONDS (PROGRAMMABLE) FROM DOOR POSITION CHANGE OF STATE A DOOR HELD OPEN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY

DOOR FORCED ALARM SEQUENCE FOR EXTERIOR DOORS): OPENING THE DOOR WITHOUT A VALID REQUEST TO EXIT SIGNAL SHALL START A FORCED DOOR SEQUENCE. THE SYSTEM SHALL IMMEDIATELY ACTIVATE THE LOCAL AUDIBLE DEVICE, GENERATE A FORCED DOOR ALARM LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

GENERAL NOTES:

1. THIS DETAIL IS ONLY TO BE USED FOR NEW DOORS WHERE FREE EGRESS IS REQUIRED BUT DOOR HELD OPEN MUST BE MONITORED.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② CARD READER CABLE FROM COMPOSITE CABLE SHALL BE COILED UP AS SPARE IN THE DOOR JUNCTION BOX. PROVIDE SUFFICIENT LENGTH TO REACH FUTURE CARD READER.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



Dartmouth College
Facilities Operations
& Management

Title DOOR TYPE D3

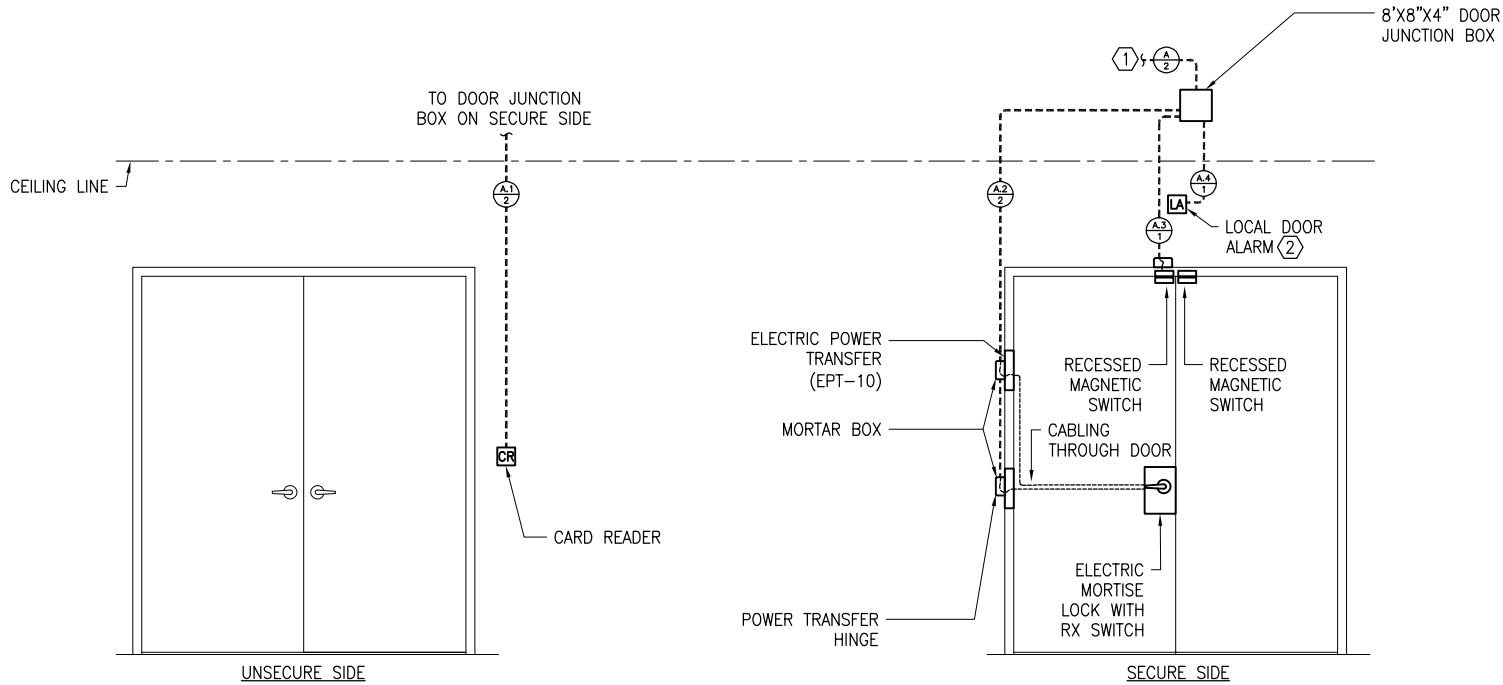
System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-D3



DOOR SEQUENCE OF OPERATION:

FROM THE UNSECURE SIDE: UPON A VALID CARD READ THE ACS SHALL UNLOCK THE DOOR AND SHUNT THE DOOR CONTACT. AFTER THE DOOR IS OPENED THE LOCK SHALL IMMEDIATELY RELOCK.

FROM THE SECURE SIDE: FREE EGRESS IS PROVIDED. PRESSING THE DOOR HANDLE SHALL SHUNT THE DOOR CONTACT AND ALLOW FREE EGRESS.

DOOR HELD OPEN SEQUENCE (FOR EXTERIOR DOORS): SIXTY SECONDS (PROGRAMMABLE) FROM A DOOR POSITION CHANGE OF STATE THE SYSTEM SHALL ACTIVATE THE LOCAL AUDIBLE DEVICE. NINETY SECONDS (PROGRAMMABLE) FROM DOOR POSITION CHANGE OF STATE A DOOR HELD OPEN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY

DOOR FORCED ALARM SEQUENCE FOR EXTERIOR DOORS): OPENING THE DOOR WITHOUT A VALID CARD READ OR REQUEST TO EXIT SIGNAL SHALL START A FORCED DOOR SEQUENCE. THE SYSTEM SHALL IMMEDIATELY ACTIVATE THE LOCAL AUDIBLE DEVICE, GENERATE A FORCED DOOR ALARM LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

GENERAL NOTES:

1. THIS DETAIL IS INTENDED TO BE USED FOR NEW CARD ACCESS CONTROLLED DOORS WITH ELECTRIC LOCKS, WHERE FREE EGRESS IS REQUIRED BUT DOOR HELD OPEN MUST BE MONITORED.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② PROVIDE ONLY AT EXTERIOR DOORS OR WHERE SPECIFICALLY REQUESTED BY USERS.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



