



**To: All Vendors Bidding on The College of New Jersey  
Forcina Hall Renovation**

**From: Lauren Manning  
Finance & Business Services**

**Date: October 23, 2024**

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**ADDENDUM NO. 3**

**ISSUE DATE: October 23, 2024**

**REFERENCE:** The College of New Jersey  
Forcina Hall Renovation  
Bid No. AB250001

Date of Original Bidding Documents: October 3, 2024

**INTENT:** This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents and Prior Addenda if any, as identified above.

**ADDENDUM NO. 1 was issued on Tuesday, October 15, 2024, and can be found on the college's website – [linked here](#). Bidders are required to download and acknowledge receipt of addenda with your bid.**

**ADDENDUM NO. 2 was issued on Friday, October 18, 2024, and can be found on the college's website – [linked here](#). Bidders are required to download and acknowledge receipt of addenda with your bid.**

**REVISED BID OPENING DATE: 2:00 p.m. on November 1, 2024**

The College of New Jersey will receive sealed bids for Forcina Hall Renovation until 2:00 P.M. on the **1<sup>st</sup> day of November, 2024** at The College's Office of Finance and Business Services, Administrative Services Building, Second Floor, Room 201, 2000 Pennington Road, Ewing Township, New Jersey. At 2:00 P.M. all bids will be publicly opened and read in Room 203 of the Administrative Services Building.

**CLARIFICATIONS:**

1. Honeywell is the Owner's proprietary Fire Alarm System on Campus. See attached revised specification Section 284600 – Fire Detection and Alarm.
2. Soil borings are conducted for the engineer to design the foundation. The contractor is responsible for constructing according to the drawings, specifications and addenda provided.
3. Appendix A (New Traction Elevator), issued in the original bid documents dated October 3, 2024, is for reference/coordination only (Separate Bid) and not to be included with the bid.
4. Appendix A (05\_274100 Audio Visual), issued in Addendum No. 2 dated October 18, 2024, is for reference/coordination only (Separate Bid) and not to be included with the bid. This will now be referenced as Appendix B.
5. Appendix B (Geophysical Investigation), issued in Addendum No. 2 dated October 18, 2024, will now be referenced as Appendix C.
6. In Specification 087100 (Door Hardware), Door Hardware Sets 1 and 3 reads :1 Pair Door Operators (surface) BESAM (separate spec section) 689 BM. The basis of design shall be to provide SW 200i (formerly Besam). See attached cut sheet for Assa Abloy SW200i Swing Door.
7. The asbestos contractor (separate bid) will only be removing the Vinyl Asbestos Tiles(VAT). The mastic from the tiles will remain in place. This shall be figured in prepping the floor for the new flooring.

**ATTACHMENTS:**

1. Revised Specification Section 284600 – Fire Detection and Alarm
2. Revised sheet SC0.01 SECURITY LEGENDS, ABBREVIATIONS, AND GENERAL NOTES –  
Revised security responsibility matrix.
3. Assa Abloy SW200i Swing Door.
4. Revised Milestone Schedule dated 10/23/24.

**END OF ADDENDUM NO. 3**

## 284600 - FIRE DETECTION AND ALARM

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Fire alarm system design and installation, including all components, wiring, and conduit.
- B. Transmitters for communication with supervising station.
- C. Circuits from protected premises to supervising station, including conduit.
- D. Replacement and removal of existing fire alarm system components, wiring, and conduit indicated.

#### 1.2 RELATED REQUIREMENTS

- A. Section 078400 - Firestopping: Materials and methods for work to be performed by this installer.
- B. Designed using manufacturer's product-specific design software or based on manufacturer's pre-engineered design suitable for the application.
- C. Section 087100 - Door Hardware: Electrically operated locks and door holder devices to be monitored and released by fire alarm system.
- D. Section 142100 - Electric Traction Elevators: Elevator systems monitored and controlled by fire alarm system.
- E. Section 142400 - Hydraulic Elevators: Elevator systems monitored and controlled by fire alarm system.
- F. Section 211300 - Fire-Suppression Sprinkler Systems: Supervisory, alarm, and actuating devices installed in sprinkler system.
- G. Section 213000 - Fire Pumps: Supervisory devices.
- H. Section 233300 - Air Duct Accessories: Smoke dampers monitored and controlled by fire alarm system.
- I. Section 260548 - Vibration and Seismic Controls for Electrical Systems: Requirements for the seismic qualification of equipment specified in this section.

#### 1.3 REFERENCE STANDARDS

- A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.
- B. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.
- C. IEEE C62.41.2 - IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits; 2002 (Corrigendum 2012).
- D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- E. NFPA 72 - National Fire Alarm and Signaling Code; Most Recent Edition Cited by Referring Code or Reference Standard.
- F. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. UL 268 - Standard for Smoke Detectors for Fire Alarm Systems; Current Edition, Including All Revisions.

#### 1.4 SUBMITTALS

- A. See Section 01 3300 - Submittal Procedures for submittal procedures.
- B. Proposal Documents: Submit the following with cost/time proposal:
  - 1. NFPA 72 "Record of Completion", filled out to the extent known at the time.
  - 2. Manufacturer's detailed data sheet for each control unit, initiating device, and notification appliance.
  - 3. Certification by Contractor that the system design will comply with Contract Documents.
- C. Drawings must be prepared using AutoCAD Release 2021.
- D. Evidence of designer qualifications.
- E. Design Documents: Submit all information required for plan review and permitting by authorities having jurisdiction, including but not limited to floor plans, riser diagrams, and description of operation:
  - 1. Copy (if any) of list of data required by authority having jurisdiction.
  - 2. NFPA 72 "Record of Completion", filled out to the extent known at the time.
  - 3. Clear and concise description of operation, with input/output matrix similar to that shown in NFPA 72 Appendix A-7-5-2.2(9), and complete listing of software required.
  - 4. System zone boundaries and interfaces to fire safety systems.
  - 5. Location of all components, circuits, and raceways; mark components with identifiers used in control unit programming.
  - 6. Circuit layouts; number, size, and type of raceways and conductors; conduit fill calculations; spare capacity calculations; notification appliance circuit voltage drop calculations.
  - 7. List of all devices on each signaling line circuit, with spare capacity indicated.
  - 8. Manufacturer's detailed data sheet for each component, including wiring diagrams, installation instructions, and circuit length limitations.
  - 9. Description of power supplies; if secondary power is by battery include calculations demonstrating adequate battery power.
  - 10. Certification by either the manufacturer of the control unit or by the manufacturer of each other component that the components are compatible with the control unit.
  - 11. Certification by the manufacturer of the control unit that the system design complies with Contract Documents.
  - 12. Certification by Contractor that the system design complies with Contract Documents.
- F. Evidence of installer qualifications.
- G. Evidence of instructor qualifications; training lesson plan outline.
- H. Inspection and Test Reports:
  - 1. Submit inspection and test plan prior to closeout demonstration.
  - 2. Submit documentation of satisfactory inspections and tests.
  - 3. Submit NFPA 72 "Inspection and Test Form," filled out.
- I. Operating and Maintenance Data: See Section 017800 for additional requirements; revise and resubmit until acceptable; have one set available during closeout demonstration:
  - 1. Complete set of specified design documents, as approved by authority having jurisdiction.
  - 2. Additional printed set of project record documents and closeout documents, bound or filed in same manuals.

3. List of recommended spare parts, tools, and instruments for testing.
  4. Replacement parts list with current prices, and source of supply.
  5. Detailed troubleshooting guide and large scale input/output matrix.
  6. Inspection, and testing schedule complying with NFPA 72; provide printed copy and computer format acceptable to Owner.
  7. Detailed but easy to read explanation of procedures to be taken by non-technical administrative personnel in the event of system trouble, when routine testing is being conducted, for fire drills, and when entering into contracts for remodeling.
- K. Project Record Documents: See Section 017800 for additional requirements; have one set available during closeout demonstration:
1. Complete set of floor plans showing actual installed locations of components, conduit, and zones.
  2. "As installed" wiring and schematic diagrams, with final terminal identifications.
  3. "As programmed" operating sequences, including control events by device, updated input/output chart, and voice messages by event.
- L. Closeout Documents:
1. Certification by manufacturer that the system has been installed in compliance with manufacturer's installation requirements, is complete, and is in satisfactory operating condition.
  2. NFPA 72 "Record of Completion", filled out completely and signed by installer and authorized representative of authority having jurisdiction.
  3. Report on training results.
- M. Maintenance Materials, Tools, and Software: Furnish the following for Owner's use in maintenance of project.
1. See Section 016000 - Product Requirements, for additional provisions.
  2. Furnish spare parts of same manufacturer and model as those installed; deliver in original packaging, labeled in same manner as in operating and maintenance data and place in spare parts cabinet.
  3. In addition to the items in quantities indicated in PART 2, furnish the following:
    - a. All tools, software, and documentation necessary to modify the fire alarm system using Owner's personnel; minimum modification capability to include addition and deletion of devices, circuits, and zones, and changes to system description, operation, and evacuation and instructional messages.
    - b. One copy, on CD-ROM, of all software not resident in read-only-memory.
    - c. Extra Fuses: Two for each installed fuse; store inside applicable control cabinet.

## 1.5 QUALITY ASSURANCE

- A. Designer Qualifications: NICET Level III or IV (3 or 4) certified fire alarm technician or registered fire protection engineer, employed by fire alarm control panel manufacturer, Contractor, or installer, with experience designing fire alarm systems in the jurisdictional area of the authorities having jurisdiction.

