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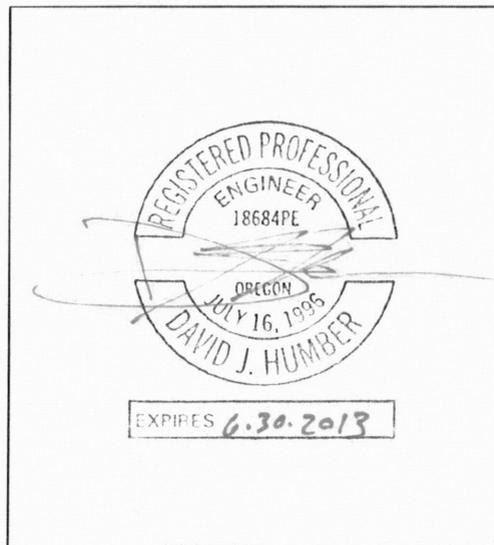
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CIVIL SPECIFICATION SECTIONS

CIVIL SEAL



12-115238-CO (specs)



SECTION 08710 DOOR HARDWARE

PART 1 GENERAL

1.1 WORK INCLUDED IN THIS SECTION

- A. This Section includes door hardware for steel door assemblies, including door hardware for hollow metal swing doors. Door hardware systems include:
1. Mechanical door hardware.
 2. Electromechanical door hardware, power supplies, back-ups and surge protection.
 3. Provide door gaskets, including weatherstripping and seals, and thresholds.
 4. Cylinders specified for doors in other sections.
- B. Related Sections:
1. Division 01 Specifications, General Requirements.
 2. Section 04065 – Masonry Mortar and Grout.
 3. Section 04820 – Reinforced Unit Masonry.
 4. Section 06100 – Rough Carpentry.
 5. Section 07430 – Insulated metal Wall Panels.
 6. Section 08110 – Hollow Metal Doors and Frames.
 7. Section 08333 – Overhead Coiling Doors.
 8. Section 08800 – Glazing.
 9. Section 09260 – Gypsum Board Assemblies.
 10. Section 09300 – Tiling.
 11. Section 09670 – Fluid-Applied Flooring.
 12. Section 09900 – Painting and Coating: Field painting.
 13. Applicable Electrical specification Sections for electrical connections, including conduit and wiring for door controls and operators installed on frames with factory-installed electrical knock out boxes; and for card access system installed at door openings provided as part of a security access control system.

1.2 REFERENCES

- A. American National Standards Institute:
1. ANSI A117.1 – Accessible and Usable Buildings and Facilities.
 2. ANSI A156.1 – Butts and Hinges.
 3. ANSI A156.2 – Bored and Preamsembled Locks and Latches.
 4. ANSI A156.3 – Exit Devices.
 5. ANSI A156.7 – Template Hinge Dimensions.
 6. ANSI A156.13 – Mortise Locks and Latches.
 7. ANSI A156.15 – Closer Holder Release Devices.
 8. ANSI A156.18 – Materials and Finishes
 9. ANSI A156.23 – Electromagnetic Locks.
 10. ANSI/SDI A250.33 – Testing and Rating of Severe Windstorm Resistant Components for Swing Door Assemblies.



SECTION 08710 DOOR HARDWARE

- B. American National Standards Institute:
 - 1. ASTM E1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Shutters Impacted by Missiles and Exposed to Cyclic Pressure Differentials.
 - 2. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure difference.
 - 3. ASTM E1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.
- C. Builders Hardware Manufacturers Association: BHMA Directory of Certified Products.
- D. International Code Council (ICC): 2009 IBC – International Building Code, as amended by the 2010 Oregon Structural Specialty Code (OSSC).
- E. National Fire Protection Association:
 - 1. NFPA 70 – National Electrical Code (NEC).
 - 2. NFPA 80 – Standard for Fire Doors and Other Opening Protectives.
 - 3. NFPA 100 – Life Safety Code.
 - 4. NFPA 105 – Installation of Smoke Door Assemblies.
 - 5. NFPA 252 – Standard Methods of Fire Tests of Door Assemblies.
- F. Testing Application Standards:
 - 1. TAS-201-94 - Impact Test Procedures.
 - 2. TAS-202-94 - Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components using Uniform Static Air Pressure.
 - 3. TAS-203-94 - Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.
- G. Underwriters Laboratories Inc.:
 - 1. UL 10B – Fire Tests of Door Assemblies.
 - 2. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
 - 3. UL 305 – Panic Hardware.
 - 4. UL – Building Materials Directory.
- H. Intertek Testing Services (Warnock Hersey Listed): WH – Certification Listings.