**Dartmouth College
Facilities Operations
& Management**

Title DOOR TYPE D4

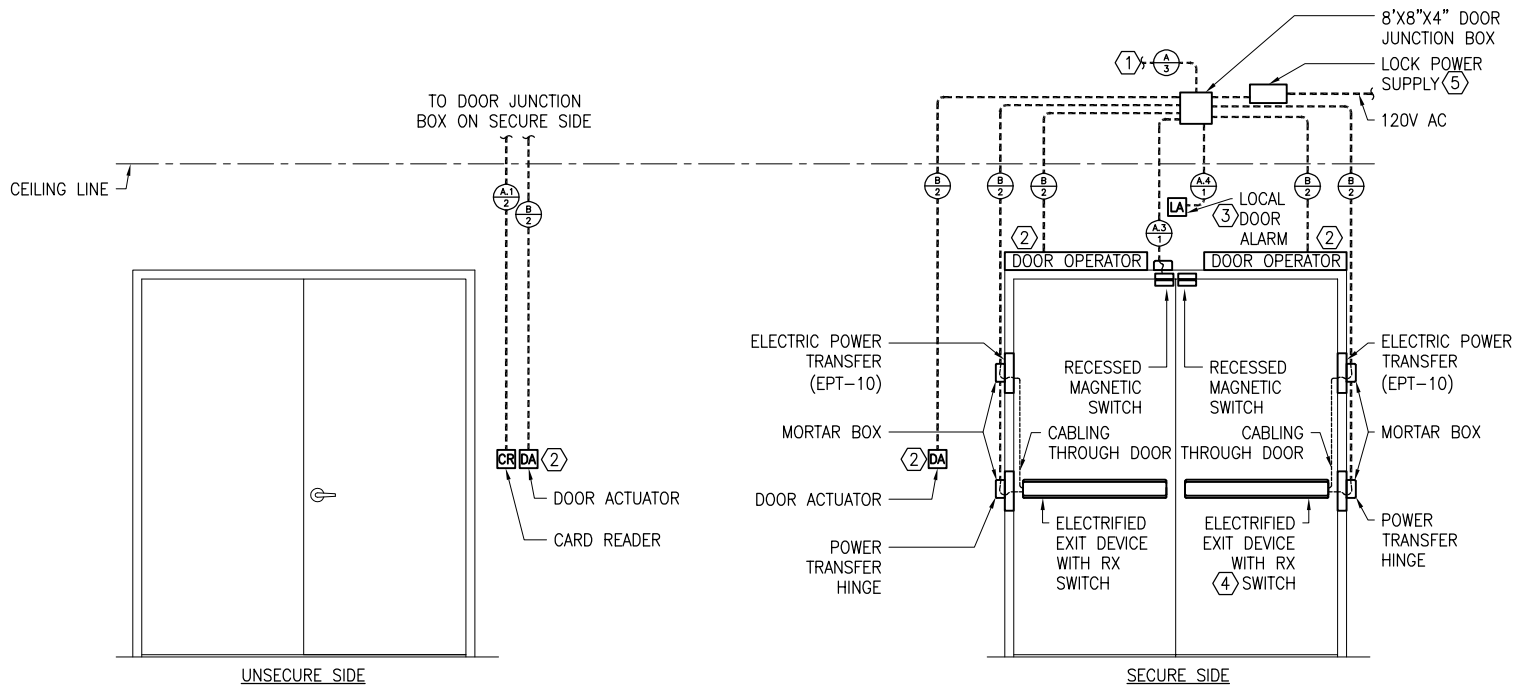
System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-D4



DOOR SEQUENCE OF OPERATION:

FROM THE UNSECURE SIDE: UPON A VALID CARD READ THE ACS SHALL RELEASE THE MAGLOCK AND SHUNT THE DOOR CONTACT. AS SOON AS THE DOOR IS OPENED THE MAGLOCK SHALL AUTOMATICALLY RE-ENERGIZE.

FROM THE SECURE SIDE: FREE EGRESS IS PROVIDED. UPON APPROACHING THE DOOR THE REQUEST TO EXIT MOTION SENSOR SHALL SEND A SIGNAL TO THE ACS TO RELEASE THE MAGLOCK AND SHUNT THE DOOR CONTACT TO ALLOW FREE EGRESS.

REQUEST TO EXIT PUSHBUTTON WIRING: WIRE THE REQUEST TO EXIT BUTTON SUCH THAT ONE POLE SHALL DIRECTLY INTERRUPT LOCK POWER UPON ACTIVATION, THE OTHER POLE SHALL CONNECT TO THE SAME REQUEST TO EXIT SIGNAL WIRE AS THE MOTION DETECTOR.

CONFIGURE THE LOCK POWER SUPPLY TO RELEASE THE MAGNET ON FIRE ALARM ACTIVATION OR ON LOSS OF BUILDING PRIMARY POWER.

DOOR HELD OPEN SEQUENCE: SIXTY SECONDS (PROGRAMMABLE) FROM A DOOR POSITION CHANGE OF STATE THE SYSTEM SHALL ACTIVATE THE LOCAL AUDIBLE DEVICE. NINETY SECONDS PROGRAMMABLE) FROM DOOR POSITION CHANGE OF STATE A DOOR HELD OPEN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY

DOOR FORCED ALARM SEQUENCE: OPENING THE DOOR WITHOUT A VALID CARD READ OR REQUEST TO EXIT SIGNAL SHALL START A FORCED DOOR SEQUENCE. THE SYSTEM SHALL IMMEDIATELY ACTIVATE THE LOCAL AUDIBLE DEVICE, GENERATE A FORCED DOOR ALARM LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

GENERAL NOTES:

1. THIS DETAIL IS INTENDED TO BE USED FOR NEW CARD ACCESS CONTROLLED DOORS WITH ELECTRIFIED EXIT DEVICE WHERE FREE EGRESS IS REQUIRED BUT AND DOOR HELD IS MONITORED WITH LOCAL ALARM.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② PROVIDED ONLY AT DOORS WITH DOOR OPERATORS.
- ③ PROVIDE ONLY AT EXTERIOR DOORS OR WHERE SPECIFICALLY REQUESTED BY USERS.
- ④ ELECTRIFIED EXIT DEVICE ON THIS LEAF ONLY AT DOORS THAT NEED TO BE UNLOCKED ON SCHEDULE. FOR DOORS THAT ARE LOCKED AT ALL TIMES, PROVIDE RX SWITCH ONLY.
- ⑤ POWER SUPPLY ONLY REQUIRED AT DOORS WHERE BOTH LEAVES ARE ELECTRIFIED.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



**Dartmouth College
Facilities Operations
& Management**

Title DOOR TYPE D5

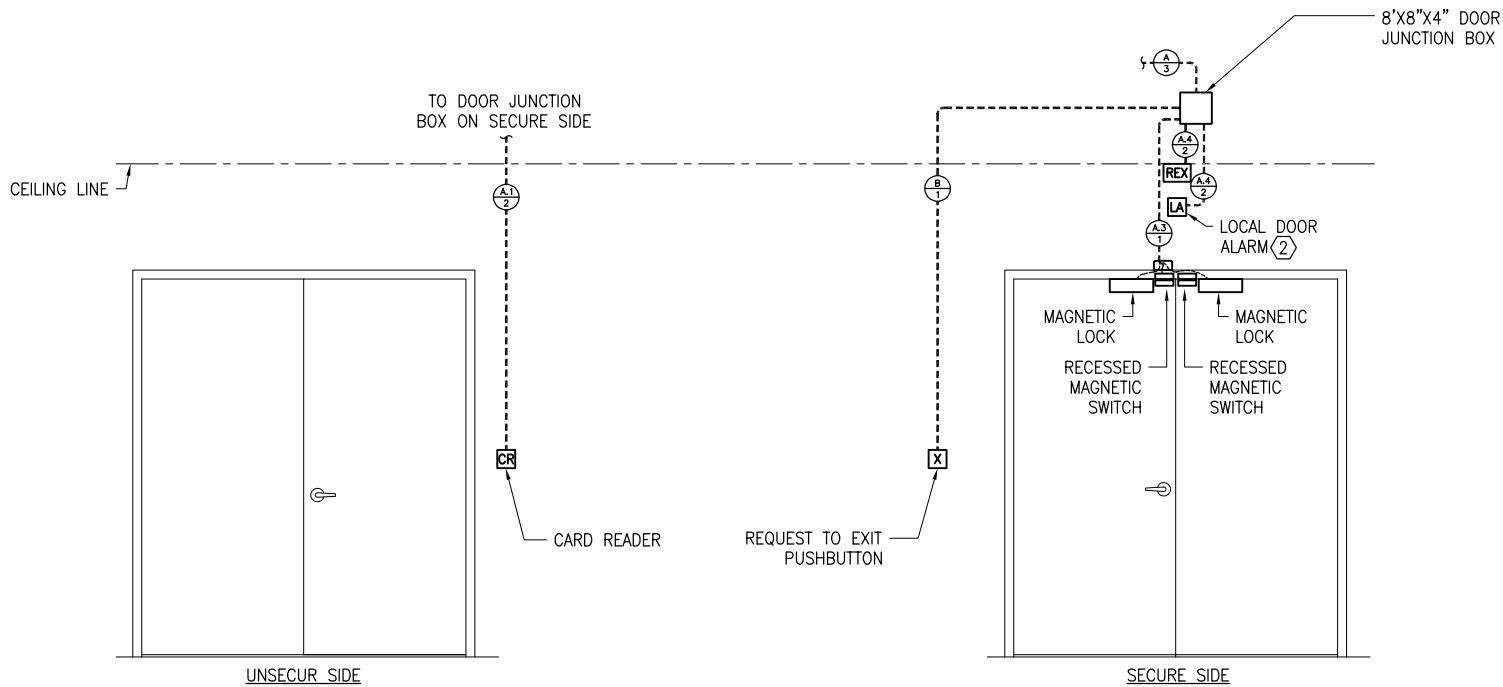
System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-D5