- B. Installer Qualifications: Firm with minimum 3 years documented experience installing fire alarm systems of the specified type and providing contract maintenance service as a regular part of their business.
  - 1. Authorized representative of control unit manufacturer; submit manufacturer's certification that installer is authorized; include name and title of manufacturer's representative making certification.
  - 2. Installer Personnel: At least 2 years of experience installing fire alarm systems.
  - 3. Supervisor: NICET level III or IV (3 or 4) certified fire alarm technician; furnish name and address.
  - 4. Certified in the State in which the Project is located as fire alarm installer.
- C. Maintenance Contractor Qualifications: Same entity as installer or different entity with specified qualifications.
- D. Instructor Qualifications: Experienced in technical instruction, understanding fire alarm theory, and able to provide the required training; trained by fire alarm control unit manufacturer.

## 1.6 WARRANTY

- A. See Section 017800 - Closeout Submittals, for additional warranty requirements.
- B. Provide control panel manufacturer's warranty that system components other than wire and conduit are free from defects and will remain so for 1 year after date of Substantial Completion.
- C. Provide installer's warranty that the installation is free from defects and will remain so for 1 year after date of Substantial Completion.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Fire Alarm Control Units and Accessories:
  - 1. Honeywell Security & Fire Solutions/Gamewell-FCI:
  - 2. Honeywell Security & Fire Solutions/Fire-Lite: .
  - 3. Honeywell Security & Fire Solutions/Notifier: .
  - 4. Honeywell Security & Fire Solutions/Silent Knight:
  - 5. Provide control units made by the same manufacturer.
- B. Initiating Devices and Notification Appliances:
  - 1. Honeywell Security & Fire Solutions/Gamewell-FCI: .
  - 2. Honeywell Security & Fire Solutions/Fire-Lite: .
  - 3. Honeywell Security & Fire Solutions/Notifier:
  - 4. Honeywell Security & Fire Solutions/Silent Knight:
  - 5. Same manufacturer as control units.
- ~~C. Substitutions: See Section 016000 - Product Requirements.~~
  - ~~1. For other acceptable manufacturers of control units specified, submit product data showing equivalent features and compliance with Contract Documents.~~
  - ~~2. For substitution of products by manufacturers not listed, submit product data showing features and certification by Contractor that the design will comply with Contract Documents.~~

## 2.2 FIRE ALARM SYSTEM

- A. Fire Alarm System: Provide a new automatic fire detection and alarm system:
  - 1. Provide all components necessary, regardless of whether shown in Contract Documents or not.
  - 2. Protected Premises: Entire building shown on drawings.
  - 3. Comply with the following; where requirements conflict, order of precedence of requirements is as listed:
    - a. ADA Standards.
    - b. The requirements of state and local Authority Having Jurisdiction.
    - c. The requirements of the local authority having jurisdiction.
    - d. Applicable local codes.
    - e. Contract Documents (drawings and specifications).
    - f. NFPA 101.
    - g. NFPA 72; where the word "should" is used consider that provision mandatory; where conflicts between requirements require deviation from NFPA 72, identify deviations clearly on design documents.
  - 4. Hearing Impaired Occupants: Provide visible notification devices in all public areas and in dwelling units.
  - 5. Master Fire Alarm Control Unit: New, located at where shown on plans.
- B. Circuits:
  - 1. Initiating Device Circuits (IDC): Class A, Style D.
  - 2. Signaling Line Circuits (SLC) Within Single Building: Class B, Style 0.5.
  - 3. Notification Appliance Circuits (NAC): Class A, Style Z.
- C. Power Sources:
  - 1. Primary: Dedicated branch circuits of the facility power distribution system.
  - 2. Secondary: Storage batteries.
  - 3. Capacity: Sufficient to operate entire system for period specified by NFPA 72.

## 2.3 FIRE SAFETY SYSTEMS INTERFACES

- A. Supervision: Provide supervisory signals in accordance with NFPA 72 for the following:
  - 1. Sprinkler water control valves.
  - 2. Dry-pipe sprinkler system pressure.
  - 3. Dry-pipe sprinkler valve room low temperature.
  - 4. Fire pump(s).
  - 5. Elevator shut-down control circuits.
- B. Alarm: Provide alarm initiation in accordance with NFPA 72 for the following:
  - 1. Sprinkler water flow.
  - 2. Elevator lobby, elevator hoistway, and elevator machine room smoke detectors.
  - 3. Duct smoke detectors.
- C. Elevators:
  - 1. Elevator lobby, hoistway, and machine room smoke detectors: Elevator recall for fire fighters' service.

2. Elevator Machine Room Heat Detector: Shut down elevator power prior to hoistway sprinkler activation.
  3. Sprinkler pressure or waterflow: Shut down elevator power prior to hoistway sprinkler activation.
- D. HVAC:
1. Duct Smoke Detectors: Close dampers indicated; shut down air handlers indicated.
- E. Doors:
1. Smoke Barrier Door Magnetic Holders: Release upon activation of smoke detectors in smoke zone on either side of door, upon alarm from manual pull station on same floor, and upon sprinkler activation on same floor. Refer to Section 087100.
  2. Electromagnetic Door Locks on Egress Doors: Unlock upon activation of any alarm initiating device or suppression system in smoke zone that doors serve as egress from. Refer to Section 087100.

## 2.4 COMPONENTS

- A. General:
1. Provide flush mounted units where installed in finish areas; in unfinished areas, surface mounted unit are acceptable.
  2. Provide legible, permanent labels for each control device, using identification used in operation and maintenance data.
- B. Fire Alarm Control Units: Analog, addressable type; listed, classified, and labeled as suitable for the purpose intended.
- C. Remote Annunciators: This module shall operate on the reverse polarity principle. System alarm signals shall be sent to security alarm panel, provided by owner, for remote alarm reporting. A manual disconnect switch shall prevent transmission of alarm signals during drills. A trouble indication shall be visible until this switch is returned to normal.
- D. Addressable Modules:
1. Provide addressable modules suitable for connection to fire alarm control unit signaling line circuits.
  2. Unless otherwise indicated, use addressable modules only in clean, dry, indoor, nonhazardous locations.
  3. Monitor Modules: Unless devices are explicitly permitted to be connected together as zone, provide separate addressable monitor module for each conventional dry-contact input device in order to be individually identifiable by addressable fire alarm control unit.
  4. Control Modules: Provide as indicated or as required for selective control of notification appliances.
  5. Releasing Control Modules: Provide as indicated or as required for control of listed solenoids in releasing applications.
  6. Relay Modules: Provide as indicated or as required to perform necessary functions via dry-contact interface. Where load exceeds module contact rating, provide accessory power isolation relays suitable for load as required.
- E. Initiating Devices:
1. Addressable Systems:
    - a. Addressable Devices: Individually identifiable by addressable fire alarm control unit.



- b. Provide suitable addressable interface modules as indicated or as required for connection to conventional (non-addressable) devices and other components that provide a dry closure output.
  - 2. Manual Pull Stations: Manual stations shall be dual action pull lever type requiring a key to be reset.
    - a. Provide 1 extra.
  - 3. Smoke Detectors: Ionization type Area Smoke Detectors shall operate on the dual chamber Ionization principle. The detector head shall be plug-in and mount to a twist lock base. The base shall have an indicator lamp to show when the unit has activated.
    - a. Provide 5 extra.
  - 4. Duct Smoke Detectors: Duct detectors shall be of photoelectric type with plug-in detector head. Unit shall have field adjustable sensitivity. The sampling tubes shall be full length and cover the entire width of the duct.
    - a. Provide 1 extra.
  - 5. Heat Detectors: Thermal detectors shall be of the low profile type and compatible with all other initiation devices for operation on the same wires. The detectors shall be combination rate-of-rise and/or fixed temperature 135° unless otherwise indicated.
    - a. Provide 1 extra.
- F. Notification Appliances:
- 1. Notification Appliances - General Requirements:
    - a. Provide signaling devices listed for fire-protective service and intended operating mode (public or private); suitable for connection to FACU notification NAC.
    - b. Provide addressable control modules as indicated or as required for selective control of notification appliances.
    - c. Provide notification appliances and associated accessories suitable for intended application and location to be installed. Use notification appliances only according to listed mounting (i.e., ceiling or wall mounted).
    - d. Surface-Mounted Notification Appliances: Provide manufacturer's accessory surface mount backboxes or suitable outlet/device box.
    - e. Notification Appliances for Outdoor and Damp/Wet Locations: Weatherproof, suitable for outdoor use; provide manufacturer's accessory backboxes and enclosures in accordance with product listing.
    - f. Notification Appliance Derating: Account for device derating adjustments in accordance with listing where applicable, including but not limited to the following.
      - 1) Where accessory protective guards, and enclosures are utilized.
      - 2) Where required by field conditions (e.g., ambient temperature).
    - g. Notification Appliances Colors:
      - 1) See mounting configuration indicated by floor plan drawing symbols.
      - 2) Wall-Mounted: Red.
      - 3) Ceiling-Mounted: White.
- G. Visible Notification Appliances:
- 1. Public Mode Operation: Listed and labeled as complying with UL 1971.
  - 2. Private Mode Operation: Listed and labeled as complying with UL 1638.

