

SECTION 08 71 00
DOOR HARDWARE

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Door hardware and related items necessary for complete installation and operation of doors.

1.2 RELATED WORK

- A. Application of Hardware: Section 08 14 00, WOOD DOORS;
Section 08 11 13, HOLLOW METAL DOORS AND FRAMES; and Section 08 41 13,
ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS.
- B. Electrical: Division 26, ELECTRICAL.
- C. Card Readers: Division 28, ELECTRONIC SAFETY AND SECURITY.

1.3 GENERAL

- A. Hardware for application on metal and wood doors and frames shall be made to standard templates. Furnish templates to the fabricator of these items in sufficient time so as not to delay the construction.
- B. The following items shall be of the same manufacturer, except as otherwise specified:
 - 1. Hinges for hollow metal and wood doors.
 - 2. Surface applied overhead door closers.

1.4 WARRANTY

- A. Door hardware shall be subject to the terms of FAR Clause 52.246-21, except that the Warranty period shall be two years in lieu of one year for all items except as noted below:
 - 1. Locks, latchsets, and panic hardware: 5 years.
 - 2. Door closers and continuous hinges: 10 years.

1.5 MAINTENANCE MANUALS

- A. In accordance with Section 01 00 00, GENERAL REQUIREMENTS Article titled "INSTRUCTIONS," furnish maintenance manuals and instructions on all door hardware. Provide installation instructions with the submittal documentation.

1.6 SUBMITTALS

- A. Submittals shall be in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. Submit 6 copies of the schedule per Section 01 33 23. Submit 2 final copies of the final approved schedules to VAMC Locksmith as record copies.

B. Hardware Schedule: Prepare and submit hardware schedule in the following form:

Hardware Item	Quantity	Size	Reference Publication Type No.	Finish	Mfr. Name and Catalog No.	Key Control Symbols	UL Mark (if fire rated and listed)	ANSI/BHMA Finish Designation

C. Samples and Manufacturers' Literature:

1. Samples: All hardware items (proposed for the project) that have not been previously approved by Builders Hardware Manufacturers Association shall be submitted for approval. Tag and mark all items with manufacturer's name, catalog number and project number.
2. Samples are not required for hardware listed in the specifications by manufacturer's catalog number, if the contractor proposes to use the manufacturer's product specified.

D. Certificate of Compliance and Test Reports: Submit certificates that hardware conforms to the requirements specified herein. Certificates shall be accompanied by copies of reports as referenced. The testing shall have been conducted either in the manufacturer's plant and certified by an independent testing laboratory or conducted in an independent laboratory, within four years of submittal of reports for approval.

1.7 DELIVERY AND MARKING

A. Deliver items of hardware to job site in their original containers, complete with necessary appurtenances including screws, keys, and instructions. Tag one of each different item of hardware and deliver to COR for reference purposes. Tag shall identify items by Project Specification number and manufacturer's catalog number. These items shall remain on file in COR's office until all other similar items have been installed in project, at which time the COR will deliver items on file to Contractor for installation in predetermined locations on the project.

1.8 PREINSTALLATION MEETING

- A. Convene a preinstallation meeting not less than 30 days before start of installation of door hardware. Require attendance of parties directly affecting work of this section, including Contractor and Installer, Architect, Project Engineer and VA Locksmith, Hardware Consultant, and Hardware Manufacturer's Representative. Review the following:
1. Inspection of door hardware.
 2. Job and surface readiness.
 3. Coordination with other work.
 4. Protection of hardware surfaces.
 5. Substrate surface protection.
 6. Installation.
 7. Adjusting.
 8. Repair.
 9. Field quality control.
 10. Cleaning.

1.9 INSTRUCTIONS

- A. Hardware Set Symbols on Drawings: Except for protective plates, door stops, mates, thresholds and the like specified herein, hardware requirements for each door are indicated on drawings by symbols. Symbols for hardware sets consist of letters (e.g., "HW") followed by a number. Each number designates a set of hardware items applicable to a door type.
- B. Keying: All cylinders shall be keyed into existing Great Grand Master Key System. Provide removable core cylinders that are removable only with a special key or tool without disassembly of knob or lockset. Cylinders shall be 7 pin type, Best 'H' keyway. Provide one uncombined core for each keyed lockset required by contract. Final keying shall be done by VA locksmith.

1.10 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only. In text, hardware items are referred to by series, types, etc., listed in such specifications and standards, except as otherwise specified.

