

DTMB DOOR HARDWARE SPECIFICATION

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PART 1 - GENERAL

- 1.1 Refer to "General and Special Conditions", and "Instructions to Bidders", Division 1 of Specifications. Requirements of these Sections and the project drawings shall govern work in this section.
- 1.2 Work Included:
- A. Furnish all items of Finish Hardware specified, scheduled, shown or required herein except those items specifically excluded from this section of the specification.
 - B. Related work:
 - 1. Division 00 00 00 – Procurement and Contracting Requirements
 - 2. Division 01 00 00 – General Requirements
 - 3. Division 06 00 00 – Wood, Plastics, and Composites
 - 4. Division 08 00 00 – Openings
 - 5. Division 10 00 00 – Specialties
 - 6. Division 11 00 00 – Equipment
 - 7. Division 26 00 00 – Electrical
 - 8. Division 27 00 00 – Communications
 - 9. Division 28 00 00 – Electronic Safety and Security
 - C. Specific Omissions: Hardware for the following is specified or indicated elsewhere, unless specifically listed in the hardware sets:
 - 1. Cabinet Hardware.
 - 2. Signs, except as noted.
 - 3. Folding partitions, except cylinders where detailed.
 - 4. Sliding aluminum doors
 - 5. Chain link and wire mesh doors and gates
 - 6. Access doors and panels
 - 7. Overhead and Coiling doors
- 1.3 Quality Assurance
- A. Requirements of Regulatory Agencies:
 - 1. Furnish finish hardware to comply with the requirements of laws, codes, ordinances, and regulations of the governmental authorities having jurisdiction where such requirements exceed the requirements of the Specifications.
 - 2. Furnish finish hardware to comply with the requirements of the regulations for public building accommodations for physically handicapped persons of the governmental authority having jurisdiction and to comply with Americans with Disabilities Act.
 - 3. Provide hardware for fire-rated openings in compliance with NFPA 80 and state and local building code requirements. Provide only hardware that has been tested and listed by UL for types and sizes of doors required and complies with requirements of door and door frame labels.

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B. Hardware Supplier:

1. Shall be an established company dealing in Commercial Door Hardware. The Commercial Door Hardware company must have adequate inventory, qualified personnel on staff and be located within 100 miles of the project. The distributor must be a factory-authorized dealer for all materials required.
2. All door hardware product must be **B.H.M.A. (Builders Hardware Manufactures Association) Certified.**

C. Electrified Door Hardware Supplier:

1. Shall be an experienced door hardware supplier who has completed projects with electrified door hardware similar in material, design, and extent to that indicated for this project, whose work has resulted in construction with a record of successful in-service performance, and who is acceptable to manufacturer of primary materials.
2. Shall prepare data for electrified door hardware, including shop drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies like those indicated for this project.
3. Shall have experience in providing consulting services for electrified door hardware installations.

D. Pre-installation Meeting:

1. Before hardware installation, General Contractor/Construction Manager will request a hardware installation meeting be conducted on the installation of hardware; specifically, that of locksets, closers, exit devices, overhead stops and coordinators. Manufacturer's representatives of the above products, in conjunction with the hardware supplier for the project, shall conduct the meeting. Meeting to be held at job site and attended by installers of hardware for aluminum, hollow metal and wood doors. Meeting to address proper coordination and installation of hardware, per finish hardware schedule for this specific project, by using installation manuals, hardware schedule, templates, physical product samples and installation videos.
2. When any electrical hardware is specified, this meeting shall also include the following trades/installers: Electrical, Security, Alarm systems and Architect.
3. Convene one week or more prior to commencing work of this Section.
4. The Hardware Supplier shall include the cost of this meeting in his proposal.

E. Manufacturer:

1. Obtain each type of hardware (latch and locksets, hinges, closers, etc.) from one manufacturer, although several may be indicated as offering products complying with requirements.
2. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated.

1.4 Submittals:

A. Hardware Schedule

1. Submit number of Hardware Schedules as directed in Division 1.
2. Follow guidelines established in Door & Hardware Institute Handbook (DHI) Sequence and Format for the Hardware Schedule unless noted otherwise.

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3. Schedule will include the following:
 - a. Door Index including opening numbers and the assigned Finish Hardware set.
 - b. Preface sheet listing category only and manufacturer's names of items being furnished as follows:

CATEGORY	SPECIFIED	SCHEDULED
Hinges	Manufacturer A	Manufacturer B
Lock sets	Manufacturer X	Manufacturer X
Kick Plates	Open	Manufacturer Z

- c. Hardware Locations: Refer to Article 3.1 B.2 Locations.
- d. Opening Description: Single or pair, number, room locations, hand, active leaf, degree of swing, size, door material, frame material, and UL listing.
- e. Hardware Description: Quantity, category, product number, fasteners, and finish.
- f. Headings that refer to the specified Hardware Set Numbers.
- g. Scheduling Sequence shown in Hardware Sets.
- h. Product data of each hardware item, and shop drawings where required, for special conditions and specialty hardware.
- i. Electrified Hardware system operation description.
- j. "Vertical" scheduling format only. "Horizontal" schedules will be returned "Not Approved."
- k. Typed Copy.
- l. Double-Spacing.
- m. 8-1/2 x 11-inch sheets
- n. U.S. Standard Finish symbols or BHMA Finish symbols.