3. Strobes: Clear or nominal white lens with flash rate of 1 Hz unless otherwise indicated or required; xenon light source with maximum pulse duration of 0.2 seconds; candela rating as indicated.
  - a. Where field-selectable candela strobes are specified, substitution of fixed candela strobes is not permitted.
- H. Audible Notification Appliances:
  1. Listed and labeled as complying with UL 464.
  2. Rated Sound Pressure Level: As required to achieve design sound pressure levels, but not less than 75 dB(A) at 10 feet (3.1 m) for public mode operation or 45 dB(A) at 10 feet (3.1 m) for private mode operation in accordance with UL 464.
  3. Horns: Selectable tone, including at minimum NFPA 72-compliant temporal 3 pattern and continuous; minimum of two selectable volume levels.
- I. Speakers for Emergency Voice/Alarm Communications Systems (EVACS):
  1. Listed and labeled as complying with UL 1480.
  2. Rated Sound Pressure Level: As required to achieve design sound pressure levels, but not less than 75 dB(A) at 10 feet (3.1 m) in accordance with UL 1480.
  3. Frequency Range: 400 to 4,000 Hz minimum in accordance with UL 1480; listed for producing 520 Hz low frequency alarm signal for sleeping areas in accordance with NFPA 72.
  4. Speaker Voltage: Field-selectable (25 Vrms, 70.7 Vrms); matched to audio distribution circuit.
  5. Furnished with minimum of four field-selectable power taps.
- J. Combination Notification Appliances: Comply with respective requirements for each signaling method.
- K. Exterior Notification:
  1. Fire Alarm Visible Notification: Provide strobe beacon with red lens; interface to dedicated NAC or addressable control module, 24 VDC, supervised.
  2. Trouble Visible Notification: Provide strobe beacon with amber lens; interface to dedicated NAC or addressable control module, 24 VDC, supervised.
  3. Sprinkler System Waterflow Visible Notification: Provide strobe beacon with clear lens; interface to dedicated NAC or addressable control module, 24 VDC, supervised; same circuit as sprinkler system waterflow audible notification where provided.
  4. Sprinkler System Waterflow Audible Notification: Provide bell; interface to dedicated NAC or addressable control module, 24 VDC, supervised; same circuit as sprinkler system waterflow visible notification where provided.
- L. Circuit Conductors: Copper or optical fiber; provide 200 feet (60 m) extra; color code and label.
- M. Surge Protection: In accordance with IEEE C62.41.2 category B combination waveform and NFPA 70; except for optical fiber conductors.
- N. Locks and Keys: Deliver keys to Owner.
  1. Provide the same standard lock and key for each key operated switch and lockable panel and cabinet; provide 5 keys of each type
- O. Instruction Charts: Printed instruction chart for operators, showing steps to be taken when a signal is received (normal, alarm, supervisory, and trouble); easily readable from normal operator's station.

1. Frame: Stainless steel or aluminum with polycarbonate or glass cover.
2. Provide one for each control unit where operations are to be performed.
3. Obtain approval of Owner prior to mounting; mount in location acceptable to Owner.
4. Provide extra copy with operation and maintenance data submittal.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install in accordance with applicable codes, NFPA 72, NFPA 70, and Contract Documents.
- B. Conceal all wiring, conduit, boxes, and supports where installed in finished areas.
- C. Obtain Owner's approval of locations of devices, before installation.
- D. Install instruction cards and labels.

### 3.2 INSPECTION AND TESTING FOR COMPLETION

- A. Notify Owner 7 days prior to beginning completion inspections and tests.
- B. Notify authorities having jurisdiction and comply with their requirements for scheduling inspections and tests and for observation by their personnel.
- C. Provide the services of the installer's supervisor or person with equivalent qualifications to supervise inspection and testing, correction, and adjustments.
- D. Prepare for testing by ensuring that all work is complete and correct; perform preliminary tests as required.
- E. Provide all tools, software, and supplies required to accomplish inspection and testing.
- F. Perform inspection and testing in accordance with NFPA 72 and requirements of local authorities; document each inspection and test.
- G. Correct defective work, adjust for proper operation, and retest until entire system complies with Contract Documents.
- H. Diagnostic Period: After successful completion of inspections and tests, Operate system in normal mode for at least 14 days without any system or equipment malfunctions.
  1. Record all system operations and malfunctions.
  2. If a malfunction occurs, start diagnostic period over after correction of malfunction.
  3. Owner will provide attendant operator personnel during diagnostic period; schedule training to allow Owner personnel to perform normal duties.
  4. At end of successful diagnostic period, fill out and submit NFPA 72 "Inspection and Testing Form."

### 3.3 OWNER PERSONNEL INSTRUCTION

- A. Provide the following instruction to designated Owner personnel:
  1. Hands-On Instruction: On-site, using operational system.
  2. Classroom Instruction: Owner furnished classroom, on-site or at other local facility.
- B. Administrative: One-hour session(s) covering issues necessary for non-technical administrative staff; classroom:
  1. Initial Training: 1 session pre-closeout.
- C. Basic Operation: One-hour sessions for attendant personnel, security officers, and engineering staff; combination of classroom and hands-on:

1. Initial Training: 1 session pre-closeout.
- D. Furnish the services of instructors and teaching aids; have copies of operation and maintenance data available during instruction.
- E. Provide means of evaluation of trainees suitable to type of training given; report results to Owner.

### 3.4 CLOSEOUT

- A. Closeout Demonstration: Demonstrate proper operation of all functions to Owner.
  1. Be prepared to conduct any of the required tests.
  2. Have at least one copy of operation and maintenance data, preliminary copy of project record drawings, input/output matrix, and operator instruction chart(s) available during demonstration.
  3. Have authorized technical representative of control unit manufacturer present during demonstration.
  4. Demonstration may be combined with inspection and testing required by authority having jurisdiction; notify authority having jurisdiction in time to schedule demonstration.
  5. Repeat demonstration until successful.
- B. Substantial Completion of the project cannot be achieved until inspection and testing is successful and:
  1. Specified diagnostic period without malfunction has been completed.
  2. Approved operating and maintenance data has been delivered.
  3. Spare parts, extra materials, and tools have been delivered.
  4. All aspects of operation have been demonstrated to Owner.
  5. Final acceptance of the fire alarm system has been given by authorities having jurisdiction.
  6. Specified pre-closeout instruction is complete.

END OF SECTION 284600

ABBREVIATIONS	
(BP)	BLANK PLATE
(E)	EXISTING TO REMAIN
(ED)	EXISTING ITEM TO BE DEMOLISHED
(ER)	EXISTING ITEM TO BE RELOCATED
(EX)	EXISTING ITEM TO BE REUSED
(N)	NEW ITEM
(RL)	EXISTING ITEM RELOCATED
8P8C	8-POSITION, 8-CONDUCTOR
AD	ANALOG TO DIGITAL CONVERSION
AC	ALTERNATING CURRENT
ACP	ACCESS CONTROL PANEL
ACS	ACCESS CONTROL SYSTEM
ACT	ACOUSTIC CEILING TILE
ADA	AMERICANS WITH DISABILITIES ACT
ADO	AUTOMATIC DOOR OPERATOR
AER	AERIAL
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AV	AUDIOVISUAL
AVC	AUDIOVISUAL CONTRACTOR
AWG	AMERICAN WIRE GAUGE
BCIS	BUILDING INDUSTRY CONSULTING SERVICES
BTU	BRITISH THERMAL UNIT
C	CONDUIT
CAB	CABINET
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CJT	CONDUIT
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CM	CONSTRUCTION MANAGER
CMP	COMMUNICATIONS MULTIPURPOSE PLENUM
CMR	COMMUNICATIONS MULTIPURPOSE RISER
COND	CONDUCTOR
CPU	CENTRAL PROCESSING UNIT
CU	COPPER
DIA	DIGITAL TO ANALOG CONVERSION
DB	DECEBEL
DC	DIRECT CURRENT
DVR	DIGITAL VIDEO RECORDER
DWG	DRAWING(S)
EC	ELECTRICAL CONTRACTOR
EIA	ELECTRONICS INDUSTRY ASSOCIATION
ELEC	ELECTRICAL
EMERG	EMERGENCY
EMI	ELECTROMAGNETIC INTERFERENCE
EMR	ELEVATOR MACHINE ROOM
EMT	ELECTRICAL METALLIC TUBING
EOLR	END-OF-LINE RESISTOR
FA	FIRE ALARM
FCC	FEDERAL COMMUNICATIONS COMMISSION
FO	FIBER OPTIC
FREQ	FREQUENCY
FT	FEET
FTP	FOIL TWISTED PAIR
G, GND	GROUND
GC	GENERAL CONTRACTOR
GHZ	GIGAHERTZ
HH	HANDHOLE
HZ	HERTZ
IO	INPUT OUTPUT
ICP	INTRUSION CONTROL PANEL
IDF	INTERMEDIATE DISTRIBUTION FRAME
IDS	INTRUSION DETECTION SYSTEM
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
ISP	INSIDE PLANT
JB	JUNCTION BOX
KHZ	KILOHERTZ
LAN	LOCAL AREA NETWORK
LED	LIGHT EMITTING DIODE
LV	LOW VOLTAGE
MAX	MAXIMUM
MDF	MAIN DISTRIBUTION FRAME
NEXT	NEAR END CROSS TALK
NC	NOT IN CONTRACT
NO	NUMBER
#	
NTS	NOT TO SCALE
OFE	OWNER FURNISHED EQUIPMENT
OFNP	OPTICAL FIBER NON CONDUCTIVE PLENUM
OFNR	OPTICAL FIBER NON CONDUCTIVE RISER
OTDR	OPTICAL TIME DOMAIN REFLECTOMETER
PBX	PRIVATE BRANCH EXCHANGE
PWR	POWER
REC	RECESSED
RECEPT	RECEPTICAL
RM	ROOM
RU	RACK UNIT
SAN	STORAGE AREA NETWORK
SC	SECURITY CONTRACTOR
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TC	TELECOMMUNICATIONS CONTRACTOR
TEL	TELEPHONE
TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UN	UNLESS OTHERWISE NOTED
VOP	VOICE OVER INTERNET PROTOCOL
WAN	WIDE AREA NETWORK
WAP	WIRELESS ACCESS POINT
WP	WALL PHONE