DOOR SEQUENCE OF OPERATION:

FROM THE UNSECURE SIDE: UPON A VALID CARD READ THE ACS SHALL RELEASE THE MAGLOCKS AND SHUNT THE DOOR CONTACT. AS SOON AS THE DOOR IS OPENED THE MAGLOCKS SHALL AUTOMATICALLY RE-ENERGIZE.

FROM THE SECURE SIDE: FREE EGRESS IS PROVIDED. UPON APPROACHING THE DOOR THE REQUEST TO EXIT MOTION SENSOR SHALL SEND A SIGNAL TO THE ACS TO RELEASE THE MAGLOCKS AND SHUNT THE DOOR CONTACT TO ALLOW FREE EGRESS.

REQUEST TO EXIT PUSHBUTTON WIRING: WIRE THE REQUEST TO EXIT BUTTON SUCH THAT ONE POLE SHALL DIRECTLY INTERRUPT LOCK POWER UPON ACTIVATION, THE OTHER POLE SHALL CONNECT TO THE SAME REQUEST TO EXIT SIGNAL WIRE AS THE MOTION DETECTOR.

FIRE ALARM: CONFIGURE THE LOCK POWER SUPPLY TO RELEASE THE MAGNET ON FIRE ALARM ACTIVATION OR ON LOSS OF BUILDING PRIMARY POWER.

DOOR HELD OPEN SEQUENCE: SIXTY SECONDS (PROGRAMMABLE) FROM A DOOR POSITION CHANGE OF STATE THE SYSTEM SHALL ACTIVATE THE LOCAL AUDIBLE DEVICE. NINETY SECONDS PROGRAMMABLE) FROM DOOR POSITION CHANGE OF STATE A DOOR HELD OPEN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY

DOOR FORCED ALARM SEQUENCE: OPENING THE DOOR WITHOUT A VALID CARD READ OR REQUEST TO EXIT SIGNAL SHALL START A FORCED DOOR SEQUENCE. THE SYSTEM SHALL IMMEDIATELY ACTIVATE THE LOCAL AUDIBLE DEVICE, GENERATE A FORCED DOOR ALARM LOGGED TO TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

GENERAL NOTES:

1. THIS DETAIL IS INTENDED TO BE USED FOR NEW CARD ACCESS CONTROLLED DOUBLE DOORS WITH MAGNETIC LOCK AND FREE EGRESS. LOCAL ALARM IS OPTIONAL. THESE SHOULD BE USED ONLY AS LAST OPTION AS THEY ARE NOT CONSIDERED TO BE SECURE MEANS TO LOCK A DOOR, THEY ARE EASILY DEFEATABLE.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② PROVIDE ONLY AT EXTERIOR DOORS OR WHERE SPECIFICALLY REQUESTED BY USERS.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



Dartmouth College
Facilities Operations
& Management

Title DOOR TYPE D6

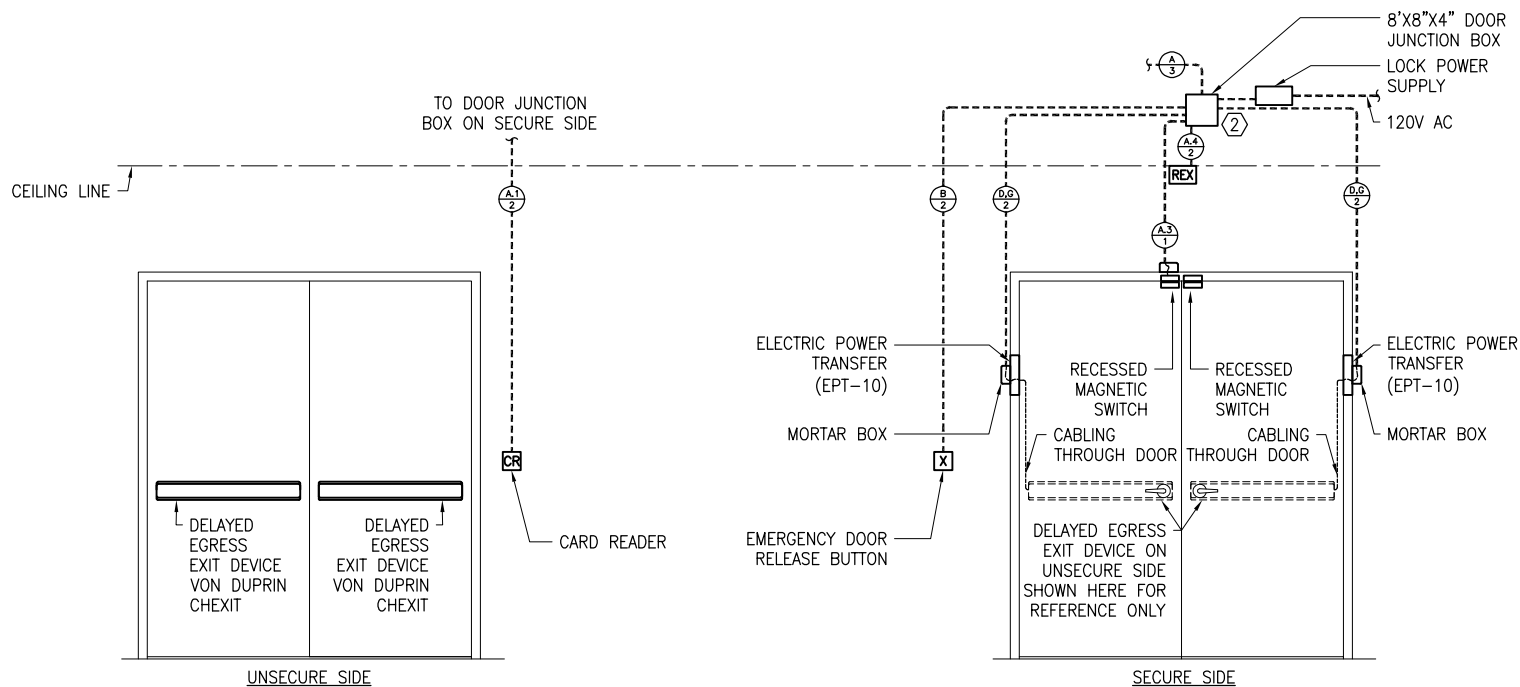
System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-D6



DOOR SEQUENCE OF OPERATION:

FROM THE UNSECURE SIDE: THE DOOR SHALL BE LOCKED AND DELAYED EGRESS SYSTEM SHALL BE ARMED.

