

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes commercial door hardware for the following:
 - 1. Swinging doors.
 - 2. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Electromechanical door hardware.
 - 3. Cylinders specified for doors in other sections.
- C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. NFPA 70 - National Electrical Code.
 - 4. NFPA 80 - Fire Doors and Windows.
 - 5. NFPA 101 - Life Safety Code.
 - 6. NFPA 105 - Installation of Smoke Door Assemblies.
 - 7. State Building Codes, Local Amendments.
- D. Standards: All hardware specified herein shall comply with the following industry standards:
 - 1. ANSI/BHMA Certified Product Standards - A156 Series
 - 2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.2 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 - 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 - 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.

- d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Shop Drawings: Details of electrified access control hardware indicating the following:
1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
 - a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
 - b. Complete (risers, point-to-point) access control system block wiring diagrams.
 - c. Wiring instructions for each electronic component scheduled herein.
 2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- E. Informational Submittals:
1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
- F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.
- 1.3 QUALITY ASSURANCE
- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
 - B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
 - C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the

manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

- D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
 - 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
 - 1. Function of building, purpose of each area and degree of security required.
 - 2. Plans for existing and future key system expansion.
 - 3. Requirements for key control storage and software.
 - 4. Installation of permanent keys, cylinder cores and software.
 - 5. Address and requirements for delivery of keys.
- G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
 - 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 - 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 - 3. Review sequence of operation narratives for each unique access controlled opening.
 - 4. Review and finalize construction schedule and verify availability of materials.
 - 5. Review the required inspecting, testing, commissioning, and demonstration procedures
- H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.5 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
- C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.6 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of the hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
 - 1. Ten years for mortise locks and latches.
 - 2. Five years for exit hardware.
 - 3. Twenty five years for manual surface door closer bodies.
 - 4. Two years for electromechanical door hardware.

1.7 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
 - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
 - 1. Quantity: Provide the following hinge quantity:
 - a. Two Hinges: For doors with heights up to 60 inches.
 - b. Three Hinges: For doors with heights 61 to 90 inches.
 - c. Four Hinges: For doors with heights 91 to 120 inches.
 - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
 - 2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
 - 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
 - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
 - 4. Hinge Options: Comply with the following:
 - a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
 - 5. Manufacturers:
 - a. Hager Companies (HA) - CB Series.
 - b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - TA Series.
 - c. Stanley Hardware (ST) - CB Series.
- B. Pivots: ANSI/BHMA A156.4, Grade 1, certified. Space intermediate pivots equally not less than 25 inches on center apart or not more than 35 inches on center for doors over 121 inches high. Pivots to be UL listed for windstorm where applicable.
 - 1. Manufacturers:
 - a. Architectural Builders Hardware (AH).
 - b. Rixson Door Controls (RF).

2.3 POWER TRANSFER DEVICES

- A. Electrified Quick Connect Transfer Hinges: Provide electrified transfer hinges with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
1. Manufacturers:
 - a. Hager Companies (HA) - ETW-QC (# wires) Option.
 - b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - QC (# wires) Option.
 - c. Stanley Hardware (ST) – C Option.
- B. Electrified Quick Connect Intermediate Transfer Pivots: Provide electrified offset intermediate transfer pivot hinges with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
1. Manufacturers:
 - a. Rixson Door Controls (RF) - E-M19-QC (# wires).
- C. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.
1. Provide one each of the following tools as part of the base bid contract:
 - a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - Electrical Connecting Kit: QC-R001.
 - b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - Connector Hand Tool: QC-R003.
 2. Manufacturers:
 - a. Hager Companies (HA) - Quick Connect.
 - b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) – QC-C Series.
 - c. Stanley Hardware (ST) – WH Series.

2.4 DOOR OPERATING TRIM

- A. Flush Bolts and Surface Bolts: ANSI/BHMA A156.3 and A156.16, Grade 1, certified.
1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
 2. Furnish dust proof strikes for bottom bolts.
 3. Surface bolts to be minimum 8” in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
 4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
 5. Manufacturers:
 - a. Door Controls International (DC).

- b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
- c. Trimco (TC).
- B. Coordinators: ANSI/BHMA A156.3 certified door coordinators consisting of active-leaf, hold-open lever and inactive-leaf release trigger. Model as indicated in hardware sets.
 - 1. Manufacturers:
 - a. Door Controls International (DC).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).

2.5 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
- B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
- C. Cylinders: Original manufacturer cylinders complying with the following:
 - 1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
 - 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 - 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
 - 4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 - 5. Keyway: Match Facility Standard.
- D. Keying System: Each type of lock and cylinders to be factory keyed.
 - 1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
 - 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
 - 3. Existing System: Field verify and key locks to match Owner's existing system.
- E. Key Quantity: Provide the following minimum number of keys:
 - 1. Change Keys per Cylinder: Two (2)
 - 2. Master Keys (per Master Key Level/Group): Five (5).
 - 3. Construction Keys (where required): Ten (10).
- F. Construction Keying: Provide construction master keyed cylinders.
- G. Key Registration List (Bitting List):
 - 1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
 - 2. Provide transcript list in writing or electronic file as directed by the Owner.
- H. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
 - 1. Manufacturers:
 - a. Lund Equipment (LU).
 - b. MMF Industries (MM).
 - c. Telkee (TK).

2.6 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 certified. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) – ML2000 Series.
 - b. Sargent Manufacturing (SA) – 8200 Series.