## SECURITY RESPONSIBILITY MATRIX

COMPONENTS	OWNER		ELECTRICAL CONTRACTOR		TELECOM CONTRACTOR		SECURITY CONTRACTOR	
	F	I	F	I	F	I	F	I
SECURITY RACEWAYS - BOX/ CONDUIT/ BUSHING/ PULL ROPE/ PULL BOX/ HANDHOLES/ HOOKS			F	I				
SECURITY ACCESS CONTROL. HORIZONTAL CABLING FROM FIELD DEVICES TO HEAD END							F	I
SECURITY INTRUSION DETECTION. HORIZONTAL CABLING FROM FIELD DEVICES TO HEAD END							F	I
SECURITY CCTV. HORIZONTAL CABLING FROM CAMERAS TO PATCH PANEL					F	I		
CCTV AND INTERCOM SYSTEM IT ROOM PATCH CORDS		F	I					
SECURITY CCTV. CABLE TESTING AND LABELING					F	I		
SECURITY ACCESS CONTROL. CABLE TESTING AND LABELING							F	I
SECURITY SYSTEMS NETWORK POE SWITCHES AND IP ADDRESSES		F	I					
SECURITY ACCESS CONTROL, INTRUSION, INTERCOM AND CCTV FIELD DEVICES, CONTROL PANELS AND POWER SUPPLIES		F	I					I
-VISITOR MANAGEMENT SYSTEM - WORKSTATION, SOFTWARE AND PERIPHERALS-								
CCTV SYSTEM RECORDER, SOFTWARE AND IP CAMERA LICENSES		F	I					
ACCESS CONTROL SYSTEM HEAD-END SOFTWARE AND LICENSES		F	I					
SECURITY ACCESS CONTROL, INTRUSION, INTERCOM AND CCTV TESTING/COMMISSIONING/QSM MANUALS-BUILTS							F	I
SECURITY ACCESS CONTROL, OPTICAL TURNSTILES								
MATRIX NOTES:								
THE MATRIX IS A GENERAL DIAGRAM OF SYSTEMS AND DOES NOT INCLUDE ALL PARTS AND RELATED ACCESSORIES FOR EACH COMPONENT AND SYSTEM. REFER TO RELATED SPECIFICATIONS AND DRAWINGS WITHIN T, SC AND E SERIES FOR ADDITIONAL INFORMATION AND DETAILS.								

## SECURITY GENERAL NOTES

- INSTALLATION OF EQUIPMENT SHALL PERMIT ACCESSIBILITY FOR SERVICE AND REPLACEMENT. ALL CEILING-MOUNTED EQUIPMENT SHALL BE INSTALLED IN SUCH A MANNER THAT LIGHTS, PIPING, AND DUCTWORK DO NOT BLOCK ACCESS TO UNITS AND RELATED ACCESSORIES.
- THE SECURITY CONTRACTOR SHALL EXAMINE THE DRAWINGS OF ALL TRADES AND COORDINATE THEIR WORK PRIOR TO ANY INSTALLATIONS TO AVOID INTERFERENCE WITH STRUCTURE, AND ALL EQUIPMENT ABOVE AND BELOW THE CEILING.
- THE SECURITY CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND FIELD CONDITIONS AT THE SITE PRIOR TO BID AND PURCHASE OF EQUIPMENT/MATERIALS. THE CONTRACTOR SHALL PROVIDE VALUE FOR SAME IN THEIR BID. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER, ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING WITH THE WORK.
- THE SECURITY CONTRACTOR SHALL COORDINATE WITH THE GC ALL CUTTING AND PATCHING OF EXISTING CONSTRUCTION REQUIRED BY THEIR WORK. ALL FINISHES SHALL MATCH EXISTING. STRUCTURAL MEMBERS SHALL NOT BE CUT UNLESS APPROVED BY OWNERS REPRESENTATIVE.
- THE SECURITY CONTRACTOR SHALL ARRANGE AND OBTAIN ALL PERMITS, INSPECTIONS AND APPROVALS.
- BALA MAKES NO REPRESENTATION AS TO THE COMPATIBILITY OF THESE FILES WITH THE CONTRACTORS HARDWARE OR THEIR SOFTWARE. DATA CONTAINED ON THESE ELECTRONIC FILES ARE PART OF BALA'S "INSTRUMENTS OF SERVICE" AND ARE COPYRIGHTED. CONTRACTORS USE OF FILES IS FOR THE SOLE PURPOSE AS A CONVENIENCE IN THE PREPARATION OF DRAWINGS FOR THE REFERENCED PROJECT. ANY OTHER USE OR REUSE BY CONTRACTOR IS UNLAWFUL.
- THE CONTRACTOR WILL BE REQUIRED TO SIGN AND RETURN BALA'S AUTO CADD RELEASE FORM, PRIOR TO RECEIPT OF ELECTRONIC FILES.
- THE DRAWINGS FOR SECURITY WORK UTILIZE SYMBOLS AND SCHEMATIC DIAGRAMS WHICH HAVE NO DIMENSIONAL SIGNIFICANCE. THE WORK SHALL THEREFORE BE INSTALLED TO FULFILL THE DIAGRAMMATIC INTENT EXPRESSED ON THE SECURITY DRAWINGS, BUT IN CONFORMITY WITH THE DIMENSIONS INDICATED ON THE FINAL WORKING DRAWINGS, FIELD LAYOUTS, AND SHOP DRAWINGS OF ALL TRADES.
- CERTAIN DETAILS APPEAR ON THE DRAWINGS FOR SECURITY WORK WHICH ARE SPECIFIC WITH REGARD TO THE DIMENSIONING AND POSITIONING OF THE WORK. THESE ARE INTENDED ONLY FOR GENERAL INFORMATION PURPOSES. THEY DO NOT OVERTAKE FIELD COORDINATION FOR INDIVIDUAL ITEMS OF THE INDICATED WORK.
- DRAWINGS ARE DIAGRAMMATIC AND CERTAIN SPECIALTIES ARE NOT SHOWN. HOWEVER, THEY SHALL BE PROVIDED AS REQUIRED. ALL MEASUREMENTS SHALL BE DONE IN THE FIELD.
- PRIOR TO BID, VISIT THE SITE TO BECOME FAMILIAR WITH EXISTING CONDITIONS, ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM OF 1 YEAR FOLLOWING THE DATE OF OWNER ACCEPTANCE.
- AFTER ALL WORK HAS BEEN COMPLETED, CLEAN ALL PARTS OF THE INSTALLATION.
- PROVIDE ACCESS PANELS FOR DEVICES WHICH ARE CONCEALED AS A PART OF THIS INSTALLATION.
- PREPARE A RECORD SET OF PRINTS RECORDING ALL DEVIATIONS OF LOCATIONS AND EQUIPMENT. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- EQUIPMENT IS SPECIFIED TO ESTABLISH STANDARDS. IF CONTRACTOR SUBMITS OTHER TYPES OTHER THAN SPECIFIED, AND THESE MATERIALS ALTER THE DESIGN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPLACEMENT COSTS INVOLVED.
- ALL ENCLOSURES SHALL BE PROVIDED WITH TAMPER SWITCHES AND SHALL BE CONNECTED TO INPUT BOARDS ON ACCESS CONTROL SYSTEM.