IN AN EMERGENCY: UPON DEPRESSING THE PUSH BAR A WARNING SOUND SHALL SOUND ALERTING THE USER. IF THE BAR IS RELEASED THE WARNING SHALL AUTOMATICALLY RESET. HOLDING THE PUSH BAR SHALL START THE DELAYED EGRESS TIMER (15 OR 30 SECONDS) AND THE LOCAL SOUNDER ALARM. AN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY AFTER THE TIMER EXPIRES THE DOOR PUSHBAR SHALL RELEASE, ALLOWING EGRESS.

FROM THE UNSECURE SIDE: UPON A VALID CARD READ THE ACS SHALL BYPASS THE DELAYED EGRESS SYSTEM, RELEASE THE PUSHBAR AND SHUNT THE DOOR CONTACT.

FROM THE SECURE SIDE: FREE EGRESS IS PROVIDED. UPON ACTIVATION OF THE REQUEST TO EXIT MOTION DETECTOR OR PRESSING THE REQUEST TO EXIT BUTTON THE ACS SHALL BYPASS THE DELAYED EGRESS SYSTEM, UNLOCK THE DOOR AND SHUNT THE DOOR CONTACT.

DOOR HELD OPEN SEQUENCE: IF THE DOOR IS HELD OPEN LONGER THAN THE PREPROGRAMMED ALLOWED TIME, A DOOR HELD OPEN ALARM SHALL BE GENERATED, THE DELAYED EGRESS ALARM SHALL SOUND AND AND ALARM EVENT SHALL BE LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

FIRE ALARM: CONNECT FIRE ALARM RELAY DIRECTLY TO THE FIRE ALARM INPUT ON THE DELAYED EGRESS EXIT DEVICE TO ALLOW IMMEDIATE RELEASE IN A FIRE ALARM CONDITION.

GENERAL NOTES:

1. THIS DETAIL IS INTENDED TO BE USED FOR NEW CARD ACCESS CONTROLLED SINGLE DOORS WITH DELAYED EGRESS IN THE CONTROLLED ACCESS DIRECTION AND FREE EGRESS.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② PROVIDE FIRE ALARM CONNECTION TO ALLOW IMMEDIATE DOOR RELEASE UPON FIRE ALARM CONDITION.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



**Dartmouth College
Facilities Operations
& Management**

Title DOOR TYPE D7

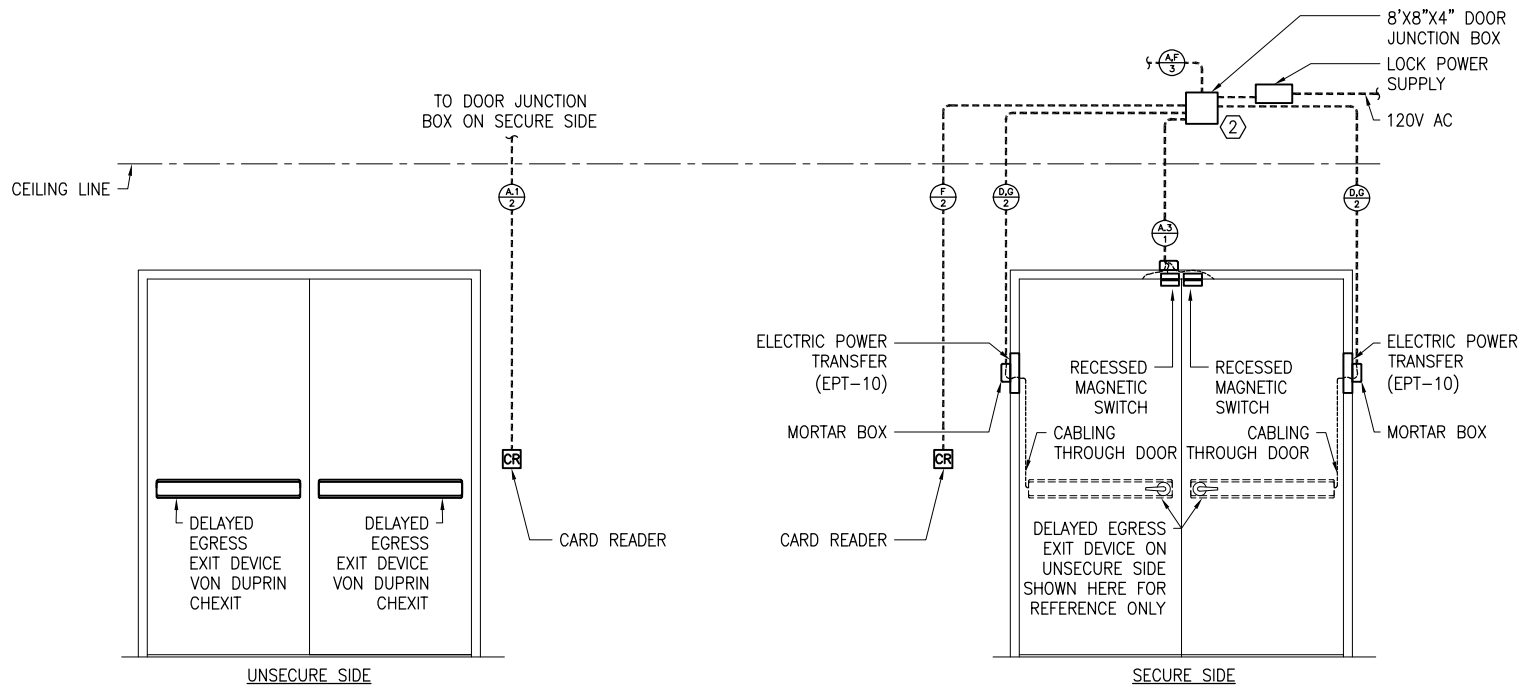
System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-D7



DOOR SEQUENCE OF OPERATION:

FROM THE UNSECURE SIDE: THE DOOR SHALL BE LOCKED AND DELAYED EGRESS SYSTEM SHALL BE ARMED.

IN AN EMERGENCY: UPON DEPRESSING THE PUSH BAR A WARNING SOUND SHALL SOUND ALERTING THE USER. IF THE BAR IS RELEASED THE WARNING SHALL AUTOMATICALLY RESET. HOLDING THE PUSH BAR SHALL START THE DELAYED EGRESS TIMER (15 OR 30 SECONDS) AND THE LOCAL SOUNDER ALARM. AN ALARM SHALL BE GENERATED, LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY AFTER THE TIMER EXPIRES THE DOOR PUSHBAR SHALL RELEASE, ALLOWING EGRESS.

FROM THE UNSECURE SIDE: UPON A VALID CARD READ THE ACS SHALL BYPASS THE DELAYED EGRESS SYSTEM, RELEASE THE PUSHBAR AND SHUNT THE DOOR CONTACT.