2.7 INTEGRATED WIEGAND OUTPUT LOCKING DEVICES – MULTI-CLASS READER

- A. Integrated Wiegand Output Multi-Class Mortise Locks: Wiegand output ANSI A156.13, Grade 1, mortise lockset with integrated card reader, request-to-exit signaling, door position status switch, and latchbolt monitoring in one complete unit. Hard wired, solenoid driven locking/unlocking control of the lever handle trim, 3/4" deadlocking anti-friction latch, and 1" case-hardened steel deadbolt. Lock is U.L listed and labeled for use on up to 3 hour fire rated openings. Available with or without keyed high security cylinder override.
1. Open architecture, hard wired platform supports centralized control of locking units with new or existing Wiegand compatible access control systems. Latchbolt monitoring and door position switch act in conjunction to report door-in-frame (DPS) and door latched (door closed and latched) conditions.
 2. Integrated reader supports the following credentials:
 - a. 125kHz proximity credentials: HID, AWID, Indala, and EM4102.
 - b. 13.56 MHz proximity credentials: HID iClass, HID iClass SE, SE for MIFARE Classic, DESFire EV1.
 3. 12VDC external power supply required for reader and lock, with optional 24VDC lock solenoid. Fail safe or fail secure options.
 4. Energy Efficient Design: Provide lock bodies which have a holding current draw of 15mA maximum, and can operate on either 12 or 24 volts. Locks are to be field configurable for fail safe or fail secure operation.
 5. Support end-of-line resistors contained within the lock case.
 6. Installation requires only one cable run from the lock to the access control panel without requirements for additional proprietary lock panel interface boards or modules.
 7. Installation to include manufacturer's access control panel interface board or module where required for Wiegand output protocol.
 8. Manufacturers:
 - a. Corbin Russwin (RU) – ML2000 SE-LP10 Series.
 - b. Sargent Manufacturing (SA) – M1 8200 Series.

2.8 APERIO WIRELESS ACCESS CONTROL

- A. Wireless Access Control Mortise Locks: Wireless technology ANSI/BHMA A156.13 Grade 1 mortise lockset with integrated card reader, deadbolt monitoring, and request-to-exit and door position switch signaling in one complete unit. Motor driven locking/unlocking control of the lever handle trim, 3/4" stainless steel latch, and optional 1" deadbolt with hardened inserts. Lock is U.L listed and labeled for use on up to 3 hour fire rated openings. Available with or without keyed high security cylinder override.
1. Wireless access control cylindrical locks interface using local wireless connection between the lock unit and a nearby communication hub. Communication hub connected via RS-485 or Wiegand to a new or existing online electronic access control system platform.

2. Fully-encrypted AES 128 wireless communication between lock and communication hub (IEEE 802.15.4, 2.4 GHz) with no proprietary programming device requirements. Locks will continue functional operation independent of wireless connection slowdown or failure.
3. Integrated card reader supports 125kHz proximity credentials; 13.56 MHz contactless credentials: HID® iCLASS (full authentication, all formats, including SEOS), Mifare Classic (Sector and UID), DESFire, NFC-enabled mobile phones.
4. Lockdown capability with maximum 10 second response.
5. Patent pending credential cache to ensure offline access.
6. Power Source: 6 AA alkaline batteries power supply with LED indication of locked, programming mode and low capacity warning status conditions.
7. Energy Efficient Design: Provide lock bodies which have a holding current draw of 15mA maximum, and can operate on either 12 or 24 volts. Locks are to be field configurable for fail safe or fail secure operation.
8. Outside lever rigid except when valid user code is entered. Emergency override access capability with optional mechanical key cylinder retraction of lock latch bolt without necessary electronic activation.
9. Communication Hub: Provide the necessary number of hubs which is connected to the access control system via RS-485 or Wiegand as required by the system. Provide hubs factory paired with the locks, but allow for field configuration as needed.
10. Complete installation to include manufacturer's Installation Tool and USB Radio Dongle for initial lock set-up and configuration. Electronic on-line access control system platform, including communication cabling and software, by others.
11. Manufacturers:
 - a. Corbin Russwin Hardware (RU) – IN100 – ML2000 Series.
 - b. Sargent Manufacturing (SA) – IN100 – 7900 Series.

2.9 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
 3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
 4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.
- B. Standards: Comply with the following:
 1. Strikes for Mortise Locks and Latches: BHMA A156.13.
 2. Strikes for Bored Locks and Latches: BHMA A156.2.
 3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
 4. Dustproof Strikes: BHMA A156.16.

2.10 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
 2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
 3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
 4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
 5. Energy Efficient Design: Provide lock bodies which have a holding current draw of 15mA maximum, and can operate on either 12 or 24 volts. Locks are to be field configurable for fail safe or fail secure operation.
 6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
 - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
 - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
 7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
 8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
 9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
 10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
 11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
 - b. Sargent Manufacturing (SA) - 80 Series.
- C. Tube Steel Removable Mullions: ANSI/BHMA A156.3 removable steel mullions with malleable-iron top and bottom retainers and a primed paint finish.
1. Provide keyed removable feature where specified in the Hardware Sets.
 2. Provide stabilizers and mounting brackets as required.
 3. Provide electrical quick connection wiring options as specified in the hardware sets.
 4. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - 700/900 Series.
 - b. Sargent Manufacturing (SA) - 980S Series.