B. Product Data:

1. Submit Manufacturers Catalog cut sheets of scheduled hardware.
2. Submit product data with hardware schedule.

C. Samples:

1. Prior to submittal of the final hardware schedule and prior to final ordering of finish hardware, submit one sample, if required, of each type of exposed hardware unit, finished as required and tagged with full description for coordination with schedule.
2. Samples will be returned to the supplier. Units, which are acceptable and remain undamaged through submittal, review and field comparison procedures may, after final check of operation, be used in the work, within limitations of keying coordination requirements.

D. Key Schedule:

1. Submit detailed schedule indicating clearly how the Owner's final keying instructions have been followed.
2. Submit as a separate schedule.
3. The DTMB Office of Infrastructure Protection Access Control will do all the locksmith pinning off cores and install cores for the DTMB buildings. (except for MSP Forensic Labs and Hall of Justice)

E. Electrified Hardware Drawings:

1. Submit elevation drawings showing relationship of all electrical hardware components to door and frame.

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- a. Include wiring drawing showing point to point wire hook up for all components.
 - b. Include system operations descriptions for each type of opening; describe each possible condition.
- F. Submit to General Contractor/Construction Manager, the factory order acknowledgement numbers for the various hardware items to be used on the project. The factory order acknowledgement numbers shall help to facilitate and expedite any service that may be required on a hardware item. General Contractor/Construction Manager shall keep these order acknowledgement numbers on file in the construction trailer.
- 1.5 Product Delivery, Storage, and Handling:
- A. Label each item of hardware with the appropriate door number and Hardware Schedule heading number and deliver to the installer so designated by the contractor.
- 1.6 Warranties:
- A. During the warranty period, replace defective work, including labor, materials and other costs incidental to the work. Replace work found to be defective as defined in the General Conditions.

PART 2 - PRODUCT

- 2.1 Furnish of each category with the door hardware products can be multiple door hardware brands unless specified otherwise by DTMB Office of Infrastructure Protection, Access Control Supervisor.
- 2.2 Provide all door hardware specification of the product being used on the project.
- A. Hinges:
 - 1. Furnish hinges 4.5" x 4.5".
 - 2. Manufactured by any B.H.M.A member.
 - B. Continuous Gear Hinge:
 - 1. 6063-T6 aluminum alloy, anodized finish (cap on entire hinge painted if specified). Manufacture to template, uncut hinges non-handed, pin less assembly, three interlocking extrusions, full height of door and frame, lubricated polyacetal thrust bearing, fasteners 410 stainless steel plated and hardened. All hinge profiles to be manufactured to template bearing locations, with standard duty bearing configurations at 5-1/8" spacing with a minimum of 16 bearings: and heavy duty at 2-9/16" spacing with a minimum of 32 bearings. Anodizing of material shall be done after fabrication of components so that all bearing slots are anodized.
 - 2. Length: 1" less than door opening height. Fastener 12-24 x 1/2" #3 Phillips keen form stainless steel self-tapping at aluminum and hollow metal doors, 12- 1/2" #3 Philips, flathead full thread at wood doors.
 - 3. Furnish fire rated hinges "FR" at labeled openings.