B. American National Standards Institute/Builders Hardware Manufacturers
Association (ANSI/BHMA):

A156.1-06.....Butts and Hinges
A156.2-03.....Bored and Pre-assembled Locks and Latches
A156.3-08.....Exit Devices, Coordinators, and Auto Flush
Bolts
A156.4-08.....Door Controls (Closers)
A156.5-01.....Auxiliary Locks and Associated Products
A156.6-05.....Architectural Door Trim
A156.8-05.....Door Controls-Overhead Stops and Holders
A156.12-05Interconnected Locks and Latches
A156.13-05.....Mortise Locks and Latches Series 1000
A156.16-08.....Auxiliary Hardware
A156.18-06.....Materials and Finishes
A156.21-09.....Thresholds
A156.22-05.....Door Gasketing and Edge Seal Systems
A156.25-07Electrified Locking Devices
A156.28-07Master Keying Systems
A250.8-03.....Standard Steel Doors and Frames

PART 2 - PRODUCTS

2.1 BUTT HINGES

- A. ANSI A156.1. The following types of butt hinges shall be used for the types of doors listed, except where otherwise specified:
1. Exterior Doors: Type A2112/A5112 for doors 900 mm (3 feet) wide or less and Type A2111/A5111 for doors over 900 mm (3 feet) wide.
Hinges for exterior outswing doors shall have non-removable pins.
 2. Interior Doors: Type A8112/A5112 for doors 900 mm (3 feet) wide or less and Type A8111/A5111 for doors over 900 mm (3 feet) wide.
Hinges for doors exposed to high humidity areas (shower rooms, toilet rooms, kitchens, janitor rooms, etc. shall be of stainless steel material.

B. Provide quantity and size of hinges per door leaf as follows:

1. Doors 1210 mm (4 feet) to 2260 mm (7 feet 5 inches) high: 3 hinges minimum.
2. Doors up to 900 mm (3 feet) wide, standard weight: 114 mm x 114 mm (4-1/2 inches x 4-1/2 inches) hinges.
3. Doors over 900 mm (3 feet) to 1065 mm (3 feet 6 inches) wide, standard weight: 127 mm x 114 mm (5 inches x 4-1/2 inches).
4. Doors over 1065 mm (3 feet 6 inches) to 1210 mm (4 feet), heavy weight: 127 mm x 114 mm (5 inches x 4-1/2 inches).

2.2 DOOR CLOSING DEVICES

A. Closing devices shall be products of one manufacturer.

2.3 OVERHEAD CLOSERS

A. Conform to ANSI A156.4, Grade 1.

B. Closers shall conform to the following:

1. The closer shall have minimum 50 percent adjustable closing force over minimum value for that closer and have adjustable hydraulic back check effective between 60 degrees and 85 degrees of door opening.
2. Where specified, closer shall have hold-open feature.
3. Size Requirements: Provide multi-size closers, sizes 1 through 6, except where multi-size closer is not available for the required application.
4. Material of closer body shall be forged or cast.
5. Arm and brackets for closers shall be steel, malleable iron or high strength ductile cast iron.
6. Where closers are exposed to the exterior or are mounted in rooms that experience high humidity, provide closer body and arm assembly of stainless steel material.
7. Closers shall have full size metal cover; plastic covers will not be accepted.
8. Closers shall have adjustable hydraulic back-check, separate valves for closing and latching speed, adjustable back-check positioning valve, and adjustable delayed action valve.
9. Provide closers with any accessories required for the mounting application, including (but not limited to) drop plates, special soffit plates, spacers for heavy-duty parallel arm fifth screws, bull-nose or other regular arm brackets, longer or shorter arm

- assemblies, and special factory templating. Provide special arms, drop plates, and templating as needed to allow mounting at doors with overhead stops and/or holders.
10. Closer arms or backcheck valve shall not be used to stop the door from overswing, except in applications where a separate wall, floor, or overhead stop cannot be used.
 11. Provide parallel arm closers with heavy duty rigid arm.
 12. Where closers are to be installed on the push side of the door, provide parallel arm type except where conditions require use of top jamb arm.
 13. Provide all surface closers with the same body attachment screw pattern for ease of replacement and maintenance.
 14. All closers shall have a 1 ½" (38mm) minimum piston diameter.