2.11 INTEGRATED WIEGAND OUTPUT EXIT DEVICES – MULTI-CLASS READER

- A. Integrated Wiegand Output Multi-Class Exit Hardware: Wiegand output ANSI 156.3 Grade 1 rim, mortise, and vertical rod exit device hardware with integrated proximity card reader, latchbolt and touchbar monitoring, and request-to-exit signaling, in one complete unit. Hard wired, solenoid driven locking/unlocking control of the lever handle exit trim with 3/4" throw latch bolt. U.L listed and labeled for either panic or "fire exit hardware" for use on up to 3 hour fire rated openings. Available with or without keyed high security cylinder override.
1. Open architecture, hard wired platform supports centralized control of locking units with new or existing Wiegand compatible access control systems. Inside push bar (request-to-exit) signaling and door position (open/closed status) monitoring (via separately connected DPS).
 2. Integrated reader supports the following credentials:
 - a. 125kHz proximity credentials: HID, AWID, Indala, and EM4102.
 - b. 13.56 MHz proximity credentials: HID iClass, HID iClass SE, SE for MIFARE Classic, DESFire EV1.
 3. 12VDC external power supply required for reader. 24VDC required for solenoid operated exit trim. Fail safe or fail secure options.
 4. Installation requires only one cable run from the exit hardware to the access control panel without requirements for additional proprietary lock panel interface boards or modules.
 5. Competitor Alternates Allowed Option: Installation to include manufacturer's access control panel interface board or module where required for Wiegand output protocol.
 6. Manufacturers:
 - a. Corbin Russwin (RU) – ED5000 SE-LP10 Series.
 - b. Sargent Manufacturing (SA) – M1 80 Series.

2.12 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
 3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
 4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.
 5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
 6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
 7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and

fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.

1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - DC6000 Series.
 - b. Sargent Manufacturing (SA) - 351 Series.
 - c. Norton Door Controls (NO) - 7500 Series.

2.13 SURFACE MOUNTED CLOSER HOLDERS

- A. Electromagnetic Door Holders: Certified ANSI A156.15 electromagnetic door holder/releases with a minimum 20 to 40 pounds holding power and single coil construction able to accommodate 12VDC, 24VAC, 24VDC and 120VAC. Coils to be independently wound, employing an integral fuse and armatures to include a positive release button.

1. Manufacturers:
 - a. Rixson (RF) - 980/990 Series.
 - b. Sargent Manufacturing (SA) - 1560 Series.

2.14 ARCHITECTURAL TRIM

- A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, 050-inch thick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
 - a. Hiawatha, Inc. (HI).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).

2.15 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor

stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:
 - a. Hiawatha, Inc. (HI).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).

- C. Overhead Door Stops and Holders: ANSI/BHMA A156.6, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

1. Manufacturers:
 - a. Rixson Door Controls (RF).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Sargent Manufacturing (SA).

2.16 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Manufacturers:
 1. National Guard Products (NG).
 2. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).
 3. Reese Enterprises, Inc. (RE).

2.17 ELECTRONIC ACCESSORIES

- A. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.
 1. Manufacturers:
 - a. Securitron (SU) - DPS Series.

- B. Wiegand Test Unit: Test unit verifies proper Wiegand output integrated card reader lock installation in the field by testing for proper wiring, card reader data integrity, and lock functionality including lock/unlock, door position, and request-to-exit status. 12 or 24VDC voltage adjustable operating as Fail Safe or Fail Secure.
 - 1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) – WT2 Wiegand Test Unit.
 - b. Sargent Manufacturing (SA) – WT2 Wiegand Test Unit.
- C. Switching Power Supplies: Provide switching power supplies that are dual voltage, UL listed, supervised units. Units shall be field selectable with a dedicated battery charging circuit that provide 4 Amp at 12VDC or 24VDC continuous, with up to 16 independently controlled power limited outputs. Units shall tolerate brownout or overvoltage input $\pm 15\%$ of nominal voltage and have thermal shutdown protection with auto restart. Circuit breaker shall protect against overcurrent and reverse battery faults and units shall be available with a single relay fire trigger or individually triggered relayed outputs. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw plus 50% for the specified electrified hardware and access control equipment.
 - 1. Manufacturers:
 - a. Securitron (SU) - AQ Series.

2.18 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.19 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
 - 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 - 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection (Punch-Out Report): Reference Division 01 Section "Closeout Procedures". Final inspect installed door hardware and state in report whether work complies with or deviates from specification requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
- B. The supplier is responsible for handing and sizing all products and providing the correct option for the appropriate door type and material where more than one is presented in the hardware sets. Quantities listed are for each pair of doors, or for each single door.
- C. Manufacturer's Abbreviations:
- D. Refer to Section 080671, Door Hardware Sets, for hardware sets.
 - 1. MK - McKinney
 - 2. RF - Rixson
 - 3. RO - Rockwood
 - 4. SA - SARGENT
 - 5. YA - Yale
 - 6. PE - Pemko
 - 7. SU - Securitron

Hardware Sets

Set: 1.0

Doors: A100-4, A117-2, C100-1, C113-1, G-1, H-1

2	Pivot Set	147	US10	RF
2	Electrified Int. Pivot	EM19 QC (by security integrator)	US10	RF
1	Removable Mullion	L980A	PC	SA
1	Exit Device (exit only)	(12) 55 8810	US10	SA

1	Exit Device (card reader)	(12) M1-8876 (B/F)IPS ETMD (by security integrator)	US10	SA
2	Mortise Cylinder	as required, match existing	612	YA
2	Overhead Stop	1-X36 (heavy duty concealed)	612	RF
2	Door Closer	351 O/P9	EP	SA
2	Closer Plates	as required	EP	SA
1	Threshold	274x4BFG MSES25SS		PE
1	Gasketing	by door supplier		
4	ElectroLynx Harness	QC-C (as needed) (by security integrator)		MK
1	Position Switch	DPS2-M/W-BK (by security integrator)		SU
1	Power Supply	AQD4-8C8R2 (by security integrator)		SU
1	Wiring Diagrams	elevation and point-to-point (as required) (by security integrator)		

Notes:

- Opening(s) normally closed and locked.
- Use of valid credential to unlock lever trim to allow entry.
- Free egress always allowed from interior. Exit device trim is fail secure.
- Coordinate required stile width with aluminum door supplier.
- Coordinate amperage for all openings and consolidate the number power supplies as able.