1.3 PERFORMANCE REQUIREMENTS

- A. Fire Rated Openings: Provide door hardware listed by UL or Intertek Testing Services (Warnock Hersey Listed), or other testing laboratory approved by applicable authorities.
 - 1. Door Hardware: Tested in accordance with NFPA 252.
- B. All door 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.



SECTION 08710 DOOR HARDWARE

1.4 SUBMITTALS

- A. Division 01 Specifications, General Requirements:
- B. Shop Drawings:
 - 1. Indicate locations and mounting heights of each type of hardware, schedules, catalog cuts, electrical characteristics and connection requirements.
 - 2. Submit manufacturer's parts lists, and templates.
- C. Samples:
 - 1. Submit one sample of typical hinge, latchset, lockset, and closer, illustrating style, color, and finish.
 - 2. Approved samples may be incorporated into Work. Samples will be returned to supplier.
- D. Manufacturer's Installation Instructions: Submit special procedures, and perimeter conditions requiring special attention.

1.5 CLOSEOUT SUBMITTALS

- A. Division 01 Specifications, General Requirements.
- B. Project Record Documents: Record actual locations of installed cylinders and their master key code.
- C. Operation and Maintenance Data: Submit data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
- D. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.

1.6 QUALITY ASSURANCE

- A. Division 01 Specifications, General Requirements.
- B. Perform Work in accordance with the following requirements:
 - 1. ANSI A156 Series.
 - 2. NFPA 80 – Standard for Fire Doors and Other Opening Protectives.
 - 3. UL 305 – Panic Hardware.
- C. Furnish hardware marked and listed in BHMA Directory of Certified Products.
- D. Maintain one copy of each document on site.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.



SECTION 08710 DOOR HARDWARE

- B. Hardware Supplier: Company specializing in supplying commercial institutional door hardware with minimum three years documented experience, and approved by primary hardware manufacturers.
- C. Hardware Suppliers:
 - 1. ASSA ABLOY.
 - 2. Substitutions: Not Permitted.
- D. Hardware Supplier Personnel: Employ Architectural Hardware Consultant (AHC) qualified person to assist in work of this section.
- E. Products Requiring Electrical Connection: Listed and classified by Underwriters' Laboratories, Inc., or by a testing agency acceptable to the authority having jurisdiction.

1.8 PRE-INSTALLATION MEETINGS

- A. Division 01 Specifications, General Requirements.
- B. Convene minimum one week prior to commencing work of this section.
- C. Include persons involved with installation of doors, frames, and hardware.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Division 01 Specifications, General Requirements.
- B. Package hardware items individually with necessary fasteners, instructions, and installation templates, when necessary; label and identify each package with door opening code to match hardware schedule.
- C. 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.
- D. 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.
- E. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner.

1.10 COORDINATION

- A. Division 01 Specifications, General Requirements.
- B. Shop Drawings: Details of Integrated Wiegand Output Access Control products indicating the following by Certified Integrator (CI):
 - 1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control



SECTION 08710 DOOR HARDWARE

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.
2. Electrical Coordination: Coordinate with related Division 26 Electrical Sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- C. Coordinate Work with other directly affected Sections involving manufacture or fabrication of internal reinforcement for door hardware and recessed items.
1. Provide templates or actual hardware as required to ensure proper preparation of doors and frames.
- D. Proof of Certification: Provide copy of manufacturers' official certification or accreditation document, indicating proof of status as a qualified and authorized provider of the primary integrated access control components.
- E. 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.
- F. Door and Frame Preparation: Steel doors and corresponding frames in related Division 08 Sections are to be prepared, reinforced and pre-wired where required to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.
- G. Sequence installation to accommodate required utility connections.
- H. Coordinate Owner's keying requirements during course of Work.

1.11 WARRANTY

- A. Division 01 Specifications, General Requirements.
- B. Furnish five-year manufacturer's warranty for exit devices, locksets and door closers.
- C. Written warranty provided by manufacturer(s) shall include repair or replacement of components of standard door hardware and electrified door hardware that fail 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.