2.4 DOOR STOPS

- A. Conform to ANSI A156.16.
- B. Provide door stops wherever an opened door or any item of hardware thereon would strike a wall, column, equipment or other parts of building construction. For concrete, masonry or quarry tile construction, use lead expansion shields for mounting door stops.
- C. Where cylindrical locks with turn pieces or pushbuttons occur, equip wall bumpers Type L02251 (rubber pads having concave face) to receive turn piece or button.
- D. Provide floor stops (Type L02141 or L02161 in office areas; Type L02121 x 3 screws into floor elsewhere. Wall bumpers, where used, must be installed to impact the trim or the door within the leading half of its width. Floor stops, where used, must be installed within 4-inches of the wall face and impact the door within the leading half of its width.
- E. Where drywall partitions occur, use floor stops, Type L02141 or L02161 in office areas, Type L02121 elsewhere.
- F. Omit stops where automatic operated doors occur.
- G. Where the specified wall or floor stop cannot be used, provide concealed overhead stops (surface-mounted where concealed cannot be used).

2.5 OVERHEAD DOOR STOPS AND HOLDERS

- A. Conform to ANSI Standard A156.8. Overhead holders shall be of sizes recommended by holder manufacturer for each width of door. Set overhead holders for 110 degree opening, unless limited by building construction

or equipment. Provide Grade 1 overhead concealed slide type: stop-only at rated doors and security doors, hold-open type with exposed hold-open on/off control at all other doors requiring overhead door stops.

2.6 LOCKS AND LATCHES

- A. Conform to ANSI A156.2. Locks and latches for doors 45 mm (1-3/4 inch) thick or over shall have beveled fronts. Lock cylinders shall have not less than seven pins. Cylinders for all locksets shall be removable core type. Cylinders shall be furnished with construction removable cores and construction master keys. Cylinder shall be removable by special key or tool. Construct all cores so that they will be interchangeable into the core housings of all mortise locks, rim locks, cylindrical locks, and any other type lock included in the Great Grand Master Key System. Disassembly of lever or lockset shall not be required to remove core from lockset. Provide temporary keying device or construction core of allow opening and closing during construction and prior to the installation of final cores.
- B. In addition to above requirements, locks and latches shall comply with following requirements:
 - 1. Cylindrical Lock and Latch Sets: Cylindrical locksets shall be series 4000 Grade I. All locks and latchsets shall be furnished with 122.55 mm (4-7/8-inch) curved lip strike and wrought box. Provide lever design to match existing lever design
 - 2. Auxiliary locks shall be as specified under hardware sets and conform to ANSI A156.5.

2.7 ARMOR PLATES, KICK PLATES, MOP PLATES AND DOOR EDGING

- A. Conform to ANSI Standard A156.6.
- B. Provide protective plates and door edging as specified below:
 - 1. Kick plates, mop plates and armor plates of metal, Type J100 series.
 - 2. Provide kick plates and mop plates where specified. Kick plates shall be 254 mm (10 inches) or 305 mm (12 inches) high. Mop plates shall be 152 mm (6 inches) high. Both kick and mop plates shall be minimum 1.27 mm (0.050 inches) thick. Provide kick and mop plates beveled on all 4 edges (B4E). On push side of doors where jamb stop extends to floor, make kick plates 38 mm (1-1/2 inches) less than width of door, except pairs of metal doors which shall have plates 25 mm (1 inch) less than width of each door. Extend all other kick and mop plates to within 6 mm (1/4 inch) of each edge of doors. Kick

and mop plates shall butt astragals. For jamb stop requirements, see specification sections pertaining to door frames.

3. Kick plates and/or mop plates are not required on following door sides:
 - a. Exterior side of exterior doors;
 - b. Closet side of closet doors;
 - c. Both sides of aluminum entrance doors.

2.8 EXIT DEVICES

- A. Conform to ANSI Standard A156.3. Exit devices shall be Grade 1; type and function are specified in hardware sets. Trim shall have cast satin stainless steel lever handles of design similar to locksets, unless otherwise specified. Provide key cylinders for keyed operating trim and, where specified, cylinder dogging.
- B. At non-rated openings with panic hardware, provide panic hardware with key cylinder dogging feature.

2.9 THRESHOLDS

- A. Conform to ANSI A156.21, mill finish extruded aluminum, except as otherwise specified. In existing construction, thresholds shall be installed in a bed of sealant with ¼-20 stainless steel machine screws and expansion shields. In new construction, embed aluminum anchors coated with epoxy in concrete to secure thresholds. Furnish thresholds for the full width of the openings.
- B. At exterior doors and any interior doors exposed to moisture, provide threshold with non-slip abrasive finish.

2.10 MISCELLANEOUS HARDWARE

- A. Mutes: Conform to ANSI A156.16. Provide door mutes or door silencers Type L03011 or L03021, depending on frame material, of white or light gray color, on each steel or wood door frame, except at fire-rated frames.