## SECURITY SYSTEM SCOPE NOTES

- ACCESS CONTROL SYSTEM SHALL BE AN EXTENSION OF THE EXISTING/NEW. ALL NEW READERS, INPUT SENSORS, OUTPUT RELAYS SHALL BE SEAMLESSLY INTEGRATED INTO THE EXISTING SYSTEM. EDIT WIRELESS LOCKS REQUIREMENTS, IF ANY.
- VIDEO MANAGEMENT SYSTEM SHALL BE EXTENSION OF THE EXISTING SYSTEM CURRENTLY USED AT EXISTING/NEW FACILITIES. ALL NEW CAMERAS SHALL BE RECORDED ON EXISTING OFF-SITE STORAGE INFRASTRUCTURE. ALL CAMERAS SHALL BE INTEGRATED TO BE VIEWED AT EXISTING SOC. VIDEO STORAGE INFRASTRUCTURE SHALL BE SIZED PER PROJECT REQUIREMENTS AS INDICATED IN DIB 282300 SPECIFICATIONS. 20% GROWTH VIDEO STORAGE CAPACITY SHALL BE PROVIDED FOR THIS PROJECT.
- THE SECURITY COMMUNICATIONS SYSTEM (INTERCOM SYSTEM) SHALL BE IP-BASED, INTEGRATED WITH ACCESS CONTROL, AND PROGRAMMED TO VIEW, COMMUNICATE AND RELEASE DOORS FROM MULTIPLE LOCATIONS. INCLUDING EXISTING AND NEW SOC. THE SYSTEM SHALL BE COMPOSED OF VOICE DOOR STATIONS, VIDEO DOOR STATIONS, BLUE LIGHT PARKING TERMINALS, BLUE LIGHT SITE TOWERS, MASTER AND SUB-MASTER STATIONS, VIRTUAL AND MOBILE CLIENTS. ALL PARKING AND EXTERIOR BLUE LIGHT CALL DEVICES SHALL CALL DIRECTLY TO LOCAL PARKING STATION. THE ELEVATOR LOBBY COMMUNICATION STATIONS SHALL CALL TO 24/7 STAFFED STATION AND BE ABLE TO ROUTE CALLS TO THIRD PARTY MONITORING SERVICE.
- INTRUSION AND DURESS ALARM SYSTEMS SHALL BE STAND-ALONE, IP-BASED SYSTEM, COMPRISED OF DESK AND WALL MOUNTED DURESS ALARMS, ALARM ANNUNCIATES, CONTROL PANELS AND MONITORING EQUIPMENT. ALARMS SHALL BE REPORTED VIA ANALOG AND IP BACK-BONE TO \_\_\_\_ STATION.
- ALL SECURITY CABLING (ACCESS CONTROL, CCTV, DURESS, INTERCOM, ETC) ON LEVELS \_\_\_\_ SHALL BE IN CONDUIT FROM DEVICE LOCATION TO SERVING TR. ACCESS CONTROL CABLING CANNOT SHARE PATHWAYS WITH STRUCTURED UTP CABLING AND ANY OTHER LOW VOLTAGE SYSTEM CABLING. ALL CABLING SERVING EXTERIOR DEVICES SHALL BE IN CONDUIT.
- ALL SECURITY CABLING ACCESS CONTROL, CCTV, DURESS, INTERCOM, ETC) ON LEVELS \_\_\_\_ SHALL BE IN CONDUIT FROM DEVICE TO ACCESSIBLE CEILING. IN CEILING GC SHALL PROVIDE DEDICATED SET OF J-HOOKS FOR SECURITY CABLING PATHWAY FROM DEVICE TO SERVING TR.

## SECURITY RACEWAY REQUIREMENTS GENERAL NOTES

- SECURITY DETAILS ARE DIAGRAMMATIC AND INTENDED FOR OWNING THE SCOPE OF THE SYSTEMS AND REQUIREMENTS, ALL FINAL INSTALLATIONS SHALL BE BASED ON APPROVED SHOP DRAWINGS.
- CONTRACTOR SHALL PROVIDE DETAILED SHOP DRAWINGS INDICATING FINAL CABLING AND CONDUIT SIZES AS COORDINATED WITH APPROVED SHOP DRAWINGS PRIOR TO ROUGH-IN.
- PRIOR TO ROUGH-IN, CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS, REFLECTED CEILING PLANS, ELEVATIONS AND SCHEDULES FOR ALL FINAL MOUNTING HEIGHTS AND LOCATIONS.
- THE SECURITY CONTRACTOR SHALL PROVIDE ALL J-HOOK SUPPORTS FOR SECURITY CABLING.
- THE CONTRACTOR SHALL PROVIDE DETAILED COORDINATION DRAWINGS FOR SUBMITTAL TO ENSURE THAT ALL SIZES, AND SYSTEMS ARE COORDINATED WITH ALL TRADES AND SYSTEMS.
- INSTALLATION OF ALL RACEWAYS SYSTEMS SHALL BE PROVIDED IN ACCORDANCE WITH REFERENCED STANDARDS NOTED IN SPECIFICATIONS AND CONTRACT DOCUMENTS HEREIN.

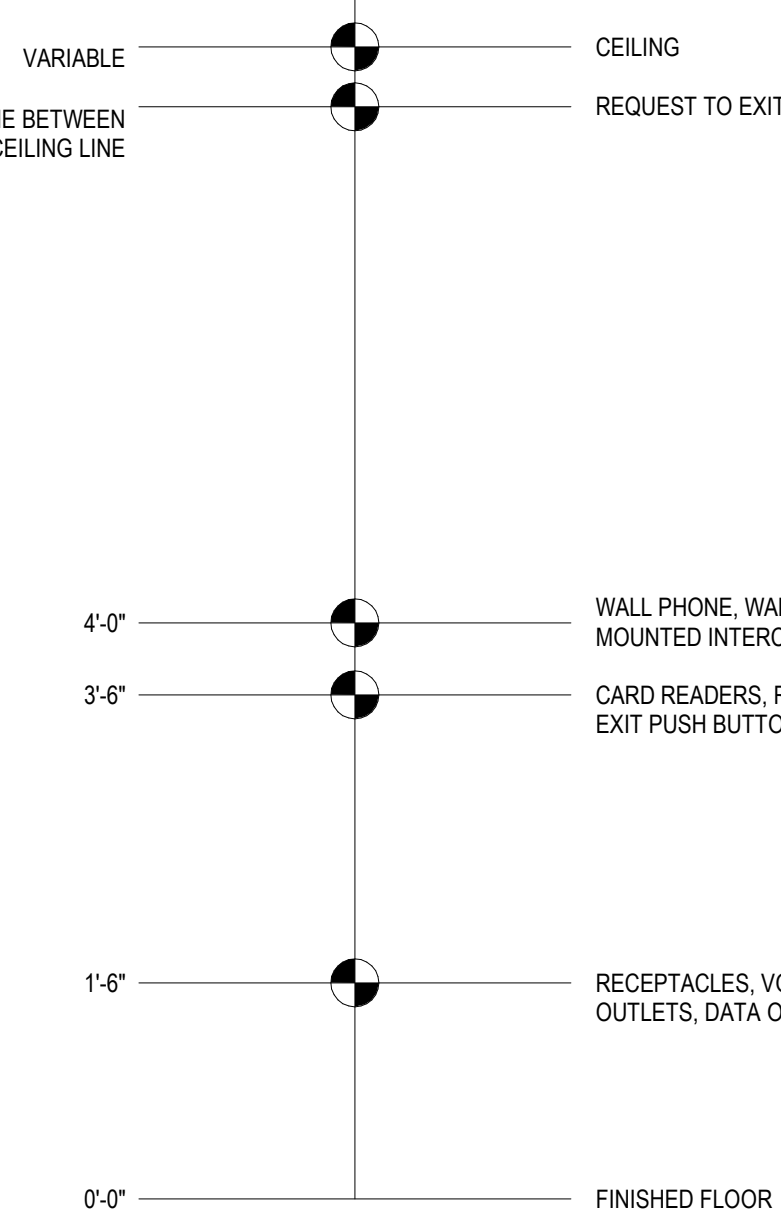
## TECHNOLOGY DOCUMENTATION SCOPE

SCOPE AREA	ARCHITECTURE	E SERIES	T SERIES	TA SERIES	SC SERIES
IT RISER CONDUIT	RISER CAVITY DOCUMENTED ON BASE BUILDING SET	SHOWN FOR SCOPE ON BASE BUILDING SET	SHOWN FOR COORDINATION	N/A	N/A
IT, AV, SEC CLOSET/ ROOM POWER	NOT SHOWN	SHOWN FOR SCOPE	SHOWN FOR COORDINATION	SHOWN FOR COORDINATION	SHOWN FOR COORDINATION
IT, AV, SEC CLOSET WALL BOARD	NOT SHOWN	NOT SHOWN	SHOWN FOR SCOPE	SHOWN FOR SCOPE	SHOWN FOR SCOPE
AV & SECURITY FIELD DEVICE POWER FLOOR BOXES / POKE THRU'S	SHOWN FOR LOCATION COORDINATION	SHOWN FOR SCOPE	SHOWN FOR COORDINATION	SHOWN FOR COORDINATION	SHOWN FOR COORDINATION
AV IN-WALL BOXES	SHOWN FOR LOCATION COORDINATION	SHOWN FOR SCOPE (DEVICE AND CONDUIT CIRCUITING)	SHOWN FOR DATA CABLING AND CONDUIT SCOPE	SHOWN FOR AV CABLING AND CONDUIT SCOPE	N/A
AV, IT, SEC LOW VOLTAGE CONDUIT	SHOWN FOR HORIZONTAL LOCATION COORDINATION	SHOWN FOR CIRCUITING	SHOWN FOR DATA CABLING AND CONDUIT SCOPE	SHOWN FOR VERTICAL LOCATION, AV CABLING AND CONDUIT SCOPE	N/A
AV, IT, SEC LOW VOLTAGE CONDUIT	NOT SHOWN	NOT SHOWN	SHOWN FOR DATA CABLING AND CONDUIT SCOPE	SHOWN FOR AV CABLING AND CONDUIT SCOPE	SHOWN FOR SECURITY CABLING AND CONDUIT SCOPE
AV, FIELD DEVICE DATA	NOT SHOWN	N/A	SHOWN FOR DATA CABLING AND CONDUIT SCOPE	SHOWN FOR COORDINATION	N/A
SECURITY CAMERA FIELD DEVICE DATA	NOT SHOWN	N/A	SHOWN FOR DATA CABLING AND CONDUIT SCOPE	N/A	SHOWN FOR COORDINATION
AV DISPLAY WALL BLOCKING	SHOWN FOR LOCATION COORDINATION OR REFER TO AV SET	N/A	N/A	SHOWN FOR SCOPE	N/A