SECTION 08710 DOOR HARDWARE

4. Electrical component defects and failures within the systems operation.

1.12 MAINTENANCE MATERIALS

- A. Division 01 Specifications, General Requirements.
- B. Furnish special wrenches and tools applicable for each different and for each special hardware component.
- C. Furnish maintenance tools and accessories supplied by hardware component manufacturer.
- D. Continuing Service: Beginning at Substantial Completion, and concurrent with the specified warranty period, provide continuous full maintenance, including repair and replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door opening operation. Provide parts and supplies as used in the manufacture and installation of original products.

1.13 EXTRA MATERIALS

- A. Division 01 Specifications, General Requirements.
- B. Furnish ten extra key lock cylinders for each master keyed group.

PART 2 PRODUCTS

2.1 DOOR HARDWARE

- A. Manufacturers (Basis of Design):
 1. Corbin Russwin (RU).
 2. Door Controls International (DC).
 3. Hager Companies (HA).
 4. HID Global (HD).
 5. McKinney Products (MK).
 6. Medeco (MC).
 7. Pemko Manufacturing (PE).
 8. Reese Enterprises, Inc. (RS).
 9. Rockwood Manufacturing (RO).
 10. Sargent Manufacturing (SA).
 11. Trimco (TC).
 12. Schlage Lock Co. (SC).
 13. Securitron Door Controls (SU).
 14. Security Door Controls (SD)
 15. Stanley Best (BE).
 16. Stanley Hardware (ST).
 17. Yale Locks and Hardware (YA).
 18. Substitutions: Division 01, General Requirements for substitution procedures.



SECTION 08710 DOOR HARDWARE

2.2 COMPONENTS - HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles as specified in the Door Hardware Groups.
1. Quantity: Provide the following hinge quantity, unless otherwise indicated:
 - 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 greater 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 36 inches: 4-1/2 inches standard or heavy weight as specified.
 - b. Sizes greater than 36 inches and up to 48 inches: 5 inches 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 hinges unless Hardware Groups indicate standard weight.
 - b. Interior Doors: Standard weight, steel, ball bearing hinges unless Hardware Groups indicate heavy weight.
 4. Hinge Options: Comply with the following where indicated in the Hardware Groups or on Drawings:
 - 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 following applications:
 - 1) Out-swinging exterior doors.
 - 2) Out-swinging access controlled doors.
 5. Acceptable Manufacturers:
 - a. Hager Companies (HA).
 - b. McKinney Products (MK).
 - c. Stanley Hardware (ST).

2.3 COMPONENTS - 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 Groups. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
1. Acceptable Manufacturers:
 - a. Hager Companies (HA) - ETW-QC (# wires) Option.
 - b. McKinney Products (MK) - QC (# wires) Option.
- B. Provide mortar guard enclosure on steel frames installed at masonry openings for each electrical hinge specified.



SECTION 08710 DOOR HARDWARE

- C. Electric Door Hardware Cords: Provide electric 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 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. Acceptable Manufacturers:
 - a. McKinney Products (MK) - Inner Door Cord 3 inches: QC-C003P.
 - b. McKinney Products (MK) - Inner Door Cord 3 foot door: QC-C206P.
 - c. McKinney Products (MK) - Inner Door Cord 4 foot door: QC-C306P.
 - d. McKinney Products (MK) - Inner Door Cord 15 feet: QC-C1500P.
 - e. McKinney Products (MK) - Hinge to Junction Panel 15 feet: QC-C1500P.
 2. Provide one each of the following tools as part of the base bid contract:
 - a. McKinney Products (MK) - Electrical Connecting Kit: 52-3000.
 - b. McKinney Products (MK) - Connector Hand Tool: 52-0439.

2.4 COMPONENTS - DOOR OPERATING TRIM

- A. Flush Bolts and Surface Bolts: ANSI/BHMA A156.3 and A156.16, Grade 1, certified automatic, self-latching, and manual flush bolts and surface bolts. Manual flush bolts to be furnished with top rod of sufficient length to allow bolt location approximately six feet from the floor. Furnish dust proof strikes for bottom bolts. Surface bolts to be minimum 8 inches in length and UL-listed for labeled fire doors and UL-listed for windstorm components where applicable. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
1. Acceptable Manufacturers:
 - a. Door Controls International (DC).
 - b. Rockwood Manufacturing (RO).
 - c. Trimco (TC).

2.5 COMPONENTS - 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 straight- or clover-type cam.
 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.