Set: 2.0

Doors: B-1, B127-1, C-1

1	Pivot Set	147	US10	RF
1	Electrified Int. Pivot	EM19 QC (by security integrator)	US10	RF
1	Exit Device (card reader)	(12) M1-8876 (B/F)IPS ETMD (by security integrator)	US10	SA
1	Mortise Cylinder	as required, match existing	612	YA
1	Overhead Stop	1-X36 (heavy duty concealed)	612	RF
1	Door Closer	351 O/P9	EP	SA
1	Closer Plates	as required	EP	SA
1	Threshold	274x4BFG MSES25SS		PE
1	Gasketing	by door supplier		
1	ElectroLynx Harness	QC-C (as needed) (by security integrator)		MK
1	Position Switch	DPS2-M/W-BK (by security integrator)		SU
1	Power Supply	AQD4-8C8R2 (by security integrator)		SU
1	Wiring Diagrams	elevation and point-to-point (as required) (by security integrator)		

Notes:

- Opening(s) normally closed and locked.

- Use of valid credential to unlock lever trim to allow entry.
- Free egress always allowed from interior. Exit device trim is fail secure.
- Coordinate required stile width with aluminum door supplier.
- Coordinate amperage for all openings and consolidate the number power supplies as able.

Set: 3.0

Doors: A117-1

2	Pivot Set	147	US10	RF
2	Electrified Int. Pivot	EM19 QC (by security integrator)	US10	RF
1	Removable Mullion	L980A	PC	SA
2	Exit Device (exit only)	(12) 55 8810	US10	SA
1	Mortise Cylinder	as required, match existing	612	YA
2	Overhead Stop	1-X36 (heavy duty concealed)	612	RF
2	Door Closer	351 O/P9	EP	SA
2	Closer Plates	as required	EP	SA
1	Threshold	274x4BFG MSES25SS		PE
1	Gasketing	by door supplier		
2	ElectroLynx Harness	QC-C (as needed) (by security integrator)		MK
2	Position Switch	DPS2-M/W-BK (by security integrator)		SU
1	Wiring Diagrams	elevation and point-to-point (as required) (by security integrator)		

Notes:

- Coordinate required stile width with aluminum door supplier.

Set: 4.0

Doors: A100-5

1	Pivot Set	147	US10	RF
1	Electrified Int. Pivot	EM19 QC (by security integrator)	US10	RF
1	Exit Device (exit only)	(12) 55 8810	US10	SA
1	Overhead Stop	1-X36 (heavy duty concealed)	612	RF
1	Door Closer	351 O/P9	EP	SA
1	Closer Plates	as required	EP	SA
1	Threshold	274x4BFG MSES25SS		PE
1	Gasketing	by door supplier		
1	ElectroLynx Harness	QC-C (as needed) (by security integrator)		MK
1	Position Switch	DPS2-M/W-BK (by security integrator)		SU
1	Wiring Diagrams	elevation and point-to-point (as required) (by security integrator)		

Notes:

- Coordinate required stile width with aluminum door supplier.

Set: 5.0

Doors: B122-3, B122-4, B122-6

0 All Hardware by others

Set: 6.0

Doors: B116-1, B116-3, B116-4

2 Hinge (heavy weight)	T4A3786 QC FT (by security integrator)	US10	MK
4 Hinge (heavy weight)	T4A3786 FT	US10	MK
1 Removable Mullion	L980A	PC	SA
1 Exit Device (exit only)	(12) 55 8810	US10	SA
1 Exit Device (card reader)	(12) M1-8876 (B/F)IPS ETMD (by security integrator)	US10	SA
2 Mortise Cylinder	as required, match existing	612	YA
2 Surface Closer	351 CPS	EP	SA
2 Closer Plates	as required	EP	SA
1 Gasketing	S44BL (rated openings)		PE
2 Astragal	29324BNB TKSP8 (rated openings)		PE
2 Silencer	608 (non-rated openings)		RO
2 ElectroLynx Harness	QC-C (as needed) (by security integrator)		MK
1 Position Switch	DPS2-M/W-BK (by security integrator)		SU
1 Power Supply	AQD4-8C8R2 (by security integrator)		SU
1 Wiring Diagrams	elevation and point-to-point (as required) (by security integrator)		

Notes:

- Opening(s) normally closed and locked.
- Use of valid credential to unlock lever trim to allow entry.
- Free egress always allowed from interior. Exit device trim is fail secure.
- Coordinate required stile width with aluminum door supplier.
- Coordinate amperage for all openings and consolidate the number power supplies as able.

Set: 7.0

Doors: A113-1, A113-2

6 Hinge (heavy weight) T4A3786 FT US10 MK

1	Exit Device (exit only)	(12) NB 8710	US10	SA
1	Exit Device (storeroom)	16 NB8706 ETMD	US10	SA
1	Mortise Cylinder	as required, match existing	612	YA
2	Surface Closer	351 CPS	EP	SA
2	Closer Plates	as required	EP	SA
2	Kick Plate	K1050 10" CSK BEV	US10	RO
1	Gasketing	S44BL (rated openings)		PE
2	Astragal	29324BNB TKSP8 (rated openings)		PE
2	Silencer	608 (non-rated openings)		RO