FROM THE SECURE SIDE: UPON A VALID CARD READ THE ACS SHALL BYPASS THE DELAYED EGRESS SYSTEM, UNLOCK THE DOOR AND SHUNT THE DOOR CONTACT.

DOOR HELD OPEN SEQUENCE: IF THE DOOR IS HELD OPEN LONGER THAN THE PREPROGRAMMED ALLOWED TIME, A DOOR HELD OPEN ALARM SHALL BE GENERATED, THE DELAYED EGRESS ALARM SHALL SOUND AND AND ALARM EVENT SHALL BE LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.

FIRE ALARM: CONNECT FIRE ALARM RELAY DIRECTLY TO THE FIRE ALARM INPUT ON THE DELAYED EGRESS EXIT DEVICE TO ALLOW IMMEDIATE RELEASE IN A FIRE ALARM CONDITION.

GENERAL NOTES:

1. THIS DETAIL IS INTENDED TO BE USED FOR NEW CARD ACCESS CONTROLLED SINGLE DOORS WITH DELAYED EGRESS EXIT HARDWARE AND CONTROLLED ACCESS IN BOTH DIRECTIONS.

KEYED NOTES:

- ① CABLING/CONDUIT TO SECURITY ENCLOSURES. REFERENCE DRAWING ACS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
- ② PROVIDE FIRE ALARM CONNECTION TO ALLOW IMMEDIATE DOOR RELEASE UPON FIRE ALARM CONDITION.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



**Dartmouth College
Facilities Operations
& Management**

Title DOOR TYPE D8

System ACCESS CONTROL

Date 2/14/2024

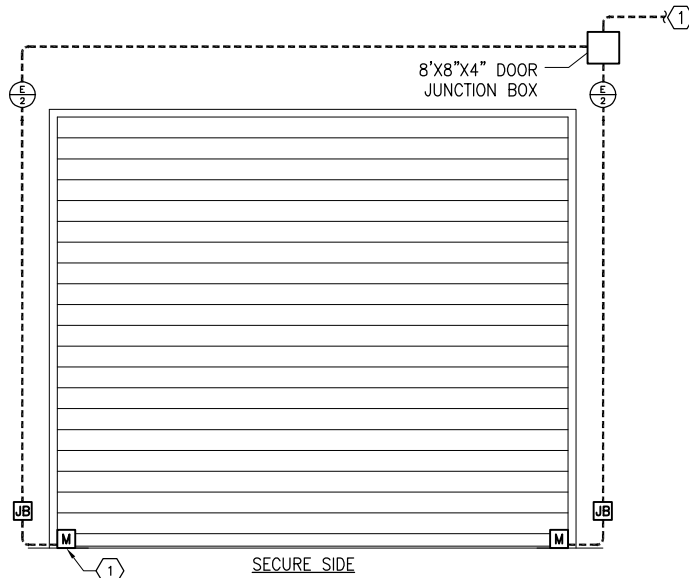
Revision 1.0

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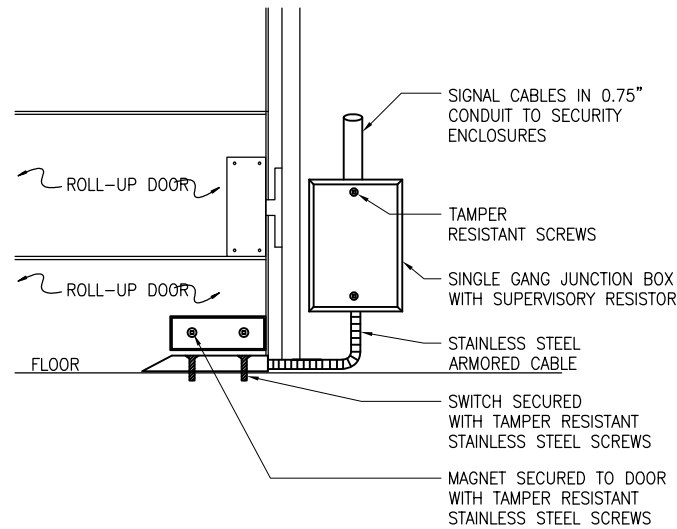
ACS-D8

DOOR SEQUENCE OF OPERATION:

FROM BOTH SIDES: OPENING THE DOOR SHALL START A FORCED DOOR SEQUENCE. THE SYSTEM SHALL IMMEDIATELY GENERATE A FORCED DOOR ALARM LOGGED TO THE SYSTEM DATABASE AND REPORTED TO THE DEPARTMENT OF SAFETY AND SECURITY.



1 TYPICAL ROLLUP DOOR
N.T.S.



2 TYPICAL ROLLUP DOOR CONTACT
N.T.S.

GENERAL NOTES:

1. THIS DETAIL IS ONLY TO BE USED FOR NEW EMERGENCY EGRESS ONLY DOORS.

KEYED NOTES:

- ① FOR DOORS LONGER THAN 12 FEET WIDE PROVIDE CONTACTS ON BOTH SIDES.

CABLE TYPE LEGEND:

- A - OSDP V.2 COMPLIANT COMPOSITE CABLE.
- A.1 - COMPOSITE CABLE AWG22-4C (CR)
- A.2 - COMPOSITE CABLE AWG18-4C (LOCK)
- A.3 - COMPOSITE CABLE AWG22-2C (CONTACT)
- A.4 - COMPOSITE CABLE AWG22-4C (REX PIR)
- B - AWG18-4C
- C - AWG18-2C
- D - AWG22-4C
- E - AWG22-2C
- F - AWG22-4C OSDP
- G - AWG22-6C

CONDUIT LEGEND:

- 1 - 0.5" CONDUIT
- 2 - 0.75" CONDUIT
- 3 - 1" CONDUIT



Dartmouth College
Facilities Operations
& Management

Title TYPICAL ROLLUP DOOR

System ACCESS CONTROL

Date 2/14/2024

Revision 1.0

Scale NTS

ACS-OH-1

GENERAL NOTES:

1. SECURITY CABLING SHALL BE INSTALLED IN CONDUIT IN WALLS AND CEILINGS WHERE ROUTED THROUGH NON-RESTRICTED (PUBLIC SPACE). WHERE ROUTED THROUGH ACCESSIBLE CEILINGS IN RESTRICTED SPACE SECURITY CABLES MAY BE SUPPORTED BY J-HOOKS SPACED NO MORE THAN 5' APART OR BY CABLE TRAY. RESTRICTED SPACE IS THAT SPACE THAT CANNOT BE ENTERED WITHOUT PASSING THROUGH A CARD READER CONTROLLED DOOR.
2. WHERE CABLES PASS THROUGH SPACES WITH EXPOSED CEILING OR ABOVE INACCESSIBLE CEILING, INSTALL CABLES IN CONDUIT.
3. PROVIDE CONDUIT SLEEVES THROUGH ALL WALL PENETRATIONS AND FIRESTOP AS REQUIRED FOR PARTITION TYPE.
4. CABLING INSTALLED ON J-HOOKS, AND CONDUIT RUNS SHALL BE ROUTED PARALLEL OR PERPENDICULAR TO WALLS AND STRUCTURAL ELEMENTS. RUNNING CABLING OR CONDUIT DIAGONALLY ACROSS ANY SPACE, INCLUDING AREAS CONCEALED ABOVE FINISHED CEILING, SHALL NOT BE PERMITTED. ROUTE CABLING ON J-HOOKS OR IN TELECOM CABLE RUNWAY IN A NEAT BUNDLE HELD TOGETHER WITH PLENUM RATED VELCRO FASTENERS.
5. CONDUIT, WIRING, AND ASSOCIATED JUNCTION BOXES SHALL BE CONCEALED WITHIN WALLS, FLOORS, OR CEILINGS UNLESS OTHERWISE NOTED. PROVIDE PULL STRING SECURED ON BOTH SIDES IN ALL CONDUIT DURING ROUGH-IN.
6. HOMERUNS FOR MULTIPLE LIKE DEVICES CAN BE COMBINED INTO A SINGLE CONDUIT AS LONG AS THE OVERALL CAPACITY OF THE HOMERUN IS EQUAL TO OR LARGER THAN THE CAPACITY (AREA) OF THE INDIVIDUAL CONDUITS IT INCORPORATES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CALCULATE THE CONDUIT CAPACITY REQUIRED TO INCLUDE CABLING FROM MULTIPLE DOORS, CAMERAS, OR INTERCOMS TO ENSURE THAT THE NEC REQUIRED FILL IS NOT EXCEEDED.
7. BACK BOXES SHALL BE FLUSH MOUNTED UNLESS OTHERWISE NOTED, AND WHERE REQUIRED, COMPLY WITH THE ABAAG HEIGHT SPECIFICATIONS.
8. JUNCTION BOXES SHALL BE INSTALLED AT LOGICAL, ACCESSIBLE LOCATIONS WITH NO MORE THAN 180 DEGREES OF BENDS BETWEEN PULL BOXES DURING INSTALLATION, OR NO MORE THAN 200' DISTANCE BETWEEN PULL BOXES.
9. CONDUIT PENETRATIONS THROUGH NON FIRE RATED WALLS SHALL BE CAULKED ON BOTH SIDES WITH RESILIENT NON-HARDENING SEALANT.



**Dartmouth College
Facilities Operations
& Management**

Title GENERAL REQUIREMENTS

System INTRUSION DETECTION

Date 2/14/2024

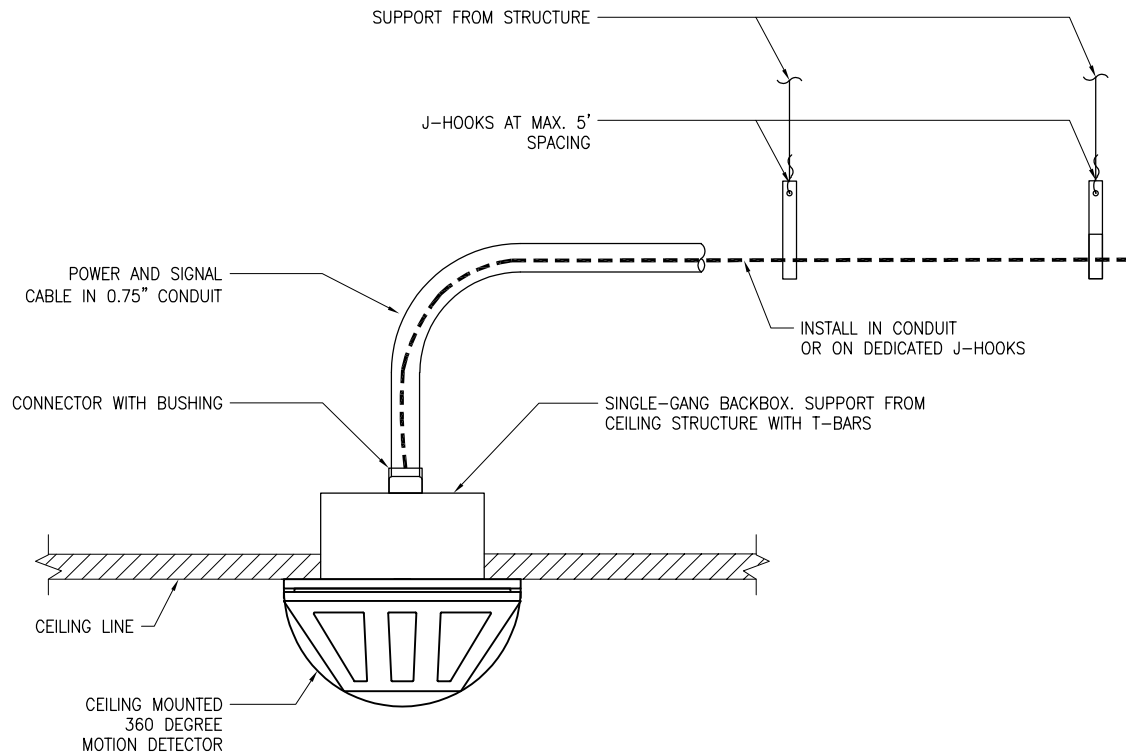
Revision 1.0

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IDS-GEN1

GENERAL NOTES:

1. REFERENCE DRAWING IDS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.



Dartmouth College
Facilities Operations
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Title TYPICAL CEILING MOUNTED MOTION DETECTOR