2.11 FINISHES

- A. Exposed surfaces of hardware shall have ANSI A156.18, finishes as specified below. Finishes on all hinges, pivots, closers, thresholds, etc., shall be as specified below under "Miscellaneous Finishes
- B. 626 or 630: All surfaces on exterior and interior of buildings, except where other finishes are specified.
- C. Miscellaneous Finishes:
 - 1. Hinges --exterior doors: 626 or 630.
 - 2. Hinges --interior doors: 630.
 - 3. Door Closers: Factory applied paint finish: Dull or satin aluminum color.
 - 4. Thresholds: Mill finish aluminum.

PART 3 - EXECUTION

3.1 HARDWARE HEIGHTS

- A. Locate hardware on doors at heights specified below, with all hand-operated hardware centered within 864 mm (34 inches) to 1200 mm (48 inches), unless otherwise noted.
- B. Hardware Heights from Finished Floor:
 - 1. Exit devices centerline of strike (where applicable) 1024 mm (40-5/16 inches).
 - 2. Locksets and latch sets centerline of strike 1024 mm (40-5/16 inches).
 - 3. Deadlocks centerline of strike 1219 mm (48 inches).
 - 4. Locate other hardware at standard commercial heights. Locate push and pull plates to prevent conflict with other hardware.

3.2 INSTALLATION

- A. Closer devices, including those with hold-open features, shall be equipped and mounted to provide maximum door opening permitted by building construction or equipment. Closers shall be mounted on side of door inside rooms, inside stairs, and away from corridors. Where closers are mounted on doors they shall be mounted with sex nuts and bolts; foot shall be fastened to frame with machine screws.
- B. Hinge leaves shall be sufficiently wide to allow doors to swing clear of door frame trim and surrounding conditions.

3.3 FASTENINGS: SUITABLE SIZE AND TYPE AND SHALL HARMONIZE WITH HARDWARE AS TO MATERIAL AND FINISH. 3.3 FINAL INSPECTION

- A. Installer to provide letter to VA COR that upon completion, installer has visited the Project and has accomplished the following:
1. Re-adjust hardware.
 2. Evaluate maintenance procedures and recommend changes or additions, and instruct VA personnel.
 3. Identify items that have deteriorated or failed.
 4. Submit written report identifying problems.

3.4 DEMONSTRATION

- A. Demonstrate efficacy of mechanical hardware and electrical, and electronic hardware systems, including adjustment and maintenance procedures, to satisfaction of COR and VA Locksmith.

3.5 SCHEDULE OF FINISH HARDWARE:

- A. Manufacturer List used in Hardware Sets. Subject to compliance with specified requirements, products of other manufacturers are acceptable.

<u>Code</u>	<u>Name</u>
BE	Best Access Systems
BEST	BEST
NA	National Guard
PR	Precision
SH	Stanley Commercial Hardware
ST	Stanley
TR	Trimco

B. Finish Codes

<u>Code</u>	<u>Description</u>
AL	Aluminum
626	Satin Chromium Plated
630	Satin Stainless Steel
689	Aluminum Painted
US26D	Chromium Plated, Dull

C. Option Codes

<u>Code</u>	<u>Description</u>
CD	Cylinder Dogging
CE	Concealed Wires
LM	Lost Motion
3/4	3/4" Latch Throw
B4E	Beveled 4 Edges
CSK	Counter Sunk Screw Holes

Hardware Sets

SET #1

Exterior Door: 1B106A

3	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Exit Device	2103 X 4903A CD	630	PR
1	Rim Cylinder	12E-72 PREM	626	BE
1	Mortise Cylinder	1E-74 ``PREM	626	BE
1	Door Closer	QDC111	689	SH
1	Kick Plate	KO050 10" x 2" LDW B4E CSK	630	TR
1	Door Stop	1209	630	TR
1	Gasketing	160VA Head & Jambs		NA
1	Drip Cap	16A x 4" ODW		NA
1	Door Sweep	200NA x Door Opening		NA
1	Handicap Threshold	513A x Opening Width	AL	NA

SET #1A

Interior Door: 1B106

3	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Exit Device	2103 X 4903A CD	630	PR
1	Rim Cylinder	12E-72 PREM	626	BE
1	Mortise Cylinder	1E-74 PREM	626	BE
1	Door Closer/Stop	QDC113	689	SH
1	Kick Plate	KO050 10" x 2" LDW B4E CSK	630	TR
1	Gasketing	160VA Head & Jambs		NA

SET #2

Door: 1B101A; Automatic Sliding Entrance Door Assembly

1	Cylinder	As required	626	BE
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Balance of hardware as specified in Sections 08 41 13 and 08 71 13

SET #2A

Door: 1B118

Relocated Aluminum Automatic Entrance (Bi-Folding)
Re-use all existing hardware.