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- a. For Wood and Hollow Metal frames
 4. Manufactured by any B.H.M.A member.
- C. Flush Bolts:
1. Manufactured by any B.H.M.A member.
- D. Locksets and Latch sets - Mortise Type:
1. Mortise type not acceptable without approval from DTMB Office of Infrastructure Protection, Access Control Supervisor.
- E. Locksets and Latch sets – Heavy Duty Cylindrical Type:
1. Function numbers listed are Dormakaba-Best or Allegion-Schlage
 2. Provide 2-3/4 inch backset.
 3. Provide strikes with extended lips where required to protect trim from being marred by latch bolt. Provide strike lips that do not project more than 1/8" beyond doorframe trim at single doors, have 7/8" lip to center at pairs of 1-3/4" doors and rose size 3 1/2 diameter
 4. Locksets and Latch sets:
 - a. Dormakaba-Best 9K series
 - b. Schlage ND Schlage ND series
 5. Lockset:
 - a. Dormakaba-Best 14 – Curved Return
 - b. Schlage ND Sparta (SPA) Curved Return
- F. Roller Latches:
1. Manufactured by any B.H.M.A member.
- G. Exit Devices: Allegion-Von Duprin
1. Exit devices shall be touchpad style, fabricated of brass, bronze, stainless steel, or aluminum, plated to the standard architectural finishes to match the balance of the door hardware.
 2. All exit devices shall incorporate a fluid damper, which decelerates the touchpad on its return stroke and eliminates noise associated with exit device operation. Touchpad shall extend a minimum of one half of the door width. All latch bolts to be dead latching type, with a self-lubricating coating to reduce wear.
 3. Endcap will be sloped to deflect any impact from carts, and they shall be flush with the external mechanism case. End caps that overlap and project above the mechanism case are unacceptable. End cap shall utilize a two-point attachment to the mounting bracket.
 4. Touchpad shall match exit device finish, and shall be stainless steel for US26, US26D, US28, US32, and US32D finishes. Only compression springs will be used in devices, latches, and outside trims or controls.
 5. Plastic templates shall be included with each exit device to facilitate a quick, easy and accurate installation.
 6. Strikes shall be roller type and come complete with a locking plate to prevent movement.
 7. All rim and vertical rod exit devices shall have passed a 5 million (5,000,000) cycle test based on ANSI A156.3, 1994, Grade 1 test standards and certified by an independent testing lab.

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8. All mortise exit devices shall have passed a 10 million (10,000,000) cycle test based on ANSI A156.3, 1994, Grade 1 test standards and certified by an independent testing lab.
 9. Exit devices shall be UL listed panic exit hardware. All exit devices for fire rated openings shall be UL labeled fire exit hardware.
 10. Lever trim for exit devices shall be vandal-resistant type, which will travel to a 90-degree down position when more than 35 pounds of torque are applied, and which can easily be re-set.
 11. No external vertical rod on an exit device.
 12. Surface mount vertical rod are acceptable.
 13. Allegion-Von Duprin 98/99 and 33A/35A Series. Series and function numbers as listed in sets.
 14. Allegion-Von Duprin 990 pull trim, 5 standard functions:
 - a. Classroom (TP)
 - b. Storeroom (NL)
 - c. Dummy trim (DT)
 - d. Passage (TP-BE)
 - e. Exit only (EO)
 15. Allegion-Von Duprin 33A/35A Series popular trims
 - a. 360: lever or thumbpiece trim, 3 standard functions:
 - 1) Classroom (L, T)
 - 2) Passage (L-BE, T-BE)
 - 3) Dummy (L-DT)
 - b. 386: pull trim, 2 standard functions:
 - 1) Storeroom (NL)
 - 2) Dummy (DT)
 - c. 388: optional pull trim, 1 standard function:
 - 1) Storeroom (NL-OP)
 16. Allegion-Von Duprin 98/99 and 33A/35A QELA Baseplate Conv. Kit series.
 17. Allegion-Schlage PS902 or Von Duprin PS 914 with a Von Duprin 900-2RS is a 2 Relay EL Panic Device Control Board output power supply for connection of electrified devices such Von Duprin exit devices equipped with the (QELA Baseplate Conv. Kit series.)
- H. Recessed Exit Devices:
1. Recessed exit devices shall be of the push pad design with straight or horizontal motion to eliminate pinch points. The push pad shall project a maximum of 1-3/4" from the face of the door in the closed position. The push pad shall project a maximum of 1-1/4" from the face of the door in the open position.
 2. Latch bolts shall have a self-lubricating coating to reduce friction and wear.
 3. Endcaps shall be diecast aluminum and be of a sloping design to deflect impact from carts.
 4. Exit devices shall have compression springs, and all internal parts shall be zinc dichromate coated to prevent corrosion.
 5. Outside trim shall be heavy-duty type and fasten by means of concealed studs and through-bolt from the inside. Lever trim shall be cast brass with a minimum average thickness of .130".
 6. Exit devices shall be tested in accordance to ANSI/BHMA A156.3 Grade 1 by a BHMA certified testing laboratory.
 7. A written certification showing successful completion of a minimum of one million cycles must be also provided.
 8. Recessed exit devices shall be as manufactured by Von Duprin. Exit device series shall be 94/95 series.
 9. Trim: Levers to match lockset design.
- I. Removable Mullion:

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1. Interior/Exterior doors, mullion is removable only using building keys.
 - a. Allegion-Von Duprin KR4954
2. Interior Doors - UL listed, Mullion is removable only using building keys.
 - a. Allegion-Von Duprin KR9954

J. Push and Pull Hardware:

1. Push Plates: 6 x 16 x .050 inches. If stile widths will not accept 6 inches, provide stile width less two inches.
2. Push-Pull Units: One-inch round rod. Push: Straight push bar, Pull: 90-degree offset, 12-inch centers. Attach top post of pull back to back with latch stile end of push bar, bottom post of pull and hinge stile end of push bar with end caps.
3. Pull, Offset: One-inch round rod, 90-degree offset, 12-inch centers.
4. Pulls: One-inch round rod, straight 12-inch centers.
5. Pull Plates: 4 x 16 x .050 inches. 8" center.
6. Pull, Bi-Fold: Dummy Lever Trims. Levers to match lockset lever design.
7. Pull, Wire: 3/4-inch diameter, 6-inch centers.
8. Vandal Resistant Pulls: Stainless steel construction 0.120 inches thick.
9. Manufactured by any B.H.M.A member.