**SECTION 08710
DOOR HARDWARE**

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.
- D. Patented Cylinders: ANSI/BHMA A156.5, Grade 1, certified patented cylinders employing a utility patented and restricted keyway requiring the use of a patented key. Cylinders are to be protected from unauthorized manufacture and distribution by manufacturer's United States patents. Cylinders are to be factory keyed with owner having the ability for on-site original key cutting.
1. Acceptable Manufacturers:
 - a. Corbin Russwin (RU) - Medeco KeyMark X4 Series.
 - b. Medeco (MC) - Keymark X4 Series.
 - c. Sargent Manufacturing (SA) - XC Series.
 - d. Yale Locks and Hardware (YA) - Medeco KeyMark X4 Series.
- E. Keying System: Each type of lock and cylinders to be factory keyed. Conduct specified "Keying Conference" to define and document keying system instructions and requirements. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner. Incorporate decisions made in keying conference, and as follows:
1. Master Key System: Cylinders are operated by a change key and a master key.
 2. Grand Master Key System: Cylinders are operated by a change key, a master key, and a grand master key.
 3. Great-Grand Master Key System: Cylinders are operated by a change key, a master key, a grand master key, and a great-grand master key.
 4. Existing System: Master key or grand master key locks to Owner's existing system.
 5. Keyed Alike: Key all cylinders to same change key.
- F. Key Quantity: Provide the following minimum number of keys:
1. Top Master Key: One (1).
 2. Change Keys per Cylinder: Two (2).
 3. Master Keys (per Master Key Group): Two (2).
 4. Grand Master Keys (per Grand Master Key Group): Two (2).
 5. Construction Control Keys (where required): Two (2).
 6. Permanent Control Keys (where required): Two (2).
- G. Construction Keying: Provide construction master keyed cylinders or temporary keyed construction cores where specified. Provide construction master keys in quantity as required by project Contractor. Replace construction cores with permanent cores. Furnish permanent cores for installation as directed under specified "Keying Conference".
- H. Key Registration List: Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
- I. Key Control Software: Provide one network version of "Key Wizard" branded key management software package that includes one year of technical support and upgrades



SECTION 08710 DOOR HARDWARE

to software at no charge. Provide factory key system formatted for importing into "Key Wizard" software.

2.6 COMPONENTS - MECHANICAL LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 certified mortise locksets furnished in the functions as specified in the Hardware Groups. Locksets to be manufactured with a corrosion resistant, stamped 12 gauge minimum formed steel case and be field-reversible for handing without disassembly of the lock body. Lockset trim (including knobs, levers, escutcheons, roses) to be the product of a single manufacturer. Furnish with standard 2 3/4" backset, 3/4" throw anti-friction stainless steel latchbolt, and a full 1" throw stainless steel bolt for deadbolt functions.
1. Acceptable Manufacturers:
 - a. Corbin Russwin Hardware (RU) – ML2000 Series.
 - b. Sargent Manufacturing (SA) – (R) 8200 Series.
 - c. Yale Locks and Hardware (YA) – 8800FL Series.
 - B. Lock Trim Design: As specified in Hardware Groups.

2.7 COMPONENTS - WIEGAND OUTPUT ACCESS CONTROL LOCKING DEVICES

- A. Integrated Wiegand Output Mortise Locks: Wiegand output ANSI A156.13, Grade 1, mortise lockset with integrated proximity 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 inch deadlocking anti-friction latch, and 1-inch case-hardened steel deadbolt. Lock is UL-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. Reader supports either HID 125 kHz proximity (up to 39 bits, including Corporate 1000) or 13.56 MHz (2K-32K) iClass® credentials.
 3. 12VDC external power supply required for reader and lock, with optional 24VDC operation available with iClass® reader (125 kHz reader is always 12VDC). Fail safe or fail secure options.
 4. 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.
 5. Installation to include manufacturer's access control panel interface board or module where required for Wiegand output protocol.
 6. Acceptable Manufacturers:
 - a. Corbin Russwin Hardware (RU) - Access 600 - ML20600 RNE1 Series.
 - b. Sargent Manufacturing (SA) - Harmony - H1/H2 8200 Series.
 - c. Schlage (SC) - AD300 Series.
 - d. Stanley Best (BE) - IDH MAX 1300 Series.



SECTION 08710 DOOR HARDWARE

- e. Yale Locks and Hardware (YA) - Symphony - S8800 SYM Series.

2.8 COMPONENTS - 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 anti-friction latch bolts, 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.
- 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 A156.5.
 - 4. Dustproof Strikes: BHMA A156.16.