## ELECTRICAL SCOPE NOTES

- EC SHALL PROVIDE WIRING FROM THE DOOR LOCK POWER SUPPLIES TO THE INSTALLED FIRE ALARM SYSTEM SUCH THAT IN THE EVENT OF FIRE ALARM SYSTEM ACTIVATION, ALL DOORS FITTED WITH ELECTROMAGNETIC LOCKS AND FAIL-SAFE LOCKS SHALL REVERT TO FAIL-SAFE MODE OF OPERATION IN ACCORDANCE WITH THE LOCAL AHJ.
- PROVIDE A HARD-WIRED CONNECTION TO A 120 VAC, 20 AMP OPTIONAL, STAND-BY CIRCUIT DEDICATED TO SECURITY FOR DOORS UTILIZING HIGH IN-RUSH CURRENT LATCH RETRACTION DEVICES AND AUTOMATIC DOOR OPERATORS AS INDICATED ON THE DRAWINGS. THE CIRCUIT CONNECTION SHALL BE PROVIDED WITHIN A BACK BOX, MOUNTED ABOVE THE CEILING, WITHIN AN ACCESSIBLE LOCATION ADJACENT TO THE DOOR.
- PROVIDE AN UNSWITCHED DUPLEX OUTLET CONNECTED TO A 120 VAC, 20 AMP OPTIONAL, STAND-BY CIRCUIT DEDICATED TO SECURITY IN THE SECURITY OPERATIONS CENTER AND EQUIPMENT ROOMS AS INDICATED ON THE DRAWINGS. THE DUPLEX OUTLET SHALL BE FLUSH-MOUNTED WITHIN THE FLOOR BELOW THE CONSOLE AND/OR EQUIPMENT RACKS. EXACT LOCATION SHALL BE AS DIRECTED BY THE ARCHITECT OR INDICATED ON SECURITY ROOM LAYOUTS.
- PROVIDE AN UNSWITCHED 120 VAC, 20 AMP OPTIONAL, STAND-BY HARD-WIRED CIRCUIT DEDICATED TO SECURITY FOR EACH SECURITY CONTROL PANEL AS INDICATED ON THE DRAWINGS. THE CIRCUIT WIRING SHALL BE HARD-WIRED INTO THE POWER SUPPLY PANELS. NO PLUG-IN CONNECTIONS SHALL BE ALLOWED.
- PROVIDE ALL THE INTERCONNECTIONS BETWEEN POWERED JUNCTION BOXES AND THE SECURITY EQUIPMENT.
- PROVIDE SURGE PROTECTION, GROUNDING AND BONDING THAT WILL EFFECTIVELY PROTECT, WITHIN TESTED LIMITS, ALL SECURITY SYSTEMS HARDWARE AND EQUIPMENT AGAINST LIGHTNING TRANSIENTS, INTERNAL AND EXTERNAL SWITCHING TRANSIENTS, AND OTHER SURGE TRANSIENTS THROUGHOUT THE USEFUL LIFE OF THE SYSTEM.
- ALL CONDUIT FILL SHALL NOT EXCEED 40 PERCENT OF INTERIOR CROSS SECTIONAL AREA WHERE THREE OR MORE CABLES ARE CONTAINED WITHIN A SINGLE CONDUIT.
- CABLES SHALL BE ROUTED IN CONDUIT OR OTHER SUITABLE RACEWAY SUBJECT TO ACCEPTANCE BY THE ARCHITECT.
- AT LOCATIONS WHERE CABLES PASS THROUGH METAL STUDS OR DOOR FRAMES, THE CONTRACTOR SHALL INSTALL A BUSHING OR GROMMET TO PREVENT DAMAGE TO THE CABLES.
- ALL CONDUIT ROUTES SHALL BE SO DESIGNED TO ENSURE THAT ALL LOW VOLTAGE WIRE AND CONDUIT MAINTAIN THE REQUIRED MINIMUM OF TWELVE-INCH (12") DISTANCE SEPARATION FROM ANY OPEN CONDUCTORS OF POWER, OR CLASS 1 CIRCUIT AND SHALL NOT BE PLACED IN ANY CONDUIT, JUNCTION BOX OR RACEWAY CONTAINING THESE CONDUCTORS, AS PER NFPA 70, THE NATIONAL ELECTRICAL CODE (NEC).
- THE EC SHALL AVOID SECURITY SYSTEM CONDUIT RUNS PARALLEL TO ALL AC ELECTRICAL POWER. ANY LOW VOLTAGE CONDUIT OR LOW VOLTAGE WIRING THAT CROSSES OVER AC ELECTRICAL POWER SHALL BE AT A 90-DEGREE ANGLE.
- ALL BACK BOXES PROVIDED FOR RECESSED CEILING INSTALLATION SHALL INCLUDE ADEQUATE ACCESS AND SHALL BE RATED FOR USE IN CEILINGS AND SHALL MEET OR EXCEED ALL APPLICABLE NATIONAL AND LOCAL ELECTRICAL CODES.
- ALL JUNCTION BOXES DEFINED BY THE RECORD SPECIFICATION MAY BE CONCEALED BUT MUST REMAIN ACCESSIBLE FOR SERVICE AND TESTING. SECURITY JUNCTION BOXES MAY BE RECESSED INTO WALL OR CEILING.
- ALL JUNCTION BOXES AND SMALL DEVICE ENCLOSURES BELOW THE CEILING AND EASILY ACCESSIBLE TO EMPLOYEES OR THE PUBLIC SHALL BE TAMPER-PROOF, MONITORED, AND COVERED WITH SUITABLE COVER PLATE. ALL JUNCTION BOXES ABOVE CEILING LEVEL IN OCCUPIED AREAS OF THE BUILDING SHALL NOT BE CONSIDERED TO BE EASILY ACCESSIBLE. ALL LOCATIONS CONTAINING SECURITY SYSTEM COMPONENTS UNDER THESE CONDITIONS SHALL INCORPORATE SECURE TAMPER-PROOF SCREWS OR SIMILAR APPROVED DEVICES.
- NON-SECURITY SYSTEM WIRING SHALL NOT SHARE SECURITY CONDUIT.
- ALL CAMERA CABLING SHALL BE CONCEALED AND PROTECTED IN A RIGID ENCASUREMENT, CONDUIT, ARMORED FLEX, OR SIMILAR APPROVED PASSAGES. CAMERA PLACEMENTS IN THE FIELD ARE FORBIDDEN TO HAVE UNPROTECTED AND EXPOSED CONNECTORS, POWER CABLE, AND FIELD REELS. INTEGRATED ARMATURES THAT PASS THE CABLING FROM THE CAMERA TO THE WALL/ JUNCTION BOX WITHOUT EXPOSING THE CABLING AT ANY POINT SHALL BE DEEMED ACCEPTABLE.
- PROVIDE BACK BOX AND ASSOCIATED CONDUIT, LOCKNUTS, COUPLINGS, THREADED BUSHINGS, AND PULL ROPE FOR ALL DEVICES AS INDICATED ON DRAWINGS AND AS SPECIFIED.
- THE FINAL FIELD PLACEMENT AND FIELD OF VIEW FOR EACH CAMERA LOCATION SHALL BE DETERMINED BY ON-SITE CONDITIONS AND FINAL OWNER REVIEW. PRIOR TO ANY CONDUIT ROUGH-IN THE CONTRACTOR SHALL OBTAIN WRITTEN ACCEPTANCE OF PROPOSED PLACEMENTS FROM THE OWNER OR ITS AUTHORIZED REPRESENTATIVE.

## MOUNTING HEIGHTS



### NOTES:

- COORDINATE ALL AV DEVICE LOCATIONS PERTAINING TO WALL ELEVATION AFF. REFER TO ARCHITECT DRAWINGS FOR MOUNTING REQUIREMENTS.
- ALL DEVICES SHOWN ON DRAWINGS ARE DIAGRAMMATIC IN LOCATION AND SHOWN FOR GENERAL WIRING PURPOSES ONLY. UNLESS OTHERWISE NOTED, ALL DEVICES INDICATED TO BE INSTALLED IN THE SAME LOCATIONS WITH DIFFERENT ELEVATIONS SHALL BE ALIGNED VERTICALLY AND HORIZONTALLY. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING DETAILS.