K. Coordinator – Frame Stop Mounted:

1. Door coordinator shall prevent the active door from closing before inactive door. Stop mounted channel 1-5/8" x 5/8" steel tubing x length to suit door opening. Coordinator shall be UL listed. Furnish filler bars to fill gap between end of coordinator and inactive door frame. Furnish mounting brackets for all stop mounted hardware such as exit device strikes, door closer PA shoes, etc. Coordinators shall be prepared (cutout) at the factory for surface applied or concealed vertical rod panic devices if required.
2. Furnish with carry bar CB1 when required for proper operation.
3. Manufactured by any B.H.M.A member.

L. Electric Strike:

1. Electric strikes shall provide remote release of latch bolts. They shall be designed for use with the type locks shown at each opening where required. Strikes will be UL Listed for Burglary-Resistant Electric Door Strike, and where required, shall be UL listed as electric strikes for Fire Doors or Frames. Faceplates shall be stainless steel with finish as specified for each opening. The locking components shall be stainless steel to resist damage and abuse.
2. Furnish strikes manufactured by Dormakaba or Allegion-Von Duprin
 - a. Dormakaba RCI F2 series Part # F2164
 - b. Allegion-Von Duprin 6400 Series electric
 - c. Alternative subject to approval from DTMB Office of Infrastructure Protection, Access Control Supervisor.
 - d. Allegion-Von Duprin 6300 is a surface mount electric strike is specifically designed for Von Duprin 98/99 series rim exit devices.

M. Electric Power Transfer:

1. Transfer power from door frame to edge of door, UL listed R4504.
2. Allegion-Von Duprin EPT

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N. Access control wire and electrical conduits:

1. Honeywell Profusion Genesis series cable 22/6+22/4+22/2+18/4 – Plenum or FTS.
2. West Penn wire AQC1822GY1000 Access Control Composite Cable Indoor/Outdoor Aqua seal Gray.
3. West Penn wire AQ3283 1000-12C 18G STRD SHLD Aqua seal.
4. Electrical contractors provide conduit card reader electrical single gang box, request to exit detector electrical single gang box horizontal, door sensor conduit top of door frame, electrified door hardware conduit, electric power transfer hinge conduit.
5. All electrical conduits for the access control wire come out of electrical junction box on the secure corridor side or secure hallway side for the access control door opening. Except for (REX)request to exit detector the horizontal electrical single gang box interior side.
6. Provide electrical conduit from the electrical junction box to the power supply for the electrical exit device door hardware.
7. Provide conduits for 120 volts for low energy power operated door unit and conduit for low volt 3 extra 22-4 wire to Low Energy Power Operated Door unit to power supply and to electrical single gang boxes for the operator actuator buttons.

O. Closers:

1. Door closers shall have fully hydraulic, full rack and pinion action with a high strength cast iron cylinder. Cylinder body shall be 1 ½" in diameter, and double heat-treated pinion shall be 11/16" in diameter with double D slab drive arm connection.
2. Hydraulic fluid shall be of a type requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to –30 degrees F.
3. Spring power shall be continuously adjustable over the full range of closer sizes and allow for reduced opening force for the physically handicapped. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed, and backcheck.
4. All closers shall have solid forged steel main arms (and forged forearms for parallel arm closers).
5. All surface mounted mechanical closers shall be certified to exceed ten million (10,000,000) full load cycles by a recognized independent testing laboratory.
6. Closers will have Powder coating finish certified to exceed 100 hours salt spray testing by ETL, an independent testing laboratory used by BHMA for ANSI certification.
7. Refer to door and frame details and furnish accessories such as drop plates, panel adapters, spacers and supports as required to correctly install door closers. State degree of door swing in the hardware schedule.
8. Furnish closers manufactured by LCN
 - a. Allegion-Von Duprin -LCN Series 4000.

P. ADA Special Closers

1. Where "Low Energy Power Operated Door" as defined by ANSI Standard A156.19 is indicated for doors required to be accessible to the disabled, provide electrically powered operators complying with the ADA requirements for opening force and time to close standards.
2. Full closing force shall be provided when the power or assist cycle ends.
3. Modular design, adjustments easily accessible from the front, UL listed for use on labeled doors.