Set: 8.0

Doors: B116-2

6	Hinge (heavy weight)	T4A3786 FT	US10	MK
1	Removable Mullion	L980A	PC	SA
2	Exit Device (exit only)	(12) 8810	US10	SA
2	Surface Closer	351 CPS	EP	SA
2	Kick Plate	K1050 10" CSK BEV	US10	RO
1	Gasketing	S44BL (rated openings)		PE
2	Astragal	29324BNB TKSP8 (rated openings)		PE
2	Silencer	608 (non-rated openings)		RO

Set: 9.0

Doors: B122-1, B126-2

1	Hinge	TA2314 NRP QC FT (by security integrator)	US10	MK
5	Hinge	TA2314 NRP FT	US10	MK
1	Dust Proof Strike	570	US10	RO
2	Flush Bolt	555/557	US10	RO
1	Card Reader Lock (wired)	M1-82271 (B/F)IPS CRMD (by security integrator)	US10	SA
1	Mortise Cylinder	as required, match existing	612	YA
1	Door Closer	351 O/P9	EP	SA
2	Kick Plate	K1050 10" CSK BEV	US10	RO
1	Threshold	274x4AFG MSES25SS		PE
1	Gasketing	29313CPK TKSP8		PE
2	Door Bottom	217AV TKSP8		PE
1	Astragal	29324BNB TKSP8 (rated openings)		PE
2	ElectroLynx Harness	QC-C (as needed) (by security integrator)		MK
1	Position Switch	DPS2-M/W-BK (by security integrator)		SU

1 Power Supply	AQD4-8C8R2 (by security integrator)	SU
1 Wiring Diagrams	elevation and point-to-point (as required) (by security integrator)	

Notes:

- Opening(s) normally closed and locked.
- Use of valid credential to unlock lever trim to allow entry.
- Lockset is fail-secure; will remain locked without power.
- Free egress always allowed from interior.
- Coordinate amperage for all openings and consolidate the number power supplies as able.

Set: 10.0

Doors: A100-1, A116-4

3 Hinge	TA2314 NRP FT	US10	MK
1 Storeroom Lock	8204 CEMD	US10	SA
1 Mortise Cylinder	as required, match existing	612	YA
1 Surface Closer	351 CPS	EP	SA
1 Kick Plate	K1050 10" CSK BEV	US10	RO
1 Threshold	274x4BFG MSES25SS		PE
1 Gasketing	29313BPK TKSP8		PE
1 Door Bottom	217BV TKSP8		PE
1 Position Switch	DPS2-M/W-BK (by security integrator)		SU

Set: 11.0

Doors: A003-2, A004-1

3 Hinge (heavy weight)	T4A3386 NRP FT	US10	MK
1 Storeroom Lock	8204 CEMD	US10	SA
1 Mortise Cylinder	as required, match existing	612	YA
1 Surface Closer	351 CPS	EP	SA
1 Kick Plate	K1050 10" CSK BEV	US10	RO
1 Threshold	274x4BFG MSES25SS		PE
1 Gasketing	29313BPK TKSP8		PE
1 Door Bottom	217BV TKSP8		PE
1 Position Switch	DPS2-M/W-BK (by security integrator)		SU

Set: 12.0

Doors: C101-1

2 Pivot Set	147	US10	RF
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2	Electrified Int. Pivot	EM19 QC (by security integrator)	US10	RF
1	Removable Mullion	L980A	PC	SA
1	Exit Device (exit only)	(12) 55 8810	US10	SA
1	Exit Device (card reader)	(12) M1-8876 (B/F)IPS ETMD (by security integrator)	US10	SA
2	Mortise Cylinder	as required, match existing	612	YA
2	Overhead Stop	1-X36 (heavy duty concealed)	612	RF
2	Door Closer	351 O/P9	EP	SA
2	Closer Plates	as required	EP	SA
1	Gasketing	by door supplier		
2	ElectroLynx Harness	QC-C (as needed) (by security integrator)		MK
1	Position Switch	DPS2-M/W-BK (by security integrator)		SU
1	Power Supply	AQD4-8C8R2 (by security integrator)		SU
1	Wiring Diagrams	elevation and point-to-point (as required) (by security integrator)		

Notes:

- Opening(s) normally closed and locked.
- Use of valid credential to unlock lever trim to allow entry.
- Free egress always allowed from interior. Exit device trim is fail secure.
- Coordinate required stile width with aluminum door supplier.
- Coordinate amperage for all openings and consolidate the number power supplies as able.

Set: 13.0

Doors: C122-1

2	Pivot Set	147	US10	RF
2	Intermediate Pivot	M19	US10	RF
1	Removable Mullion	L980A	PC	SA
2	Exit Device (intruder)	(12) 8816 ETMD	US10	SA
5	Mortise Cylinder	as required, match existing	612	YA
2	Overhead Stop	1-X36 (heavy duty concealed)	612	RF
2	Door Closer	351 O/P9	EP	SA
1	Gasketing	by door supplier		

Set: 14.0

Doors: A116-2, A116-3, C111-1

2	Pivot Set	147	US10	RF
2	Intermediate Pivot	M19	US10	RF
4	Door Pull	RM3311-50	US10	RO

2	Overhead Stop	1-X36 (heavy duty concealed)	612	RF
2	Door Closer	351 O/P9	EP	SA
2	Closer Plates	as required	EP	SA
1	Gasketing	by door supplier		
2	Sign	RM1110H (PUSH)	US32D	RO
2	Sign	RM1110L (PULL)	US32D	RO