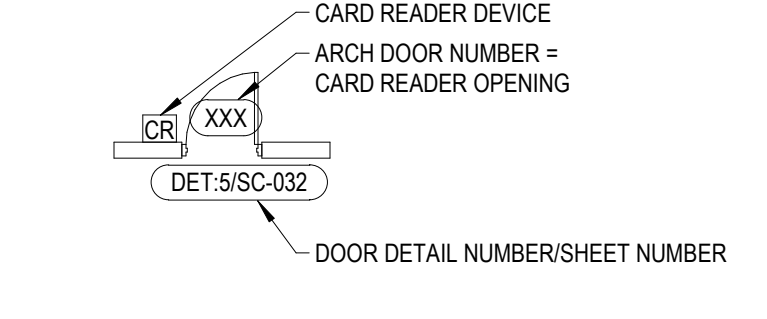
## ACCESS CONTROL SYSTEM SYMBOLS

CR	X	CARD READER X=W - WIRELESS LOCK WITH INTEGRATED CARD READER X-K - CARD READER WITH KEYPAD X-A - ALARMED EXIT (CR TO DISABLE AA ONLY) X-D - 15-SEC. DELAYED EGRESS (CR TO DISABLE AA) X-B - BIO-METRIC READER
PIR		PASSIVE INFRARED MOTION SENSOR - REQUEST-TO-EXIT DEVICE
RX		REQUEST-TO-EXIT CONNECTION
ACP		ACCESS CONTROL PANEL WITH DOOR POWER SUPPLY
DC		DOOR CONTACT
TS		TAMPER SWITCH
OTS		OPTICAL TURNSTILE
IO		ACS INPUT/OUTPUT PANEL
RL		ACS DOOR REMOTE LOCKING/UNLOCKING
DR	X	DOOR RELEASE BUTTON X=D - UNDER-DESK-MOUNTED X=C - COUNTER-MOUNTED X=W - WALL-MOUNTED
XXXX		DOOR TAG
ELUR		ELECTRIFIED LOCK OR LATCH RETRACTION
ES		ELECTRIC STRIKE
ML		ELECTROMAGNETIC LOCK
HO		ELECTRIC DOOR HOLD OPEN
PP		ADO PUSH PLATE
PB		DOOR RELEASE PUSH BUTTON
PS		LOCAL LOCK POWER SUPPLY
TH		ELECTRIC TRANSFER HINGE
ADO		AUTOMATIC DOOR OPERATOR
XR		X-RAY INSPECTION SYSTEM
MD		WALK-THROUGH METAL DETECTOR
JB0		MANUFACTURER-SPECIFIC DEVICE BOX
JB1		6 x 4 NEMA 1 SQUARE JUNCTION BOX W/ KNOCKOUTS AND SECURITY SCREWS COVER
JB2		4-11/16 x 3 NEMA 1 SQUARE JUNCTION BOX W/ KNOCKOUTS AND SECURITY SCREWS COVER
JB3		4-11/16 x 2-1/8 NEMA 1 SQUARE DEVICE BOX W/ SINGLE GANG DEVICE RING

## SECURITY COMMUNICATION SYSTEM SYMBOLS

BL	X	BLUE LIGHT PHONE CALL POINT WITH BUILT-IN VIDEO INTERCOM # - SEQUENTIAL NUMBER, TYPICAL X=W - WALL-MOUNTED STANCHION TYPE X-T - FREE-STANDING TOWER MOUNTED X-P - LIGHT-POLE MOUNTED
VI	X	VIDEO INTERCOM STATION X=W - WALL-MOUNTED X=M - MASTER STATION
IC	X	VOICE-ONLY INTERCOM STATION X=D - DOOR STATION X-E - ELEVATOR LOBBY COMMUNICATION SYSTEM STATION X=M - MASTER STATION

## CARD READER DOOR TAG LEGEND



## CCTV SYSTEM SYMBOLS

NVR		NETWORK VIDEO RECORDERS
WS	X	CCTV WORKSTATION PC FOR VIDEO/ACS MONITORING X-Y - QUANTITY OF LCD DISPLAYS Y= DISPLAY SIZE (IN INCHES)
S		NETWORK HORN/SPEAKER FOR CCTV USE
X		CAMERA FIELD-OF-VIEW AND RESOLUTION X= PIXELS PER FOOT, MINIMUM
		CEILING-MOUNTED CAMERAS
		FIXED, VARI-FOCAL DOME CCTV CAMERA # = SEQUENTIAL NUMBER, TYP.
		PANORAMIC, 180° DOME CCTV CAMERA
		PANORAMIC, 360° DOME CCTV CAMERA
		PAN-TILT-ZOOM DOME CCTV CAMERA
		PAN-TILT-ZOOM DOME CCTV CAMERA
		WALL-POLE-MOUNTED CAMERAS
		FIXED, VARI-FOCAL DOME CCTV CAMERA # = SEQUENTIAL NUMBER, TYP.
		PANORAMIC, 180° DOME CCTV CAMERA
		PANORAMIC, 360° DOME CCTV CAMERA
		PAN-TILT-ZOOM DOME CCTV CAMERA

## INTRUSION DETECTION SYSTEM SYMBOLS

KP		KEYPAD
MS	X	DUAL TECHNOLOGY MOTION SENSOR X=W - WALL-MOUNTED X=D - CEILING-MOUNTED
DB	X	HARD-WIRED DURESS BUTTON X=W - WALL-MOUNTED X=D - UNDER-DESK-MOUNTED
WR		WIRELESS RECEIVER
AA		AUDIBLE ALARM WITH LIGHT STROBE
WC		WINDOW CONTACT
GB		ACOUSTIC GLASS BREAK SENSOR
ICP		INTRUSION CONTROL PANEL

## MISC. LEGEND / TAGS

SYMBOL	DESCRIPTION
X	SECTION SYMBOL
X	SECTION NUMBER
X	DRAWING NUMBER
X	DETAIL CALLOUT SYMBOL
X	DETAIL NUMBER
X	DRAWING NUMBER
X	ELEVATION SYMBOL
X	ELEVATION NUMBER
X	DRAWING NUMBER
X	KEYED NOTE TAG
X	SHEET NOTE TAG
X	REVISION NUMBER X

## ELEC SYMBOLS

SYMBOL	DESCRIPTION
X	STANDARD DUPLEX RECEPTACLE
X	STANDARD QUADRALEX RECEPTACLE
X	SPECIAL PURPOSE RECEPTACLE WITH NEMA DESIGNATION
X	JUNCTION BOX FOR DIRECT CONNECTION POINT
X	FIRE ALARM RELAY CONTROL

POWER AND FIRE ALARM DEVICES ARE SHOWN FOR COORDINATION ONLY. REFER TO POWER AND FIRE ALARM DRAWINGS FOR CIRCUITING AND OTHER INFORMATION.

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# Swing Door ASSA ABLOY SW200i™

ASSA ABLOY

ASSA ABLOY Entrance Systems

The global leader in  
door opening solutions

Intelligent Innovation





# The simple solution to all swing door challenges

If you design or manage facilities with automatic swing doors, you know there are several issues to address. Closing against wind conditions, encountering interior stack pressure, meeting low energy manual push forces, functioning to pedestrian codes or overcoming latch hardware all represent challenging conditions where swing door operators must adapt and perform.



By creating a single operator with flexibility to perform well in varying environments and conditions, ASSA ABLOY Entrance Systems made the specification, design, and selection process significantly easier. And because

the ASSA ABLOY SW200i delivers proven performance for a number of different configurations, it provides facilities with more solutions and even greater flexibility.



## AIR PRESSURE MANAGEMENT

Stack Pressure Compensation  
Intelligent Trajectory Control  
Extended Closing Torque (ECT)

## ENERGY EFFICIENT

Separate Time Delay  
Power Surge Protection  
Brown Out Performance

## SECURE LATCH

Latch Retry  
Electric Lock Management  
Security Integration  
Astragal Coordination

## EASY OPEN

Manual Push Forces  
of 5–15 lbf  
Power Assist

## MAXIMUM STRENGTH

700 Pounds Max Door Weight



# Proven performance in the most demanding environments

## AIR PRESSURE MANAGEMENT

### Stack Pressure Compensation

Allows for door to adjust to changes in variable pressures by utilizing the ASSA ABLOY SW200i exclusive Intelligent Trajectory Control and Extended Closing Torque (ECT).

### Intelligent Trajectory Control

The ASSA ABLOY SW200i knows where the door should be at all times and adjusts torque accordingly through dynamic braking which helps cushion the door during the opening or closing cycles.

### Extended Closing Torque (ECT)

The last 10 degrees of the closing cycle is the most challenging for a swing door operator, ASSA ABLOY's exclusive Extended Closing Torque (ECT) functionality provides extra torque, if needed, to close and latch the door. Speed remains constant so the door stays within ANSI standards.

## EASY OPEN

### Manual Push Forces of 5-15 lbf

Easy to push open manually, yet strong enough to close and latch despite wind or air pressure.

### Power Assist

Makes a heavy door (or spring) feel light.

## MAXIMUM STRENGTH

### 700 Pounds Max Door Weight

The ASSA ABLOY SW200i can handle door weights of up to 700 pounds per operator.

## SECURE LATCH

### Latch Retry

If the door does not latch when closing, the ASSA ABLOY SW200i will detect this condition and immediately open the door to 10 degrees and execute two attempts to latch the door.

### Electric Lock Management

Features latch retry and electric lock management that momentarily reverses the closed door before opening to insure lock release. Monitors locks if equipped with that functionality.

### Security Integration

The ASSA ABLOY SW200i operator knows when the door is closed and can provide a signal for security monitoring.

### Astragal Coordination

On-board electronic coordinator controls that doors always close in right order and can therefore be properly locked. Coordinator allows door with astragal to open first, close last. If in hold open, door without astragal will not pass door with astragal.



# Fits where you need it

## FLEXIBILITY AND VALUE

### On-Board Functionality

The ASSA ABLOY SW200i has on-board capabilities such as timing sequencing, transformer, astragal coordination and Extended Closing Torque (ECT).

### Adaptable for Multiple Uses

One operator can handle all your facility needs – wind conditions, pedestrian usage, low energy, manual use, etc.

### Battery Back-up

The optional battery back-up system allows for continued operation after power fails.

## ENERGY EFFICIENT

### Separate Time Delay

The ASSA ABLOY SW200i includes two time delays for separate devices (i.e., standard activation, key activation). If a device is located further than another, separate opening/closing times can be set to best maximize operation, enhance security and reduce air infiltration.

### Power Surge Protection

The ASSA ABLOY SW200i operator can handle variances in power without damage to the unit or impact to performance.