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4. Shall have "Second Chance" function to accommodate momentary resistance, "Breakaway" function in the electronically controlled clutch, "Soft Start" motor control function and "Maintain Hold-Open Switch" to hold the door open at 90 degree.
 5. Shall have built in 12V and 24V power supply for actuators, card readers, electric strikes and magnetic door locks, inputs for both swing and stop side sensors and available to accept either 120VAC or 220VAC input power. All wiring connections between operator modules made by easy-to-handle electrical connectors. Shall comply with both UL and NEC requirements for Class 1 and Class 2 wiring by providing separate conduits for each.
 6. Shall have seven independent electronic adjustments to tailor the operator for specific site conditions. Opening speed, holding force at 90 deg., sequential trigger and time delay, hold-open time at 90 deg., opening force, clutch "breakaway" force setting, electric strike trigger and time delay.
 7. Shall have separate and independent adjustments for back check, main speed and latch speed.
 8. Furnish actuators and other controls as shown in Hardware Sets.
 9. Furnish operators manufactured by:
 10. Provide conduits for 120 volts for low energy power operated door unit and conduit for low volt 3 extra 22-4 wire to Low Energy Power Operated Door unit to power supply and to electrical single gang boxes for the operator actuator buttons.
 11. All installers must be certified by the **American Association of Automatic Door Manufacturers (AAADM)** is a trade association of power-operated automatic door manufacturers.
 - 12.
 13. Accepted units:
 - a. Stanley Magic Force
 - b. Horton Automatics Easy Access Series 4100LIE or Easy Access Series 7100
 - c. Record 6100 or 8100 Heavy Duty
- Q. Overhead Holders and Stops:
1. Plastic end caps hold open mechanisms and shock blocks are not allowed. End caps must be finished same as balance of unit.
 2. Manufacture products using base material of Brass/Bronze for US3, US4, & US10B finished products and 300 Stainless Steel for US32 & US32D finished products.
 3. Manufactured by any B.H.M.A member.
- R. Kick Plates:
1. Furnish .050 inches thick, beveled three sides, 10" high x door width less 2" at single doors and less 1" at pairs. Where glass or louvers prevent this height, supply with height equal to height of bottom rail less 2".
 2. Manufactured by any B.H.M.A member.
- S. Bumpers:
1. Wrought, forged, or cast, approximately 2-1/2 inch diameter, convex or concave rubber center, concealed fasteners.
 2. Manufactured by any B.H.M.A member.

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T. Wall Stops:

1. Length to exceed projection of all other hardware. Provide with threaded studs and expansion shields for masonry wall construction. Install with slope at top.
2. Manufactured by any B.H.M.A member.

U. Floor Stops:

1. Half dome. Furnish height to suit undercut.
2. Manufactured by any B.H.M.A member.

V. Wall Holders:

1. Products specified by series only; furnish strike length to exceed projection of all other hardware.
2. Manufactured by any B.H.M.A member.

W. Door Holding Magnets:

1. Electrically controlled, fail-safe, holds door open until current is interrupted.
2. Units will have 35 lbs. of holding force.
3. Units will be "tri-voltage", 12VDC, 24VAC/DC & 120VAC.
4. Furnish model to hold door away from wall to allow for any trim or levers on pull side of door.
5. Manufactured by any B.H.M.A member.

X. Thresholds:

1. 1/2" high - 5" wide. Cope at jambs.
2. Furnish full wall opening width when frames are recessed.
3. Cope in front of mullions if thresholds project beyond door faces.
4. Furnish with non-ferrous Stainless-Steel Screws and Lead Anchors.
5. Manufactured by any B.H.M.A member.

Y. Door Sweeps:

1. Surface Sweeps
2. Manufactured by any B.H.M.A member.

Z. Weather-stripping:

1. Apply to head and jamb stops.
2. Solid Bar stock all sides
3. Manufactured by any B.H.M.A member.

AA. Meeting Stile Weather-stripping:

1. 2 Pc. Nylon brush type to seal gap between pairs of doors.
2. Manufactured by any B.H.M.A member.

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BB. Astragal:

1. Stainless steel, type 304, Finish 2B. 12 gauge 1-5/8 inch wide. #10 x 3/4" sheet metal screws.
2. Manufactured by any B.H.M.A member.

CC. Sound Seal:

1. Adjustable type perimeter seal.
2. Manufactured by any B.H.M.A member.

DD. Smoke and Draft Control Seals: (Use this section for hollow metal 'S' labeled doors.)

1. Gaskets must comply with UBC7.2 (1997) Part 2, UL1784 (1995), and NFPA 105 (1999) for use on all 'S' labeled wood and hollow-metal Positive Pressure door assemblies.
2. Manufactured by any B.H.M.A member.

EE. Fire and Smoke Seals: (Use this section for 20, 45, & 60-minute rated wood door with 'S' label)

1. Gaskets must comply with UBC7.2 (1997) Part 1 & 2, UL1784 (1995) NFPA 105 (1999) for use on (Category 'B') 20, 45, & 60-minute wood door assemblies:
2. Manufactured by any B.H.M.A member.