System INTRUSION DETECTION

Date 2/14/2024

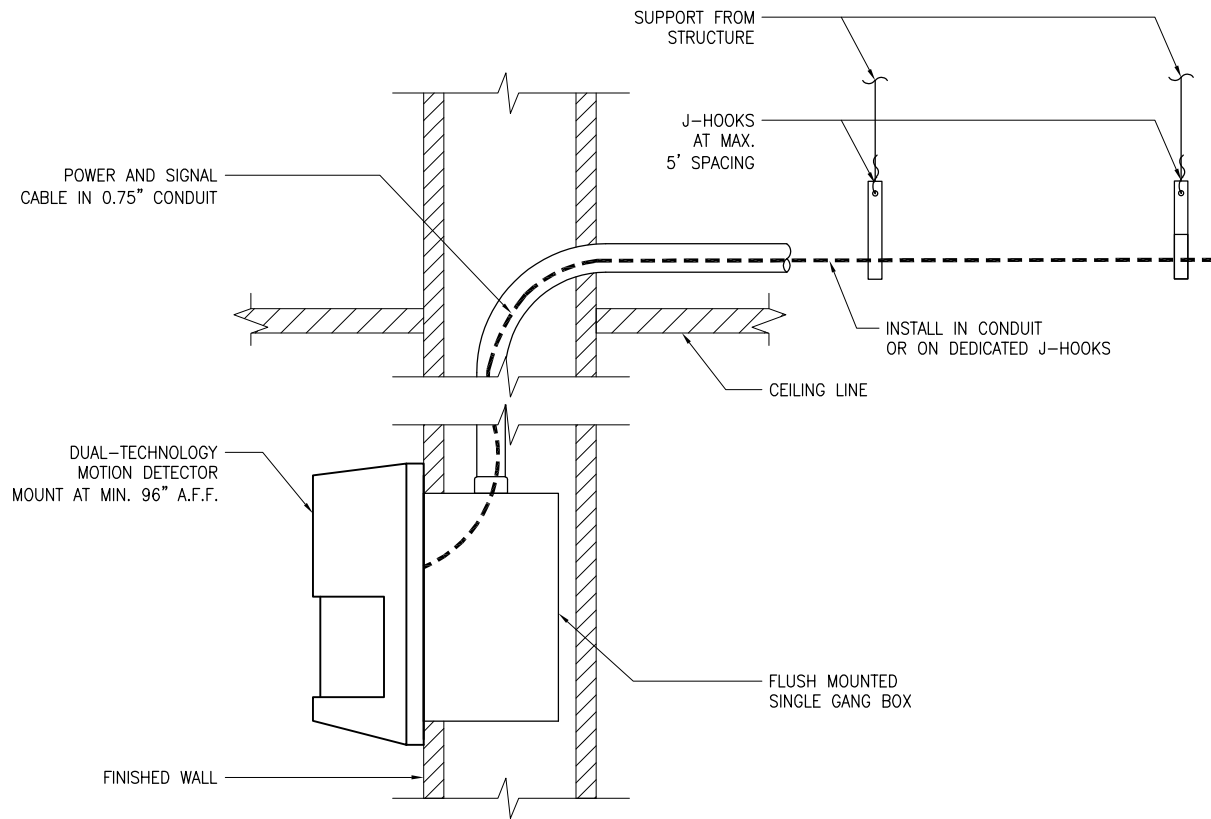
Revision 1.0

Scale NTS

IDS-MD1

GENERAL NOTES:

1. REFERENCE DRAWING IDS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.



Dartmouth College
Facilities Operations
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Title TYPICAL WALL MOUNTED MOTION DETECTOR

System INTRUSION DETECTION

Date 2/14/2024

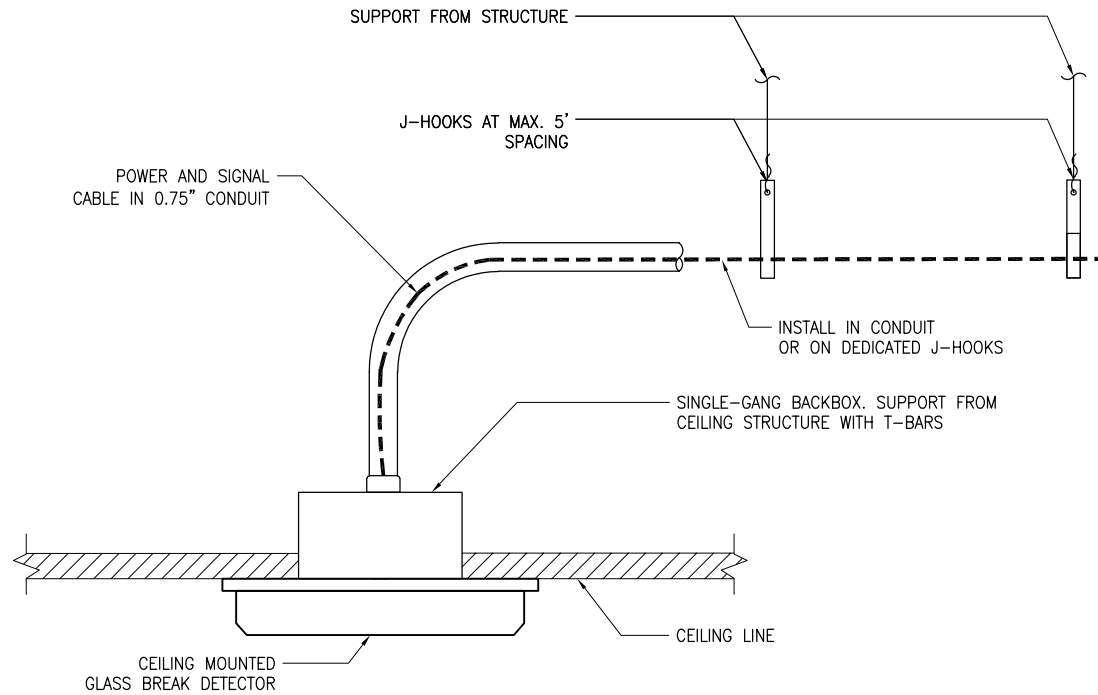
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Scale NTS

IDS-MD2

GENERAL NOTES:

1. REFERENCE DRAWING IDS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.



Dartmouth College
Facilities Operations
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Title TYPICAL CEILING GLASS BREAK DETECTOR

System INTRUSION DETECTION

Date 2/14/2024

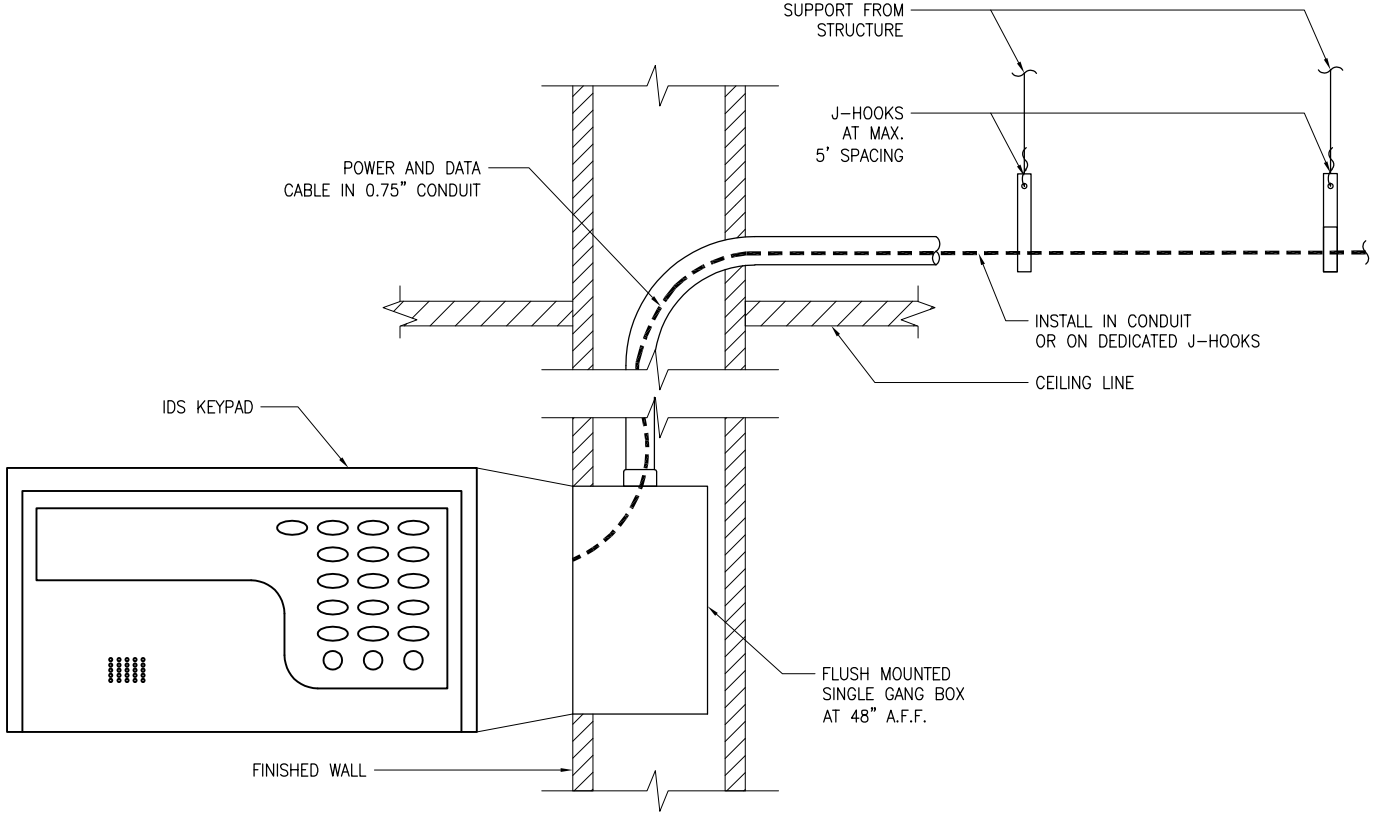
Revision 1.0

Scale NTS

IDS-GB1

GENERAL NOTES:

- 1. REFERENCE DRAWING IDS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.



