

**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 11 13, HOLLOW METAL DOORS AND FRAMES.
- B. Automatic Door Operators: Section 08 71 13.11, LOW ENERGY POWER ASSIST DOOR OPERATORS.

**1.3 GENERAL**

- A. All hardware shall comply with UFAS, (Uniform Federal Accessible Standards) unless specified otherwise.
- B. 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.
- C. The following items shall be of the same manufacturer for each item, except as otherwise specified:
  - 1. Mortise locksets.
  - 2. Hinges for hollow metal and wood doors.
  - 3. Surface applied overhead door closers.

**1.4 WARRANTY**

- A. Automatic door operators 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 2 final copies of the final approved schedules to VAMC Locksmith as record copies (VISN Locksmith if the VAMC does not have a locksmith).
- 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, COR 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, mutes, 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. Cylinders: Owner shall provide cylinder to be keyed into existing 7 pin Corbin Russwin Grand Master Key System. Contractor shall provide locksets with cylinder housings to accommodate cylinders provided by Owner.

### **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 Society for Testing and Materials (ASTM):  
E2180-07.....Standard Test Method for Determining the Activity of Incorporated  
Antimicrobial Agent(s) In Polymeric or Hydrophobic Materials
- C. American National Standards Institute/Builders Hardware Manufacturers Association  
(ANSI/BHMA):  
A156.1-06.....Butts and Hinges  
A156.4-08.....Door Controls (Closers)  
A156.6-05.....Architectural Door Trim  
A156.8-05.....Door Controls-Overhead Stops and Holders  
A156.13-05.....Mortise Locks and Latches Series 1000  
A156.16-08.....Auxiliary Hardware  
A156.18-06.....Materials and Finishes  
A156.28-07 .....Master Keying Systems  
A250.8-03.....Standard Steel Doors and Frames
- D. National Fire Protection Association (NFPA):  
101-09 .....Life Safety Code
- E. Underwriters Laboratories, Inc. (UL):  
Building Materials Directory (2008)

## **PART 2 - PRODUCTS**

### **2.1 BUTT HINGES**

- A. ANSI A156.1. Provide only three-knuckle hinges, except five-knuckle where the required hinge type is not available in a three-knuckle version (e.g., some types of swing-clear hinges). The following types of butt hinges shall be used for the types of doors listed, except where otherwise specified:
  - 1. 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 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.
  - 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.

## **2.3 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. 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.
- D. Where drywall partitions occur, use floor stops, Type L02141 or L02161 in office areas, Type L02121 elsewhere.
- E. Omit stops where floor mounted door holders are required and where automatic operated doors occur.
- F. Where the specified wall or floor stop cannot be used, provide concealed overhead stops (surface-mounted where concealed cannot be used).

## **2.4 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.

## **2.5 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 shall include cylinder housing to accept cylinders by owner as described in paragraph 1.9 above. Provide keyed construction cylinders for use by the contractor during the construction period.
- B. In addition to above requirements, locks and latches shall comply with following requirements:
  1. Mortise Lock and Latch Sets: Conform to ANSI/BHMA A156.13. Mortise locksets shall be series 1000, minimum Grade 2. All locksets and latchsets shall have lever handles fabricated

from cast stainless steel. Provide sectional (lever x rose) lever design matching existing. No substitute lever material shall be accepted. All locks and latchsets shall be furnished with 122.55 mm (4-7/8-inch) curved lip strike and wrought box. At outswing pairs with overlapping astragals, provide flat lip strip with 21mm (7/8-inch) lip-to-center dimension. Lock function F02 shall be furnished with emergency tools/keys for emergency entrance. Furnish armored fronts for all mortise locks. Where mortise locks are installed in high-humidity locations or where exposed to the exterior on both sides of the opening, provide non-ferrous mortise lock case.

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

- A. Conform to ANSI Standard A156.6.
- B. Provide protective plates as specified below:
  - 1. Kick plates and mop plates, Type J100 series.
  - 2. Provide kick plates and mop plates where specified. Kick plates shall be sized to match existing height. 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. Closet side of closet doors;
    - b. Both sides of aluminum entrance doors.

## **2.8 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, lead-lined frames and frames for sound-resistant, lightproof and electromagnetically shielded doors. Furnish 3 mutes for single doors.

## **2.9 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." For field painting (final coat) of ferrous hardware, see Section 09 91 00, PAINTING.
- B. 626 or 630: All surfaces on exterior and interior of buildings, except where other finishes are specified.
- C. Miscellaneous Finishes:
  - 1. Hinges --interior doors: 652 or 630.
  - 2. Door Closers: Factory applied paint finish. Dull or Satin Aluminum color.

- D. Hardware Finishes for Existing Buildings: U.S. Standard finishes shall match finishes of hardware in (similar) existing spaces.
- E. Anti-microbial Coating: All hand-operated hardware (levers, pulls, push bars, push plates, paddles, and panic bars) shall be provided with an anti-microbial/anti-fungal coating that has passed ASTM E2180 tests. Coating to consist of ionic silver (Ag<sup>+</sup>). Silver ions surround bacterial cells, inhibiting growth of bacteria, mold, and mildew by blockading food and respiration supplies.