FF. Fire and Smoke Seals: (Use this section for 90-minute rated wood doors with 'S' label)

1. Gaskets must comply with UBC7.2 (1997) Part 1 & 2, UL1784 (1995) NFPA 105 (1999) for use on (Category 'B') 90 – minute wood door assemblies:
2. Lock protector shall eliminate gap between door and frame. No exposed fasteners on face of unit.
3. Manufactured by any B.H.M.A member.

GG. Fasteners:

1. Furnish fasteners of the proper type, size, quantity and finish. Use machine screws and expansion shields for attaching hardware to concrete or masonry, and wall grip inserts at hollow wall construction. Furnish machine screws for attachment to reinforced hollow metal doors and frames and reinforced aluminum doors and frames. Furnish full thread wood screws for attachment to solid wood doors and frames. "TEK" type screws are not acceptable.
2. Sex bolts will not be permitted on reinforced metal doors or wood doors where blocking is specified.

2.3 Finishes:

- A. Generally, Dull Chrome, US26D / BHMA 626. Provide finish for each item as indicated in sets.

2.4 Templates and Hardware Location:

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- A. Furnish hardware made to template. Supply required templates and hardware locations to the door and frame manufacturers.
- B. Furnish metal template to frame/door supplier for continuous hinge.
- C. Refer to Article 3.1 B.2, Locations, and coordinate with templates.

2.5 Cylinders and Keying:

- A. Locks Cylinders and keys will be furnished with Best Small Format Interchangeable Core (SFIC). Coordinate keying requirements with State of Michigan Department of Technology, Management and Budget, Office of Infrastructure Protection.
- B. Provide cylinders with construction cores or keying for use during the construction period.

PART 3 - EXECUTION

3.1 Installation

A. General:

1. Install hardware according to manufacturer's installations and template dimensions. Attach all items of finish hardware to doors, frames, walls, etc. with fasteners furnished and required by the manufacture of the item.
2. Provide blocking/reinforcement for all wall mounted Hardware.
3. Reinforced hollow metal doors and frames and reinforced aluminum door and frames will be drilled and tapped for machine screws.
4. Solid wood doors and frames: full thread wood screws. Drill pilot holes before inserting screws.
5. Continuous gear hinges attached to hollow metal doors and frames and aluminum doors and frames: 12-24 x 1/2" #3 Phillips Keen form self-tapping. Use #13 or 3/16 drill for pilot.
6. Continuous Gear Hinges require continuous mortar guards of foam or cardboard 1/2" thick x frame height, applied with construction adhesive.
7. Install weather-strip gasket prior to parallel arm closer bracket, rim exit device or any stop mounted hardware. Gasket to provide a continuous seal around perimeter of door opening. Allow for gasket when installing finish hardware. Door closers will require special templating. Exit devices will require adjustment in backset.

B. Locations:

1. Dimensions are from finish floor to center line of items.
2. Include this list in Hardware Schedule.

CATEGORY

DIMENSION

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Hinges	Door Manufacturer's Standard
Flush Bolt Levers	72" and 12"
Levers	Door Manufacturer's Standard
Exit Device Touch Bar	Per Template
Dead latch Cylinder	43" unless conflicting with push-pull.
Deadlock MS Cylinder	43" unless conflicting with push-pull.
Hospital Push-Pull	Manufacturer's Template
Roller Latch	At Head
Push-Pull Units	42" to centerline of Pull
Offset Pulls	Suitable for Exit Devices
Pulls - Flush Cup	46"
Pulls (BTB)	46"
Push-Pulls	46"
Push Plates	52"
Pull Plates	42"
Wire Pulls	42"
Wall Stops/holders	At Head
Astragals	Pull side of active leaf
Trim Protector Bars	Push side of door below lever handle
Lock Protectors	Pull side of door

C. Field Quality Inspection:

1. Provide the services of a representative to inspect material furnished and its installation and its adjustment, and to instruct the Owner's personnel in adjustment, care and maintenance of hardware.
2. Locksets and exit devices shall be inspected by the factory representative after installation and after the HVAC system is in operation and balanced, to insure correct installation and proper operation.
3. Closers shall be inspected by the factory representative **(and adjusted when required after a Pre-Installation meeting has been conducted)** after installation and after the HVAC system is in operation and balanced, to insure correct installation and proper operation.
4. The manufacturer's representative shall prepare a written report stating compliance and recording locations and kinds of noncompliance. The original report shall be forwarded to the Architect with copies to the Contractor, hardware distributor, hardware installer and building owner.