SET #3

Door: 1B100E

3	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Lockset	9K3-7D15D PREM 3/4 LM	626	BE
1	Door Closer/Stop	QDC113	689	SH
1	Kick Plate	KO050 10" x 2" LDW B4E CSK	630	TR
1	Gasketing	5050 B Head & Jambs		NA

SET #3A

Doors: 1B111, 1B113

3	Hinges	FBB179 5 X 4 1/2 NRP	US26D	ST
1	Lockset	9K3-7D15D PREM 3/4 LM	626	BE
1	Door Closer/Stop	QDC113	689	SH
1	Kick Plate	KO050 10" x 2" LDW B4E CSK	630	TR
1	Gasketing	5050 B Head & Jambs		NA

SET #4

Door: 1B102

3	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Lockset	9K3-7AB15D PREM 3/4 LM	626	BE
1	Door Closer/Stop	QDC113	689	SH
1	Kick Plate	KO050 10" x 2" LDW B4E CSK	630	TR
1	Door Stop	1211	626	TR
1	Gasketing	5050 B Head & Jambs		NA

SET #4A

Doors: 1B103, 1B103A, 1B104, 1B108, 1B109

3	Hinges	FBB168 5 X 4 1/2 NRP	US26D	ST
1	Lockset	9K3-7AB15D PREM 3/4 LM	626	BE
1	Door Closer/Stop	QDC113	689	SH
1	Kick Plate	KO050 10" x 2" LDW B4E CSK	630	TR
1	Wall Bumper	1270CVPV	626	TR
1	Gasketing	5050 B Head & Jambs		NA

SET #5

Doors: 1B112, 1B114

3	Hinges	FBB168 5 X 4 1/2 NRP	US26D	ST
1	Passage Set	9K3-0N15D 3/4	626	BE
1	Door Closer	QDC111	689	SH
1	Kick Plate	KO050 10" x 2" LDW B4E CSK	630	TR
1	Wall Bumper	1270CVPV	626	TR
1	Gasketing	5050 B Head & Jambs		NA

SET #6

Doors: 1B105B

3	Hinges	FBB168 5 X 4 1/2 NRP	US26D	ST
1	Privacy Set	9K3-0L15D 3/4	626	BE
1	Kick Plate	KO050 10" x 2" LDW B4E CSK	630	TR
1	Wall Bumper	1270CVPV	626	TR
1	Gasketing	5050 B Head & Jambs		NA

SET #6A

Doors: 1B107

3	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Privacy Set	9K3-0L15D 3/4	626	BE
1	Kick Plate	KO050 10" x 2" LDW B4E CSK	630	TR
1	Wall Bumper	1270CVPV	626	TR
1	Gasketing	5050 B Head & Jambs		NA

SET #7

Doors: 1B117

2	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Hinges	CE FBB168 4 1/2 X 4 1/2	US26D	ST
1	Electric Lockset	9K3-7DEU15DS3 PREM 3/4 LM	626	BE
1	Door Closer/Stop	QDC113	689	SH
1	Kick Plate	KO050 10" x 2" LDW B4E CSK	630	TR
1	Gasketing	5050 B Head & Jambs		NA
1	Card Reader	Division 28	--	--

SET #7A

Door: 1B105

2	Hinges	FBB168 5 X 4 1/2 NRP	US26D	ST
1	Hinges	CE FBB168 4 1/2 X 4 1/2	US26D	ST
1	Electric Lockset	9K3-7DEL15DS3 PREM 3/4 LM	626	BE
1	Door Closer/Stop	QDC113	689	SH
1	Kick Plate	KO050 10" x 2" LDW B4E CSK	630	TR
1	Wall Bumper	1270CVPV	626	TR
1	Gasketing	5050 B Head & Jambs		NA
1	Card Reader	Division 28	--	--

SET #8

Door: 1B101

Provide Low-energy power Assist Door Operator and accessories as specified in Section 08 71 13.11.

3	Hinges	FBB168 5 X 4 1/2 NRP	US26D	ST
1	Lockset	9K3-7AB15D PREM 3/4 LM	626	BE
1	Kick Plate	KO050 10" x 2" LDW B4E CSK	630	TR
1	Wall Bumper	1270CVPV	626	TR
1	Gasketing	5050 B Head & Jambs		NA

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