2.9 COMPONENTS - CONVENTIONAL EXIT DEVICES

- A. 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 Groups. Mounting rails to be formed from smooth stainless steel, brass or bronze architectural materials no less than 0.072" thick, with push rails a minimum of 0.062" thickness. Painted or aluminum metal rails are not acceptable. Exit device latch to be investment cast stainless steel, Pullman-type, with deadlock feature.
 - 1. Acceptable Manufacturers:
 - a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
 - b. Sargent Manufacturing (SA) - 80 Series.
 - c. Yale Locks and Hardware (YA) - 7000 Series.

2.10 COMPONENTS - INTEGRATED WIEGAND OUTPUT ACCESS CONTROL EXIT DEVICES

- A. Wiegand Output Integrated Card Reader Exit Hardware: Wiegand output ANSI 156.3 Grade 1 rim, mortise, and vertical rod exit device hardware with integrated proximity card reader, latchbolt and touch bar 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-inch throw latch bolt. UL-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. Reader supports either HID 125 kHz proximity (up to 39 bits, including Corporate 1000) or 13.56 MHz (2K-32K) iClass® credentials.



SECTION 08710 DOOR HARDWARE

3. 12VDC external power supply required for reader, with optional 24VDC operation available with iClass® reader (125 kHz reader is always 12VDC). 24VDC required for solenoid operated exit trim (12VDC if applicable). 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. Acceptable Manufacturers:
 - d. Corbin Russwin Hardware (RU) - Access 600 - ED5000 RNE1 Series.
 - e. Sargent Manufacturing (SA) - Harmony - H1/H2 80 Series.
 - f. Yale Security (YA) - Symphony -7100 SYM Series.

2.11 COMPONENTS - DOOR CLOSERS

- A. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 through 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 body construction, with adjustable back check and separate non-critical valves for closing sweep and latch speed control. Provide high impact, non-corrosive plastic covers standard.
 1. Acceptable Manufacturers:
 - a. Corbin Russwin Hardware (RU) - DC8000 Series.
 - b. Sargent Manufacturing (SA) - 281 Series.

2.12 COMPONENTS - 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 Groups
 2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2 inches less than door width (LDW) on stop side and not more than 1 inch 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 Groups.
 3. Metal Protection Plates: ANSI/BHMA A156.6 certified metal protection plates (kick, armor, or mop), beveled on four edges (B4E), fabricated from the following.
 - a. Stainless Steel: 050-inch thick, with countersunk screw holes (CSK).
 - b. Brass or Bronze: 050-inch thick, with countersunk screw holes (CSK).
 - c. Laminate Plastic or Acrylic: 1/8-inch thick, with countersunk screw holes (CSK).
 4. Fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Groups.



SECTION 08710 DOOR HARDWARE

5. Metal Door Edging: Door protection edging fabricated from a minimum .050-inch thick metal sheet, formed into an angle or "U" cap shapes, surface or mortised mounted onto edge of door. Provide appropriate leg overlap to account for protection plates as required. Height to be as specified in the Hardware Groups.
6. Acceptable Manufacturers:
 - a. Rockwood Manufacturing (RO).
 - b. Trimco (TC).

2.13 COMPONENTS - DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Groups.
- 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 Groups. 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. Acceptable Manufacturers:
 - c. Rockwood Manufacturing (RO).
 - d. Trimco (TC).

2.14 COMPONENTS - ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Groups. 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 UBC 7-2, 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, based on testing according to ASTM E1408.



SECTION 08710 DOOR HARDWARE

- 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. Acceptable Manufacturers:
 - 1. Pemko Manufacturing (PE).
 - 2. Reese Enterprises, Inc. (RS).