Set: 15.0

Doors: B-2, B-3, C-2, C-3, E-1, F-1

1	Hinge (heavy weight)	T4A3786 QC FT (by security integrator)	US10	MK
2	Hinge (heavy weight)	T4A3786 FT	US10	MK
1	Exit Device (card reader)	(12) M1-8875 (B/F)IPS ETMD (by security integrator)	US10	SA
1	Mortise Cylinder	as required, match existing	612	YA
1	Door Closer	351 O/P9	EP	SA
1	Kick Plate	K1050 10" CSK BEV	US10	RO
1	Door Stop	RM861/RM855	US10	RO
1	Gasketing	S44BL (rated openings)		PE
3	Silencer	608 (non-rated openings)		RO
1	ElectroLynx Harness	QC-C (as needed) (by security integrator)		MK
1	Power Supply	AQD4-8C8R2 (by security integrator)		SU
1	Wiring Diagrams	elevation and point-to-point (as required) (by security integrator)		

Notes:

- Opening(s) normally closed and locked.
- Use of valid credential to unlock lever trim to allow entry.
- Free egress always allowed from interior. Exit device trim is fail safe.
- Coordinate amperage for all openings and consolidate the number power supplies as able.

Set: 16.0

Doors: C116-1

1	Exit Device (card reader)	(12) NB M1-8774 (B/F)IPS ETMD (by security integrator)	US10	SA
1	Exit Device (storeroom)	(12) 55 NB 8706 ETMD	US10	SA
1	Mortise Cylinder	as required, match existing	612	YA
2	Door Closer	351 O/P9	EP	SA
2	Kick Plate	K1050 10" CSK BEV	US10	RO
2	Electromagnetic Holder	980/994 (by security integrator)		RF

1	Gasketing	S44BL (rated openings)	PE
1	Astragal	29324BNB TKSP8 (rated openings)	PE
2	Silencer	608 (non-rated openings)	RO
4	ElectroLynx Harness	QC-C (as needed) (by security integrator)	MK
1	Position Switch	DPS2-M/W-BK (by security integrator)	SU
1	Power Supply	AQD4-8C8R2 (by security integrator)	SU
1	Wiring Diagrams	elevation and point-to-point (as required) (by security integrator)	

Notes:

- Opening(s) normally held open and locked.
- Triggering of fire alarm to release magnetic holders and doors to close.
- Use of valid credential to unlock lever trim to allow entry.
- Free egress always allowed from interior. Exit device trim is fail secure.
- Coordinate amperage for all openings and consolidate the number power supplies as able.

Set: 17.0

Doors: C103-1

2	Hinge (heavy weight)	T4A3786 QC FT (by security integrator)	US10	MK
6	Hinge (heavy weight)	T4A3786 FT	US10	MK
1	Removable Mullion	L980A	PC	SA
1	Exit Device (exit only)	(12) 55 8810	US10	SA
1	Exit Device (card reader)	(12) M1-8876 (B/F)IPS ETMD (by security integrator)	US10	SA
1	Mortise Cylinder	as required, match existing	612	YA
2	Door Closer	351 O/P9	EP	SA
1	Gasketing	S44BL (rated openings)		PE
2	Astragal	29324BNB TKSP8 (rated openings)		PE
2	Silencer	608 (non-rated openings)		RO
2	ElectroLynx Harness	QC-C (as needed) (by security integrator)		MK
1	Position Switch	DPS2-M/W-BK (by security integrator)		SU
1	Power Supply	AQD4-8C8R2 (by security integrator)		SU
1	Wiring Diagrams	elevation and point-to-point (as required) (by security integrator)		

Notes:

- Opening(s) normally closed and locked.
- Use of valid credential to unlock lever trim to allow entry.
- Free egress always allowed from interior. Exit device trim is fail secure.
- Coordinate amperage for all openings and consolidate the number power supplies as able.

Set: 18.0

Doors: A005-1

3 Hinge	TA2714 FT	US10	MK
1 Exit Device (storeroom)	(12) 8804 ETMD	US10	SA
1 Mortise Cylinder	as required, match existing	612	YA
1 Door Closer	351 O/P9	EP	SA
1 Kick Plate	K1050 10" CSK BEV	US10	RO
1 Gasketing	S44BL (rated openings)		PE
3 Silencer	608 (non-rated openings)		RO

Set: 19.0

Doors: D-1, D-3

6 Hinge (heavy weight)	T4A3786 FT	US10	MK
1 Exit Device (passage)	(12) NB 8715 ETMD	US10	SA
1 Exit Device (exit only)	(12) NB 8710	US10	SA
2 Door Closer	351 O/P9	EP	SA
2 Kick Plate	K1050 10" CSK BEV	US10	RO
1 Gasketing	S44BL (rated openings)		PE
2 Astragal	29324BNB TKSP8 (rated openings)		PE
2 Silencer	608 (non-rated openings)		RO

Set: 20.0

Doors: A100-2, A100-3, A116-1, A200-1, B200-2, C203-1, C216-1

6 Hinge (heavy weight)	T4A3786 FT	US10	MK
2 Exit Device (passage)	(12) NB 8715 ETMD	US10	SA
2 Door Closer	351 O/P9	EP	SA
2 Kick Plate	K1050 10" CSK BEV	US10	RO
2 Electromagnetic Holder	980/994 (by security integrator)		RF
1 Gasketing	S44BL (rated openings)		PE
1 Astragal	29324BNB TKSP8 (rated openings)		PE
2 Silencer	608 (non-rated openings)		RO

Set: 21.0

Doors: B013-1, F-2, G-3, G-4, G-5, G-6, G-7, H-3, H-4, H-5, H-6

3 Hinge (heavy weight)	T4A3786 FT	US10	MK
1 Exit Device (passage)	(12) 8815 ETMD	US10	SA

1 Door Closer	351 O/P9	EP	SA
1 Kick Plate	K1050 10" CSK BEV	US10	RO
1 Door Stop	RM861/RM855	US10	RO
1 Gasketing	S44BL (rated openings)		PE
3 Silencer	608 (non-rated openings)		RO