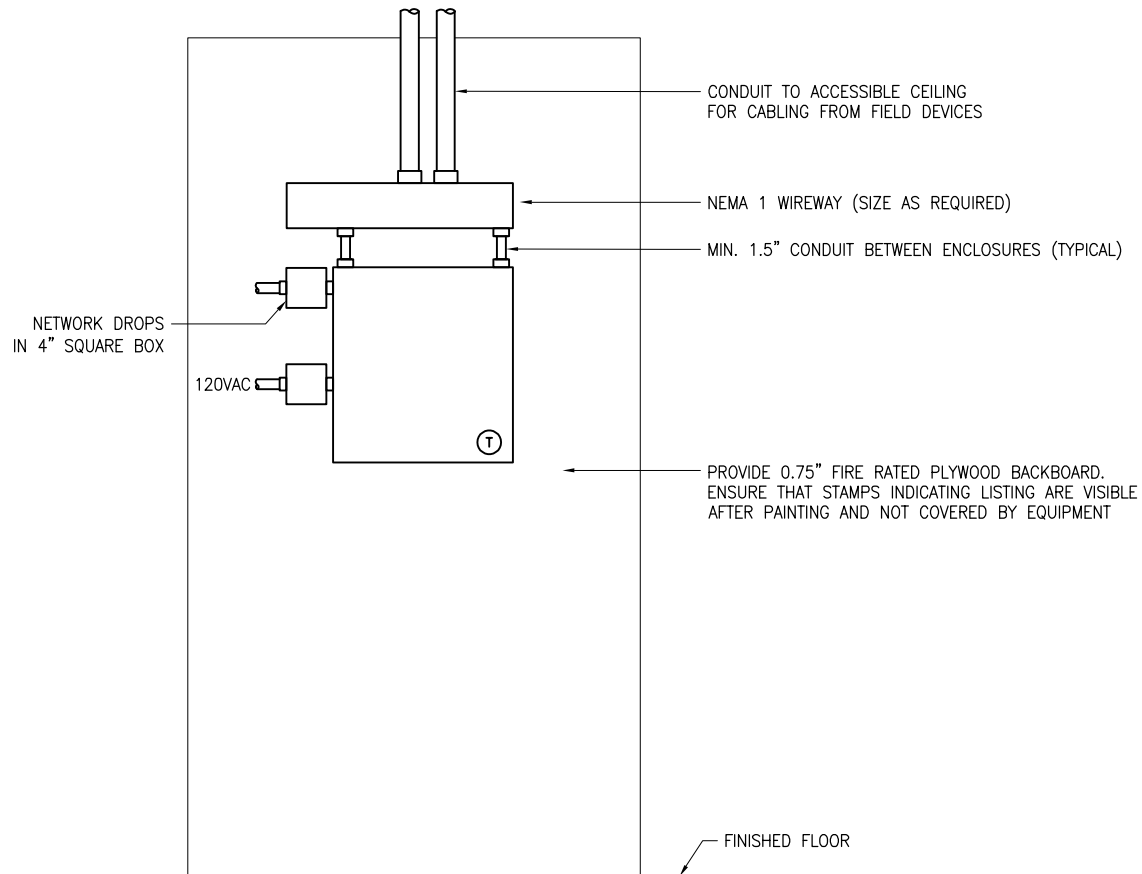
Dartmouth College
Facilities Operations
& Management

Title TYPICAL IDS KEYPAD
System INTRUSION DETECTION Revision 1.0
Date 2/14/2024 Scale NTS

VSS-KP

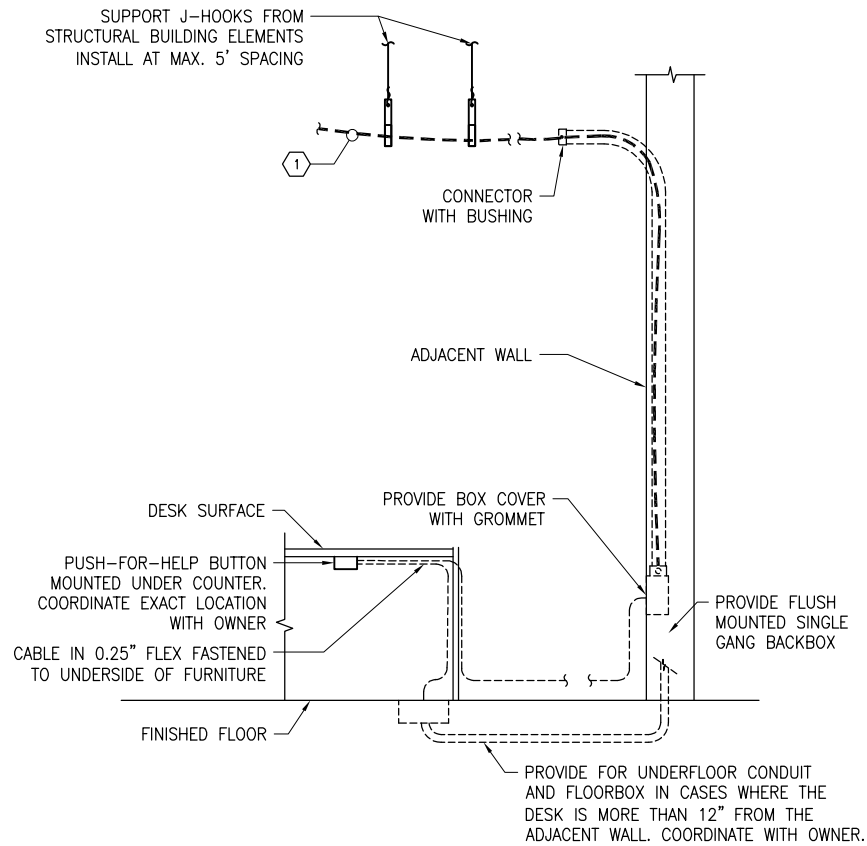
GENERAL NOTES:

1. REFERENCE DRAWING IDS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.
2. DETAIL INDICATES GENERIC LAYOUT AND EQUIPMENT QUANTITIES. COORDINATE WITH ACTUAL TYPE OF EQUIPMENT PROVIDED AND FIELD CONDITIONS.
3. CONFIGURE IDS CONTROLLER TO MONITOR AC POWER FAILURE AND LOW BATTERY CONDITION.



GENERAL NOTES:

1. REFERENCE DRAWING IDS-GEN1 FOR CONDUIT AND CABLE ROUTING REQUIREMENTS.



Dartmouth College
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Title TYPICAL IDS DURESS BUTTON

System INTRUSION DETECTION

Date 2/14/2024

Revision 1.0

Scale NTS

IDS-DB