2.15 COMPONENTS - ELECTRONIC ACCESSORIES

- A. Stand Alone Proximity Card Readers: Stand alone card readers are HID 125 kHz proximity compatible, 12VDC/24VDC hardwired, constructed of weather resistant electronics suitable for either indoor or outdoor applications. 2000 Users and 2000 audit events. Auxiliary 2-amp relay to signal alarm shunt, propped or forced door (separate door status switch required).
 - 1. Acceptable Manufacturers:
 - a. Corbin Russwin Hardware (RU) - WM800 Series.
 - b. Sargent Manufacturing (SA) - 4293 Series.
- B. Exit Delay Locking Systems: Exit delay locking systems are fully integrated units consisting of a minimum 1200 pound holding force magnetic lock, movement initiating device, reset bypass switch, and exit delay timer module. Unit to include an adjustable initiation gap allowing door travel of up to 1 inch before going into alarm condition. Operates on either 12VDC or 24VDC.
 - 1. Acceptable Manufacturers:
 - a. Security Door Controls (SD) - 101 Exit Check Series.
 - b. Securitron Door Controls (SU) - iMXD Series.
- C. Digital Keypads: Digital keypad designed for high volume use controlling entry of electrified locking devices. Fully weather proof, vandal resistant with wall type gang box or mullion mounting applications. Digital keypad system circuit board is remote mounted in a metal enclosure and provides for multiple users and digit codes, and variable programmable release times. Operates on either 12 or 24 volts AC or DC.
 - 1. Acceptable Manufacturers:
 - a. Security Door Controls (SD) - 900 Series.
 - b. Securitron Door Controls (SU) - DK Series.
- D. Key Switches: Key switches furnished standard with stainless steel single gang face plate with a 12/24VDC bi-color LED indicator. Integral backing bracket permits integration with any 1 1/4" or 1 1/2" mortise type cylinder. Key switches available as momentary or maintained action and in narrow face plate options.
 - 1. Acceptable Manufacturers:
 - a. Security Door Controls (SD) - 800 Series.
 - b. Securitron Door Controls (SU) - MK Series.
- E. Push-Button Switches: Industrial grade momentary or alternate contact, back-lighted push buttons with stainless-steel switch enclosures. 12/24 VDC bi-color illumination suitable for either flush or surface mounting.
 - 1. Acceptable Manufacturers:



SECTION 08710 DOOR HARDWARE

- a. Security Door Controls (SD) - 400 Series.
 - b. Securitron Door Controls (SU) - PB Series.
- F. Request-to-Exit Motion Sensor: Request-to-Exit Sensors motion detectors specifically designed for detecting exiting through a door from the secure area to a non-secure area. Include built-in timers (up to 60 second adjustable timing), door monitor with sounder alert, internal vertical pointability coverage, 12VDC or 24VDC power and selectable relay trigger with fail safe/fail secure modes.
1. Acceptable Manufacturers:
 - a. Security Door Controls (SD) - MD-31D Series.
 - b. Securitron Door Controls (SU) - XMS Series.
- G. 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. Acceptable Manufacturers:
 - a. Security Door Controls (SD) - DPS Series.
 - b. Securitron Door Controls (SU) - DPS Series.
- H. Proximity Access Cards and Credentials: RF programmable, 125 kHz access control/identification cards utilizing a passive, no battery design allowing for infinite number of reads. Cards are programmable in any HID proximity format up to 85 bits and compatible with all HID proximity readers.
1. Acceptable Manufacturers (125 kHz Proximity):
 - a. Corbin Russwin Hardware (RU) - 794F Series.
 - b. HID Global (HD) - ISO Prox II Series.
 - c. Sargent Manufacturing (SA) - PCH Series.
- I. 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. Acceptable Manufacturers:
 - a. Corbin Russwin Hardware (RU) - WT1 Wiegand Test Unit.
 - b. Sargent Manufacturing (SA) - WT1 Wiegand Test Unit.
 - c. Yale Locks and Hardware (YA) - WTI Wiegand Test Unit.
- J. Power Supplies: Provide Nationally Recognized Testing Laboratory Listed 12VDC or 24VDC (field selectable) filtered and regulated power supplies. Include battery backup option with integral battery charging capability in addition to operating the DC load in event of line voltage failure. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.
1. Acceptable Manufacturers:
 - a. Security Door Controls (SD) - 630 Series.



SECTION 08710 DOOR HARDWARE

- b. Securitron Door Controls (SU) - BPS 12/24 Series.

2.16 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.

2.17 FINISHES

- A. Standard: Designations used in the Hardware Groups 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.
- D. Anti-microbial Finishes: Where specified, finishes on locksets, latchsets, exit devices and push/pull trim to incorporate an FDA recognized. Silver Ion, anti-microbial coating (MicroShield™) listed for use on equipment as a suppressant to the growth and spread of a broad range of bacteria, algae, fungus, mold and mildew.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Division 01 Specifications, General Requirements.
- B. 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.
- C. 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.
- D. Verify doors and frames are ready to receive door hardware and dimensions are as indicated on shop drawings.
- E. Verify electric power is available to power-operated devices and is of correct characteristics.