Set: 22.0

Doors: A113-3, A113-6

8 Hinge (heavy weight)	T4A3786 FT	US10	MK
1 Removable Mullion	L980A	PC	SA
2 Exit Device (intruder)	(12) 8816 ETMD	US10	SA
5 Mortise Cylinder	as required, match existing	612	YA
2 Door Closer	351 O/P9	EP	SA
2 Kick Plate	K1050 10" CSK BEV	US10	RO
2 Door Stop	RM861/RM855	US10	RO
1 Gasketing	S44BL (rated openings)		PE
1 Astragal	29324BNB TKSP8 (rated openings)		PE
2 Silencer	608 (non-rated openings)		RO

Set: 23.0

Doors: B116A-1, B120-1, B126-1

1 Hinge	TA2714 QC FT (by security integrator)	US10	MK
5 Hinge	TA2714 FT	US10	MK
1 Dust Proof Strike	570	US10	RO
1 Flush Bolt (set)	2845/2945 (combination)	US10	RO
1 Card Reader Lock (wired)	M1-82271 (B/F)IPS CRMD (by security integrator)	US10	SA
1 Mortise Cylinder	as required, match existing	612	YA
1 Coordinator	2600 TORX	Black	RO
2 Door Closer	351 O/P9	EP	SA
2 Kick Plate	K1050 10" CSK BEV	US10	RO
1 Gasketing	S44BL (rated openings)		PE
1 Astragal	29324BNB TKSP8 (rated openings)		PE
2 Silencer	608 (non-rated openings)		RO
2 ElectroLynx Harness	QC-C (as needed) (by security integrator)		MK
1 Position Switch	DPS2-M/W-BK (by security integrator)		SU
1 Power Supply	AQD4-8C8R2 (by security integrator)		SU
1 Wiring Diagrams	elevation and point-to-point (as required) (by		

security integrator)

Notes:

- Opening(s) normally closed and locked.
- Use of valid credential to unlock lever trim to allow entry.
- Lockset is fail-secure; will remain locked without power.
- Free egress always allowed from interior.
- Coordinate amperage for all openings and consolidate the number power supplies as able.

Set: 24.0

Doors: B003-1, B101-1, B101-2, B101-3

1 Hinge	TA2714 QC FT (by security integrator)	US10	MK
2 Hinge	TA2714 FT	US10	MK
1 Card Reader Lock (wired)	M1-82271 (B/F)IPS CRMD (by security integrator)	US10	SA
1 Mortise Cylinder	as required, match existing	612	YA
1 Door Closer	351 O/P9	EP	SA
1 Kick Plate	K1050 10" CSK BEV	US10	RO
1 Door Stop	RM861/RM855	US10	RO
1 Gasketing	S44BL (rated openings)		PE
3 Silencer	608 (non-rated openings)		RO
1 ElectroLynx Harness	QC-C (as needed) (by security integrator)		MK
1 Power Supply	AQD4-8C8R2 (by security integrator)		SU
1 Wiring Diagrams	elevation and point-to-point (as required) (by security integrator)		

Notes:

- Opening(s) normally closed and locked.
- Use of valid credential to unlock lever trim to allow entry.
- Lockset is fail-secure; will remain locked without power.
- Free egress always allowed from interior.
- Coordinate amperage for all openings and consolidate the number power supplies as able.

Set: 25.0

Doors: B014A-1

6 Hinge	TA2714 FT	US10	MK
1 Dust Proof Strike	570	US10	RO
2 Flush Bolt	555/557	US10	RO
1 Storeroom Lock	8204 CEMD	US10	SA
1 Mortise Cylinder	as required, match existing	612	YA

2	Overhead Stop	10-X36 (surface)	612	RF
2	Silencer	608		RO

Set: 26.0

Doors: B014B-1

3	Hinge	TA2714 FT	US10	MK
1	Storeroom Lock	8204 CEMD	US10	SA
1	Mortise Cylinder	as required, match existing	612	YA
1	Overhead Stop	10-X36 (surface)	612	RF
1	Kick Plate	K1050 10" CSK BEV	US10	RO
3	Silencer	608		RO

Set: 27.0

Doors: A003-1, A111A-1, A215A-1, B008-1, B009-1, B010-1, B011-1, B012-1, B014-1, B015-1, B017-1

3	Hinge	TA2714 FT	US10	MK
1	Storeroom Lock	8204 CEMD	US10	SA
1	Mortise Cylinder	as required, match existing	612	YA
1	Door Closer	351 O/P9	EP	SA
1	Kick Plate	K1050 10" CSK BEV	US10	RO
1	Door Stop	RM861/RM855	US10	RO
1	Gasketing	S44BL (rated openings)		PE
3	Silencer	608 (non-rated openings)		RO

Set: 28.0

Doors: B006-1

3	Hinge	TA2714 FT	US10	MK
1	Office Lock	8205 CEMD	US10	SA
1	Mortise Cylinder	as required, match existing	612	YA
1	Kick Plate	K1050 10" CSK BEV	US10	RO
1	Door Stop	RM861/RM855	US10	RO
3	Silencer	608		RO

Set: 29.0

Doors: A113-5, B014-2, B122-2, B122-5

3	Hinge	TA2714 FT	US10	MK
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1 Classroom Lock	8237 CEMD	US10	SA
1 Mortise Cylinder	as required, match existing	612	YA
1 Door Closer	351 O/P9	EP	SA
1 Kick Plate	K1050 10" CSK BEV	US10	RO
1 Gasketing	S44BL (rated openings)		PE
3 Silencer	608 (non-rated openings)		RO