D. Technical and Warranty Information:

1. At the completion of the project, the technical and warranty information coalesced and kept on file by the General Contractor/Construction Manager shall be given to the Owner or Owner's Agent. In addition to both the technical and warranty information, all factory order acknowledgement numbers supplied to the General Contractor/Construction Manager during the construction period shall be given to the Owner or Owner's Agent. The warranty information and factory order acknowledgement numbers shall serve to both expedite and properly execute any warranty work that may be required on the various hardware items supplied on the project.
2. Submit to General Contractor/Construction Manager, two copies each of parts and service manuals and two each of any special installation or adjustment tools. Include for locksets, exit devices, door closers and any electrical products

DTMB DOOR HARDWARE SPECIFICATION

5/26/2023

For question on the specification contact DTMB Office of Infrastructure Protection.

Craig Thornton

Access Control Building Trades Supervisor

Office of Infrastructure Protection

Michigan Department of Technology, Management & Budget

Cybersecurity & Infrastructure Protection

Joint Operations Center, 615 W. Allegan Street, Lansing, MI 48933

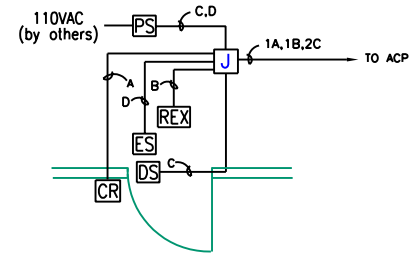
thorntonc3@michigan.gov

517-242-9026

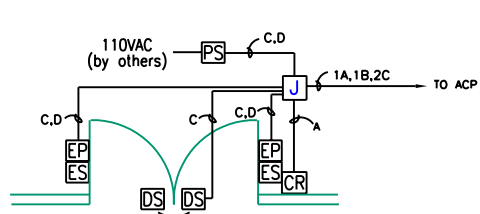


HELP. CONNECT. SOLVE.

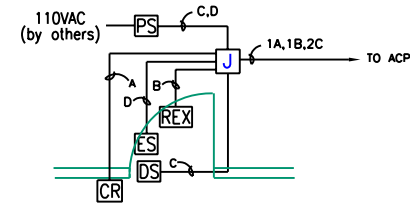
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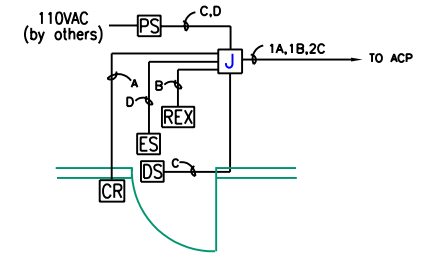
PLAN VIEW 1