### Brown Out Performance

The operator can adjust to dips in power and continue to operate from 85V – 264V.

## Low Energy Consumption

Four operators can run on one 20 amp line – saving you energy.

## Directional Sensors

Units equipped with directional sensors reduce air infiltration by allowing less time with the door open.

## SERVICE SAVINGS

### Adapting to Changing Needs

Air flow can change in a building as configurations evolve (new doorways, rooms, HVAC systems, etc.). Other operators can change performance in these situations and require a service call for adjustment. The ASSA ABLOY SW200i adapts to changing environments, thereby saving you the cost of service calls for these necessary adjustments.

## Non-volatile Memory

When the power goes out, other operators can go through a relearn mode. The ASSA ABLOY SW200i retains its memory even after a power loss, providing you with more consistent performance and consistent opening and closing.

## Fuseless Technology

No fuses to replace allows for consistent performance and reduces service call requirements and costs.

# A clear advantage over the competition



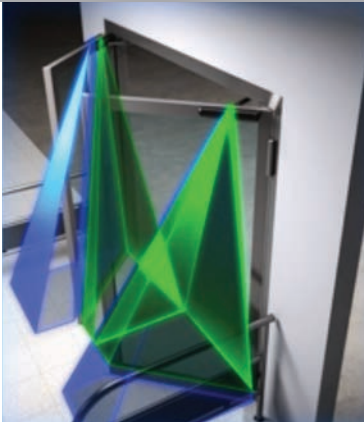
Attribute	ASSA ABLOY SW200i	Others
MAX WEIGHT OF DOOR	700 lbs	200-350 lbs
MANUAL PUSH FORCES OF 5 TO 15 LBF	•	
AUTOMATICALLY COMPENSATES FOR STACK PRESSURE	•	
ON-BOARD EXTENDED CLOSING TORQUE (ECT)	•	
ON-BOARD TRANSFORMER	•	
ON-BOARD TIMING SEQUENCER	•	
AUTOMATICALLY MEASURES INERTIA AND WEIGHT OF DOOR DURING SET-UP	•	

# A full line of sensor solutions

Swing doors complying with pedestrian standards have varying needs and requirements. When complying with ANSI A156.10 standard for power operated pedestrian doors, the ASSA ABLOY SW200i is available with three ASSA ABLOY i-Adapt sensor packages. Choose the package that's right for you.

## ASSA ABLOY SW200i i-Adapt Sensor Systems

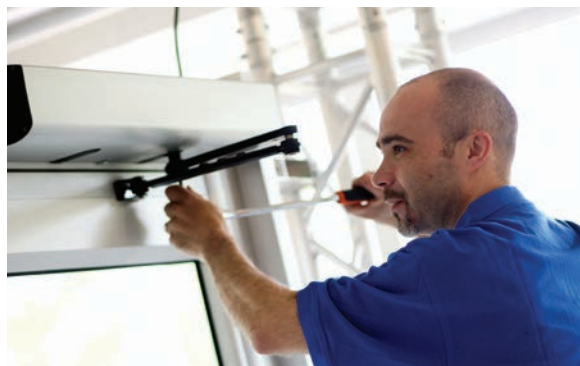
Offering three levels of coverage to exceed ANSI A156.10\*

I-ADAPT FLEX 101	I-ADAPT FLEX 102	I-ADAPT PREMIUM 202
		
Door mounted presence sensor (swing side) Overhead presence sensor	Door mounted presence sensor (swing & approach side) Overhead presence sensor	Door mounted presence sensor with adaptive field (swing & approach side) Overhead presence sensor

\*Activation devices available separately

## Keeping your entrances up-to-date

To meet evolving safety standards and keep your equipment operating in top condition, there's no better partner than ASSA ABLOY Entrance Systems. Our swing door operators are backed by comprehensive service and expert technicians. With a carefully selected stock of service parts, our certified technicians can maintain, service and upgrade not only ASSA ABLOY equipment, but all brands. They can be counted on for expert advice and quick dispatch in the event of an emergency...24/7.



# Flexible configurations for any application

The ASSA ABLOY SW200i is available in a variety of configurations, sizes and finishes to suit the requirements of any project. Consult with an ASSA ABLOY Entrance Systems automatic door specialist to determine the best equipment, configuration, and layout to help you achieve code compliance, maximize energy efficiency and optimize traffic flow.



## Surface Mount

The ASSA ABLOY SW200i in surface mount configuration is ideal for new construction or retrofit applications...easily transforming your existing manual doors to automatic door convenience. Featuring advanced technology such as stack pressure compensation, compliance with both ANSI A156.10 and A156.19, secure latching and easy to use manual push forces, it's the only swing door operator you need.



## Overhead Concealed

The ASSA ABLOY SW200i-OHC provides an aesthetically pleasing solution that is attractive and incomparably strong. The intelligent door operator features advanced technology that ensures smooth, gentle operation across a wide range of conditions.



## Overhead Concealed with Door Package

The ASSA ABLOY SW200i-OHC with door package provides the convenience of an aluminum door package powered by the innovative features of the ASSA ABLOY SW200i operator. Aesthetics, strength and flexibility make this an ideal door package for many needs.



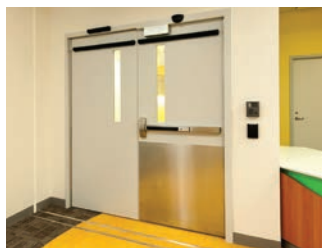
## In Ground

The ASSA ABLOY SW200i-IG provides reliable in ground mounting provided as a complete system: the powerful ASSA ABLOY SW200i operator, moisture resistant enclosure and adaptability to multiple arm systems to provide you with the utmost in flexibility.



## Pro-Active Care Service

Keep your doors at optimal performance levels with ASSA ABLOY Entrance Systems Pro-Active Care Service. We offer upgrades and modernization of existing swing equipment to ASSA ABLOY SW200i performance.



## Application Expertise

Code compliance, sensor selection, access control integration...consult the experts at ASSA ABLOY Entrance Systems to help you design or configure your entrance or corridor to your specific needs.



ASSA ABLOY Entrance Systems is a leading supplier of entrance automation solutions for efficient flow of goods and people. Building on the long-term success of the Besam, Albany and Megadoor brands, we offer our solutions under the ASSA ABLOY brand. Our products and services are dedicated to satisfying end-user needs for safe, secure, convenient and sustainable operations. ASSA ABLOY Entrance Systems is a division within ASSA ABLOY.

**ASSA ABLOY**

assaabloyentrance.us • assaabloyentrance.ca



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in the channel's search field.



# Forcina Hall Renovation

## Milestone Schedule

Date: Rev.10/23/24

Advertise for bidding	October 3, 2024
Pre-Bid/Site Visit (10 am)	October 9, 2024
Cut off for questions	October 15, 2024
Addendum 1 issued	October 15, 2024
Addendum 2 issued	October 18, 2024
Addendum 3 issued	October 23, 2024
Bids Received	November 1, 2024
Notice of Intent to Award issued	November 4, 2024
End of Protest Period	November 11, 2024
Notice to proceed issued by	November 12, 2024
Kickoff Meeting between Owner-Architect-GC, start submittals	November 19, 2024
Site Prep/Planning/Offices/Site Set Up	November 20, 2024 to December 19, 2024
Construction start date in field	December 19, 2024
Phase 1 -	December 19, 2024 to May 30, 2025
Phase 2 -	December 19, 2024 to August 4, 2025
Phase 3 -	December 19, 2024 to December 19, 2025
Phase 4 -	June 7, 2025 to August 4, 2025
Phase 5 -	June 7, 2025 to January 23, 2026
Phase 6 -	January 1, 2026 to June 30, 2026
Phase 7 -	December 19, 2025 to June 30, 2026
Phase 8 -	May 25, 2026 to August 21, 2026
Project Substantially Complete	August 21, 2026
Project contract closed out by	December 1, 2026

### Notes:

1. Commencement (no on-site work) May 22-23, 2025 and May 21-22, 2026.
2. Final Exams (no noise) December 10-16, 2024, May 13-20 and December 9-16, 2025, May 11-19, 2026.
3. All asbestos abatement work shall occur after hours from 10pm to 6am.



4. All noisy/dusty demolition shall occur after hours from 10pm to 6am, unless coordinated with TCNJ during winter, spring and summer breaks.
5. Any core drilling or above normal construction practice noises shall be done after hours from 10 pm to 7:45am.
6. When working on the upper floors, if access is needed to rooms below to perform the required work, please provide the Owner with a two week notice for coordination with the occupants.
7. GC shall use existing elevator for access to upper floors with materials and daily access. Heavy demolition material (such as CMU) and other disposed materials should be through a chute as noted on the drawings. Additional chute locations should be considered as well throughout phased demolition activities and coordinated with TCNJ. GC and subs will only be allowed to use the new elevator when the existing elevator is being replaced.
8. Loud “shot” noises, hammer drilling, etc. should be avoided during adjacent, and above/below classroom usage. Contractor to complete as much “above normal” construction practice noisy work that might affect neighboring classes when classes are not in session. See attached class schedule for reference.
9. The following dates are when the building will have the least number of occupants during the day:
  - a. Winter break – 12/18/24 to 1/24/25 and 12/19/25 to 1/23/26.
  - b. Spring break – 3/17/25 to 3/21/25 and 3/16/26 to 3/20/26.
  - c. Summer break – 5/26/25 to 8/22/25 and 5/25/26 to 8/21/26.