SECTION 08710 DOOR HARDWARE

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 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, or as specifically indicated in this Section or on Drawings, or as required in compliance with governing regulations:
1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 2. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 3. Provide wall frame reinforcement blocking in GWB metal stud partitions where wall stops or other wall-mounted hardware is located.
- C. Coordinate mounting heights with door and frame manufacturers. Use templates provided by hardware item manufacturer.
- D. Mounting Heights From Finished Floor to Center Line of Hardware Item: Comply with manufacturer recommendations and applicable codes where not otherwise indicated.
1. Locksets: 38 inches.
 2. Push/Pulls: 42 inches.
 3. Dead Locks: 48 inches.
 4. Push Pad Type Exit Devices: 42 inches.
 5. Cross Bar Type Exit Devices: 38 inches.
 6. Top Hinge: Jamb manufacturer's standard, but not greater than 10 inches from head of frame to centerline of hinge.
 7. Bottom Hinge: Jamb manufacturer's standard, but not greater than 12-1/2 inches from floor to center line of hinge.
 8. Intermediate Hinges: Equally spaced between top and bottom hinges and from each other.
 9. Hinge Mortise on Door Leaf: 1/4 inch to 5/16 inch from stop side of door.
- E. Integrated Wiegand access control products are required to be installed through current members of the ASSA ABLOY "Certified Integrator" (CI) program. Integrated Wiegand Output Access Control products are required to be supplied only through designated ASSA ABLOY "Authorized Channel Partner" (ACP) accounts.
1. For listing of ACPs that meet these qualifications and are authorized to supply access control products to "Certified Integrators" (CI) specified in this section, contact Pro-Spec Agency at (425) 821-8863.



SECTION 08710 DOOR HARDWARE

- F. Integrated Wiegand Output Access Control products are required to be installed only through designated "Certified Integrator" (CI) accounts.
 - 1. For a listing of CIs that meet these qualifications and are authorized to install the access control products specified in this section, contact Pro-Spec Agency at (425) 821-8863.
- G. Power Operator products and accessories are required to be installed through current members of the manufacturer's "Power Operator Preferred Installer" program.
- H. 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 09 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- I. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- J. 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. Division 01 Specifications, General Requirements.
- B. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 ADJUSTING

- A. Division 01 Specifications, General Requirements.
- B. 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. Division 01 Specifications, General Requirements.
- B. 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.



SECTION 08710 DOOR HARDWARE

- C. Clean adjacent surfaces soiled by door hardware installation.

3.7 DEMONSTRATION

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

3.8 DOOR HARDWARE SCHEDULE

- A. Hardware groups represent the design intent for the Project. Any discrepancies in hardware information should be brought to the attention of the Architect.
- B. Manufacturer's Abbreviations:
 - 1. MK = McKinney.
 - 2. PE = Pemko.
 - 3. RO = Rockwood.
 - 4. SA = Sargent.
 - 5. SU = Securitron
- C. See following pages for the specific information for the Hardware Groups:



**SECTION 08710
DOOR HARDWARE**

Hardware Group 1

(Doors 101A, 101M, 107B, 108B, 110A & 111A)

Qty	Item	Model	Finish	Mfr.
2	Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
1	Hinge (heavy weight)	T4A3386 NRP QC12 4-1/2" x 4-1/2"	US32D	MK
1	Exit Device with Card Reader	11 SG H2-8974 ETJ	US32D	SA
1	Door Closer (surface w/stop arm)	281 CPS	EN	SA
1	Kick Plate	K1050 10" 4BE	US32D	RO
1	Threshold	271A		PE
1	Rain Guard	346C		PE
1	Gasketing	S773D		PE
1	Door Bottom	420APKL		PE
1	ElectroLynx Harness	QC-C300P		MK
1	ElectroLynx Harness	QC-C1500P		MK
1	Power Supply	AQD3-8C		SU

Notes: Card reader integrated into exit device trim. Presenting valid credentials unlocks exit device handle to allow entrance. Egress allowed at all times. Fail secure. Manual key over ride. 12v DC power for card reader by security system (access control panel), 24v DC power for exit device handle above. 1 power supply to operate doors 101A, 101M, 107B, 110A, 108B & 111A.

Hardware Group 2

(Doors 101B, 101Ba, 101C, 101Ca, 101D, 101Da, 101E, 101Ea, 101H, 101Ha, 101J, 101Ja, 101K, 101Ka, 101L, 101La, 107A, 107Aa, 110B, 110C, 111B, 111Ba, 112a & 112Aa)

NOTE: All coiling doors' hardware provided by overhead coiling door manufacturer.