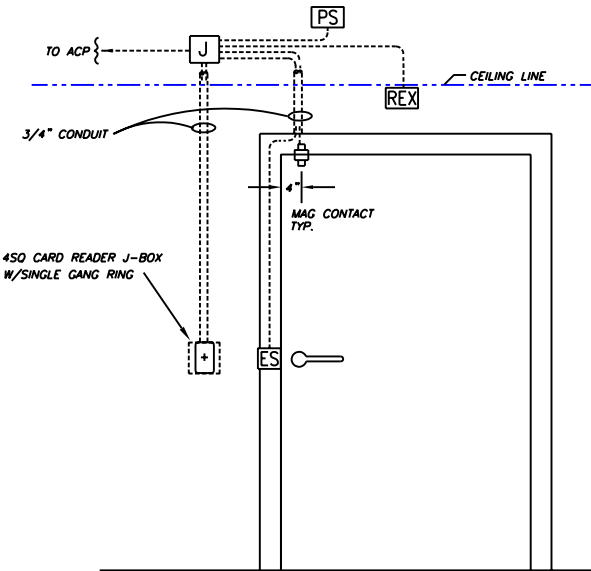
PLAN VIEW 2



PLAN VIEW 3



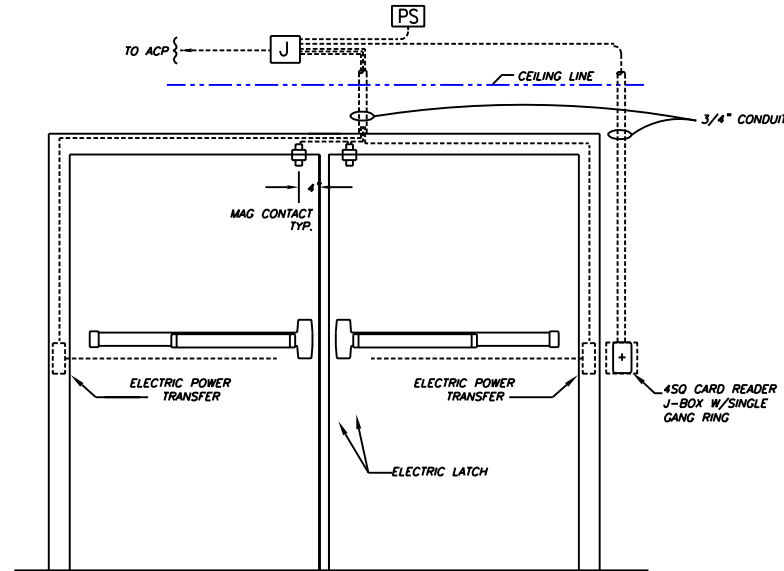
PLAN VIEW 4



ELEVATION 1

OPERATIONAL DESCRIPTION

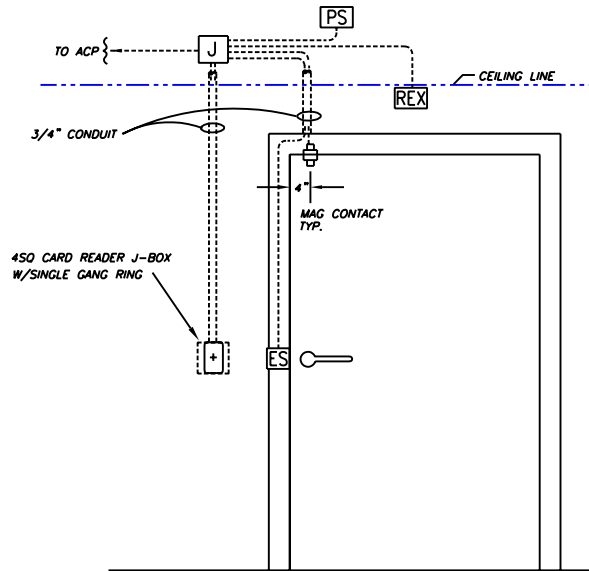
The card reader shall unlock the electric strike when a valid user card is presented to the reader. Once the strike time on the reader elapses, the electric strike shall re-lock the door.



ELEVATION 2

OPERATIONAL DESCRIPTION

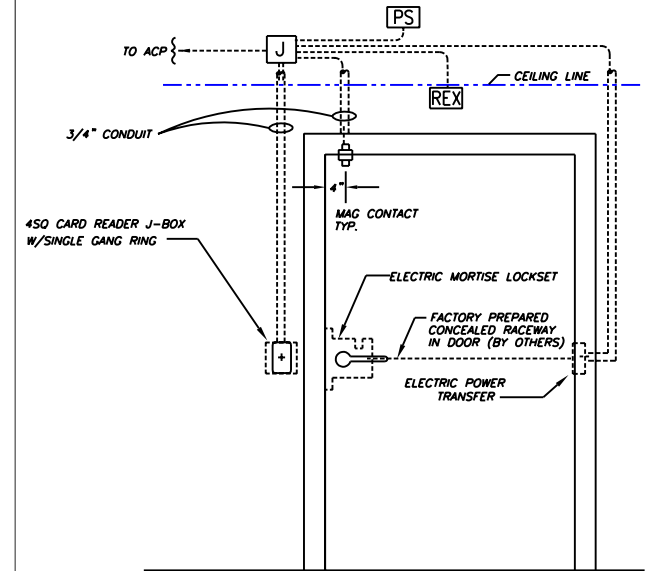
The card reader shall control the locking and unlocking of the door. When a valid user card is presented, the latchbolts on the exit device shall retract allowing the card-holder to open the door. After the strike time on the card reader elapses, the latchbolts on the exit devices shall extend and latch. Authorized egress is accomplished by pushing on the push pad, which will shunt any alarms. If the fire alarm goes into an active state, the power to the power supply shall be cut.



ELEVATION 3

OPERATIONAL DESCRIPTION

The card reader shall unlock the electric strike when a valid user card is presented to the reader. Once the strike time on the reader elapses, the electric strike shall re-lock the door.



ELEVATION 4

OPERATIONAL DESCRIPTION

The lever trim on the secure side of the opening shall be held electrically locked. The card reader shall control the locking and unlocking of the lever trim. If the fire alarm goes into an active state, the lever-handle trim shall unlock.

1 Typical Single Door Layout

2 Typical Double Door Layout

3 Typical Single Door Layout

4 Typical Single Door Layout

CABLE LEGEND	
A	18 AWG, 3 pair, shielded
B	18 AWG, 2 pair
C	18 AWG, 1 pair
D	12 AWG, 1 pair
E	

SYMBOL LEGEND			
[REX]	Request to exit PIR	[PS]	Power Supply (by others)
[ES]	Electric Strike/Latch	[EP]	Exit Pushbar Switch
[DS]	Door position switch	[ACP]	Access Control Panel
[CR]	Card reader	[J]	Junction Box
[LM]	Latch Monitor Switch	[FA]	Fire Alarm Module

REV	DESCRIPTION	BY	DATE	SHEET
REV F				
REV E				
REV D				
REV C				
REV B				
REV A				