Set: 30.0

Doors: B104A-1, B122A-1, C108A-1, C114-1, C115-1, C118A-2, C119A-1, C119A-2

3 Hinge	TA2714 FT	US10	MK
1 Privacy Lock	8265 CEMD	US10	SA
1 Kick Plate	K1050 10" CSK BEV	US10	RO
1 Door Stop	RM861/RM855	US10	RO
3 Silencer	608		RO
1 Coat Hook	RM802	US26D	RO

Set: 31.0

Doors: C104A-1, C105A-1, C106A-1, C107A-1, C118A-1, C121A-1

3 Hinge	TA2714 FT	US10	MK
1 Privacy Lock	8265 CEMD	US10	SA
1 Overhead Stop	10-X36 (surface)	612	RF
1 Kick Plate	K1050 10" CSK BEV	US10	RO
3 Silencer	608		RO
1 Coat Hook	RM802	US26D	RO

Set: 32.0

Doors: C102B-2, C102B-3

6 Hinge	TA2714 FT	US10	MK
2 Single Dummy Trim	8293 CEMD	US10	SA
2 Roller Latch	592	US10	RO
2 Overhead Stop	10-X36 (surface)	612	RF
2 Kick Plate	K1050 10" CSK BEV	US10	RO
2 Silencer	608		RO

Set: 33.0

Doors: A212C-1, B013-9, B101A-1, B104B-1, B114-1, C103A-1, C117-1, C209-1, C213-1

3 Hinge	TA2714 FT	US10	MK
1 Card Reader Lock (wireless)	IN100-7978 CRMD (by security integrator)	US10	SA
1 Indicator Bolt	D292	612	YA
1 Mortise Cylinder	as required, match existing	612	YA
1 Door Closer	351 O/P9	EP	SA
1 Kick Plate	K1050 10" CSK BEV	US10	RO
1 Door Stop	RM861/RM855	US10	RO
1 Gasketing	S44BL (rated openings)		PE
3 Silencer	608 (non-rated openings)		RO
1 Hub	AH__ (by security integrator)		SA

Notes:

- Opening(s) normally closed and locked; exterior trim always rigid and locked.
- Use of valid credential to unlock lever trim to allow entry.
- Free egress always allowed from interior.
- Door position switch and request to exit integral with lockset.

Set: 34.0

Doors: A212A-1, A212B-1, B107-1, B108-1, B109-1, B110-1, B112-1, B122C-1, B122D-1, B122E-1, B126A-1, C102A-1, C102B-1, C110-1, C123A-1, C123B-1

3 Hinge	TA2714 FT	US10	MK
1 Card Reader Lock (wireless)	IN100-7978 CRMD (by security integrator)	US10	SA
1 Mortise Cylinder	as required, match existing	612	YA
1 Door Stop	RM861/RM855	US10	RO
1 Gasketing	S44BL (rated openings)		PE
3 Silencer	608 (non-rated openings)		RO
1 Hub	AH__ (by security integrator)		SA

Notes:

- Opening(s) normally closed and locked; exterior trim always rigid and locked.
- Use of valid credential to unlock lever trim to allow entry.
- Free egress always allowed from interior.
- Door position switch and request to exit integral with lockset.

Set: 35.0

Doors: A103-1, A104-1, A108-1, A109-1, A111-1, A203-1, A204-1, A209-1, A212-1, A214-1, A215-1, B100-1, B102-1, B103-1, B103-2, B104-1, B105-1, B106-1, B117-1, B118-1, B119A-1, B128-1, C104-1, C112-1, C118-1, C121-1, C123-1, C202-1, C203A-1, C204-1, C210-1, C211-1, C212-1, C220-1

3 Hinge	TA2714 FT	US10	MK
1 Card Reader Lock (wireless)	IN100-7978 CRMD (by security integrator)	US10	SA

1	Mortise Cylinder	as required, match existing	612	YA
1	Door Closer	351 O/P9	EP	SA
1	Kick Plate	K1050 10" CSK BEV	US10	RO
1	Door Stop	RM861/RM855	US10	RO
1	Gasketing	S44BL (rated openings)		PE
3	Silencer	608 (non-rated openings)		RO
1	Hub	AH__ (by security integrator)		SA

Notes:

- Opening(s) normally closed and locked; exterior trim always rigid and locked.
- Use of valid credential to unlock lever trim to allow entry.
- Free egress always allowed from interior.
- Door position switch and request to exit integral with lockset.

Set: 36.0

Doors: A102-1, A105-1, A107-1, A110-1, A112-1, A114A-1, A202-1, A205-1, A206-1, A207-1, A208-1, A210-1, A216A-1, B113-1, C105-1, C106-1, C107-1, C108-1, C119-1, C120-1, C124-1, C205-1, C206-1, C207-1, C208-1, C217-1, C218-1, C219-1, C224-1

3	Hinge	TA2714 FT	US10	MK
1	Card Reader Lock (wireless)	IN100-7978 CRMD (by security integrator)	US10	SA
1	Mortise Cylinder	as required, match existing	612	YA
1	Overhead Stop	2-X36 (concealed)	612	RF
1	Door Closer	351 O/P9	EP	SA
1	Kick Plate	K1050 10" CSK BEV	US10	RO
1	Gasketing	S44BL (rated openings)		PE
3	Silencer	608 (non-rated openings)		RO
1	Hub	AH__ (by security integrator)		SA

Notes:

- Opening(s) normally closed and locked; exterior trim always rigid and locked.
- Use of valid credential to unlock lever trim to allow entry.
- Free egress always allowed from interior.
- Door position switch and request to exit integral with lockset.

END OF SECTION 087100