## 2.10 BASE METALS

- A. Apply specified U.S. Standard finishes on different base metals as following:

Finish	Base Metal
652	Steel
626	Brass or bronze
630	Stainless steel

## PART 3 - EXECUTION

### 3.1 HARDWARE HEIGHTS

- A. For existing buildings locate hardware on doors at heights to match existing hardware. The Contractor shall visit the site, verify location of existing hardware and submit locations to VA COR for approval.
- B. Hardware Heights from Finished Floor:
  - 1. Locksets and latch sets centerline of strike 1024 mm (40-5/16 inches).
  - 2. Deadlocks centerline of strike 1219 mm (48 inches).
  - 3. 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.
- C. Fastenings: Suitable size and type and shall harmonize with hardware as to material and finish.
- D. After locks have been installed; show in presence of COR that keys operate their respective locks in accordance with keying requirements. (All keys, Master Key level and above shall be sent Registered Mail to the Medical Center Director along with the bitting list. Also a copy of the invoice shall be sent to the COR for his records.) Installation of locks which do not meet specified

keying requirements shall be considered sufficient justification for rejection and replacement of all locks installed on project.

### 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 HARDWARE SETS

- A. Following sets of hardware correspond to hardware symbols shown on drawings. Only those hardware sets that are shown on drawings will be required. Disregard hardware sets listed in specifications but not shown on drawings.
- B. Hardware Consultant working on a project will be responsible for providing additional information regarding these hardware sets. The numbers shown in the following sets come from BHMA standards.

#### HARDWARE GROUP NO. 1

Provide each SGL door(s) with the following:

Qty.		Description	Catalog Number	Finish
3	EA	HINGE	A8112	640
1	EA	PRIVACY LOCK	F22	613
1	EA	SURFACE CLOSER	C05051 PT-4A, PT-4C, PT-4D, PT-4H	695
1	EA	MOP PLATE	J103	613
1	EA	WALL STOP	L12201	613
3	EA	SILENCER	L03011	GRY



HARDWARE GROUP NO. 2

Provide each SGL door(s) with the following:

Qty.		Description	Catalog Number	Finish
3	EA	HINGE	A8112	652
1	EA	PRIVACY LOCK	F22	626AM
1	EA	SURFACE CLOSER	C05051 PT-4A, PT-4C, PT-4D, PT-4H	689
1	EA	MOP PLATE	J103	630
1	EA	WALL STOP	L12201	626
3	EA	SILENCER	L03011	GRY

HARDWARE GROUP NO. 3

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish
3	EA	HINGE	A8112	652
1	EA	PRIVACY LOCK	F22	626AM
1	EA	SURFACE CLOSER	C05051 PT-4A, PT-4C, PT-4D, PT-4H	689
1	EA	MOP PLATE	J103	630
1	EA	FLOOR STOP	L12141	626
3	EA	SILENCER	L03011	GRY

HARDWARE GROUP NO. 4

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish
3	EA	HINGE	A8112	652
1	EA	PUSH	J 304, 8x16	652
1	EA	PULL	J401, 4x16	652
1	EA	SURFACE CLOSER	C05051 PT-4A, PT-4C, PT-4D, PT-4H	689
1	EA	MOP PLATE	J103	630
1	EA	WALL STOP	L12201	626
3	EA	SILENCER	L03011	GRY

HARDWARE GROUP NO. 5

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish
3	EA	HINGE	A8112	652
1	EA	PUSH	J 304, 8x16	652
1	EA	PULL	J401, 4x16	652
1	EA	SURFACE CLOSER	C05051 PT-4A, PT-4C, PT-4D, PT-4H	689
1	EA	MOP PLATE	J103	630
1	EA	FLOOR STOP	L12141	626
3	EA	SILENCER	L03011	GRY

HARDWARE GROUP NO. 6

Provide each SGL door(s) with the following:

Qty.		Description	Catalog Number	Finish
3	EA	HINGE	A8112	652
1	EA	PRIVACY LOCK	F22	626AM
1	EA	SURFACE CLOSER	C05051 PT-4A, PT-4C, PT-4D, PT-4H	689
1	EA	MOP PLATE	J103	630
1	EA	WALL STOP	L12201	626
3	EA	SILENCER	L03011	GRY

Provide strike for existing door frame to remain and modify frame as required.

HARDWARE GROUP NO. 7

Provide each SGL door(s) with the following:

Qty.		Description	Catalog Number	Finish
3	EA	HINGE	A8112	652
1	EA	PASSAGE LATCHSET	F01	626AM
1	EA	SURFACE CLOSER	C05051 PT-4A, PT-4C, PT-4D, PT-4H	689
1	EA	MOP PLATE	J103	630
1	EA	OVERHEAD STOP	C01541	626
3	EA	SILENCER	L03011	GRY

HARDWARE GROUP NO. 8

Provide each SGL door(s) with the following:

Qty.		Description	Catalog Number	Finish
3	EA	HINGE	A8112	652
1	EA	PASSAGE LATCHSET	F01	626AM
1	EA	SURFACE CLOSER	C05051 PT-4A, PT-4C, PT-4D, PT-4H	689
1	EA	MOP PLATE	J103	630
1	EA	WALL STOP	L12201	626
3	EA	SILENCER	L03011	GRY

HARDWARE GROUP NO. 9

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish
3	EA	HINGE	A8112	652
1	EA	STOREROOM LOCK	F07	626AM
1	EA	KEYED CYLINDER	By Owner	626
1	EA	SURFACE CLOSER	C05051 PT-4A, PT-4C, PT-4D, PT-4H	689
1	EA	KICK PLATE	J102	630
1	EA	FLOOR STOP	L12141	626
3	EA	SILENCER	L03011	GRY

HARDWARE GROUP NO. 10

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish
3	EA	HINGE	A8112	652
1	EA	PUSH	J 304, 8x16	652
1	EA	PULL	J401, 4x16	652
1	EA	AUTOMATIC OPERATOR AND APPLICABLE COMPONENTS	Section 08 71 13	626
1	EA	MOP PLATE	J103	630
1	EA	WALL STOP	L12201	626
3	EA	SILENCER	L03011	GRY

--- END ---