Hardware Group 3

(Doors 101F, 101G & 112B)

Qty	Item	Model	Finish	Mfr.
3	Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
1	Exit Device (mortise, exit only)	SG 8910	US32D	SA
1	Door Closer (surface w/stop arm)	281 CPS	EN	SA
1	Threshold	2005AT		PE
1	Rain Guard	346C		PE
1	Gasketing	S773D		PE
1	Sweep	18061CNB		PE



**SECTION 08710
DOOR HARDWARE**

Hardware Group 4

(Doors 102A & 103A)

Qty	Item	Model	Finish	Mfr.
3	Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
1	Classroom Lock	11 SG 8237 LNJ	US32D	SA
1	Door Closer	281 O	EN	SA
1	Kick Plate	K1050 10" 4BE	US32D	RO
1	Wall Stop	403	US26D	RO
1	Threshold	271A		PE
1	Gasketing	S773D		PE
1	Door Bottom	420APKL		PE

Hardware Group 5

(Doors 104A & 105A)

Qty	Item	Model	Finish	Mfr.
3	Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
1	Privacy Set	SG 49 8265 LNJ	US32D	SA
1	Door Closer	281 O	EN	SA
1	Kick Plate	K1050 10" 4BE	US32D	RO
1	Wall Stop	403	US26D	RO
1	Gasketing	S773D		PE

Hardware Group 6

(Door 106A)

Qty.	Item	Model	Finish	Mfr.
3	Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
1	Storeroom Lock	11 SG 8204 LNJ	US32D	SA
1	Door Closer	281 O	EN	SA
1	Kick Plate	K1050 10" 4BE	US32D	RO
1	Wall Stop	403	US26D	RO
3	Silencer	609		RO



**SECTION 08710
DOOR HARDWARE**

Hardware Group 7

(Door 108A)

Qty.	Item	Model	Finish	Mfr.
8	Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
2	Exit Device (surface vertical rod, exit only)	SG 8710	US32D	SA
2	Door Closer	281 CPSH	EN	SA
1	Threshold	271A		PE
1	Rain Guard	346C		PE
2	Door Bottom	420APKL		PE
1	Astragal	18041CNB		PE
1	Gasketing	S773D		PE

Hardware Group 8

(Doors 109A & 110D)

Qty	Item	Model	Finish	Mfr.
8	Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
2	Flush Bolt	550	US26D	RO
1	Dust Proof Strike	570	US26D	RO
1	Storeroom Lock	11 SG 8204 LNJ	US32D	SA
2	Door Closer (surface w/stop arm)	281 CPS	EN	SA
1	Threshold	2005AV		PE
2	Gasketing	S773D		PE
2	Sweep	18061CNB		PE
2	Astragal	18041CNB		PE

Hardware Group 9

(Doors 109B, 111C, 111D & 112C)

Qty	Item	Model	Finish	Mfr.
3	Hinge (heavy weight)	T4A3386 4-1/2" x 4-1/2"	US32D	MK
1	Classroom Lock	11 SG 8237 LNJ	US32D	SA
1	Door Closer (surface)	281 P9	EN	SA
1	Wall Stop	403	US26D	RO
1	Threshold	271A		PE
1	Door Bottom	420APKL		PE
3	Silencer	609		RO



**SECTION 08710
DOOR HARDWARE**

Hardware Group 10

(Door 201A)

Qty	Item	Model	Finish	Mfr.
8	Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
2	Exit Device (surface vertical rod, exit only)	12 NB SG 8710	US32D	SA
2	Door Closer (surface)	281 P9	EN	SA
2	Wall Stop	403	US26D	RO
1	Gasketing	S773D		PE
2	Astragal	18041CNB		PE

Hardware Group 11

(Door 110E)

Qty	Item	Model	Finish	Mfr.
3	Hinge (heavy weight)	T4A3386 4-1/2" x 4-1/2"	US32D	MK
1	Classroom Lock	11 SG 8237 LNJ	US32D	SA
1	Door Closer (surface)	281 P9	EN	SA
1	Floor Stop	403	US26D	RO
1	Threshold	271A		PE
1	Door Bottom	420APKL		PE
3	Silencer	609		RO
1	Gasketing	S773D		PE

Hardware Group 12

(Door 107C)

Qty	Item	Model	Finish	Mfr.
3	Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
1	Exit Device (mortise, exit only)	SG 8910	US32D	SA
1	Door Closer	281 O	EN	SA
1	Kick Plate	K1050 10" 4BE	US32D	RO
1	Wall Stop	403	US26D	RO
1	Gasketing	S773D		PE
1	Door Bottom	420APKL		PE

END OF SECTION