

SECTION 08 7100

DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Mechanical door hardware for the following:
  - a. Swinging doors.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
- B. Keying Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product in each finish specified, in manufacturer's standard size.
- C. Door hardware schedule. Coordinate door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
- D. Keying schedule.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Sample warranty. For special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance data. For each type of door hardware to include in maintenance manuals.

## 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and of an Architectural Hardware Consultant who is available during the course of the Work to consult Contractor, Architect, and Owner about door hardware and keying.

1. Scheduling Responsibility: Preparation of door hardware and keying schedule.

## 1.7 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion unless otherwise indicated below:
  - a. Manual Closers: 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 SOURCE LIMITATIONS

- A. Obtain each type of door hardware from a single manufacturer.

### 2.2 PERFORMANCE REQUIREMENTS

- A. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.
- B. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the DOJ's "2010 ADA Standards for Accessible Design" and the local standards of the local and state jurisdiction having authority.
1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf (22.2 N).
  2. Comply with the following maximum opening-force requirements:
    - a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.
  3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm) high.
  4. Adjust door closer sweep periods so that, from an open position of 90 degrees, the door will take at least 5 seconds to move to a position of 12 degrees from the latch.

### 2.3 SCHEDULED DOOR HARDWARE

- A. Provide products for each door that comply with requirements indicated in Part 2 and door hardware schedule.

1. Door hardware scheduled is attached to specifications.

## 2.4 HINGES

- A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Allegion plc
    - b. Baldwin Hardware Corporation
    - c. Bommer Industries, Inc
    - d. Hager Companies
    - e. McKinney Products Company; an ASSA ABLOY Group company
    - f. Stanley Commercial Hardware; a division of Stanley Security Solutions; Div of The Stanley Works.

## 2.5 CONTINUOUS HINGES

- A. Continuous Hinges: BHMA A156.26; minimum 0.120-inch-thick, hinge leaves with minimum overall width of 4 inches; fabricated to full height of door and frame and to template screw locations; with components finished after milling and drilling are complete.
- B. Continuous, Gear-Type Hinges: Extruded-aluminum, pinless, geared hinge leaves joined by a continuous extruded-aluminum channel cap; with concealed, self-lubricating thrust bearings.
  1. Products: Subject to compliance; series 780
    - a. Allegion plc.
    - b. Bommer Industries, Inc.
    - c. Hager Companies; Series 780
    - d. McKinney Products Company; an ASSA ABLOY Group company.
    - e. Stanley Commercial Hardware; a division of Stanley Security Solutions.

## 2.6 MECHANICAL LOCKS AND LATCHES

- A. Lock Functions: As indicated in door hardware schedule.
- B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
  1. Bored Locks: Minimum 1/2-inch latchbolt throw.
  2. Mortise Locks: Minimum 3/4-inch latchbolt throw.
  3. Deadbolts: Minimum 1-inch bolt throw.
- C. Lock Backset: 2-3/4 inches unless otherwise indicated.
- D. Lock Trim:
  1. Description: As indicated on Drawings.

2. Levers: Cast.
  3. Escutcheons (Roses): Wrought.
  4. Dummy Trim: Match lever lock trim and escutcheons.
- E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
  2. Rabbet Front and Strike: Provide on locksets for rabbeted meeting stiles.
- F. Bored Locks: BHMA A156.2; Grade 1 or Grade 2 as scheduled; Series 4000.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Allegion plc.
    - b. Best Access Systems: Stanley Security Solutions, Inc.
    - c. DORMA USA, Inc.
    - d. SARGENT Manufacturing Company; ASSA ABLOY.
    - e. Stanley Commercial Hardware; a division of Stanley Security Solutions.
- G. Mortise Locks: BHMA A156.13; Operational Grade 1 or Operational Grade 2 as scheduled; stamped steel case with steel or brass parts; Series 1000.
1. Manufacturers: Subject to compliance with requirements, provide one of the following:
    - a. Allegion plc.
    - b. Best Access Systems: Stanley Security Solutions, Inc.
    - c. DORMA USA, Inc.
    - d. SARGENT Manufacturing Company; ASSA ABLOY.
    - e. Stanley Commercial Hardware; a division of Stanley Security Solutions.

## 2.7 AUXILIARY LOCKS

- A. Bored Auxiliary Locks: BHMA A156.36: Grade 1 or Grade 2, as indicated; with strike that suits frame.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Allegion plc.
    - b. Best Access Systems: Stanley Security Solutions, Inc.
    - c. SARGENT Manufacturing Company; ASSA ABLOY.
    - d. Stanley Commercial Hardware; a division of Stanley Security Solutions.

## 2.8 EXIT DEVICES AND AUXILIARY ITEMS

- A. Exit Devices and Auxiliary Items: BHMA A156.3.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Allegion plc.
    - b. Best Access Systems: Stanley Security Solutions, Inc.
    - c. DORMA ISA Inc.
    - d. SARGENT Manufacturing Company; ASSA ABLOY.
    - e. Stanley Commercial Hardware; a division of Stanley Security Solutions.

## 2.9 LOCK CYLINDERS

- A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver. Provide cylinders from same manufacturer of locking devices.
- B. Standard Lock Cylinders: BHMA A156.5; Grade 1 cores; face finished to match lockset.
  - 1. Core Type: Removable.
- C. Construction Master Keys: Provide cylinders with feature that permits voiding of construction keys without cylinder removal. Provide 10 construction master keys.
- D. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction master keys.

## 2.10 KEYING

- A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, appendix. Provide one extra key blank for each lock. Incorporate decisions made in keying conference.
  - 1. Master Key System: Change keys and a master key operate cylinders.
    - a. Provide three cylinder change keys and five master keys.
  - 2. Grand Master Key System: Change keys, a master key, and a grand master key operate cylinders.
    - a. Provide three cylinder change keys and five each of master and grand master keys.
- B. Keys: Nickel silver.
  - 1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
    - a. Notation: "DO NOT DUPLICATE."

## 2.11 KEY CONTROL SYSTEM

- A. Key Control Cabinet: BHMA A156.28; metal cabinet with baked-enamel finish; containing key-holding hooks, labels, two sets of key tags with self-locking key holders, key-gathering envelopes, and temporary and permanent markers; with key capacity of equal to actual quantity of keys plus 10% additional capacity.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. American Key Boxes and Cabinets
    - b. GE Security, Inc.
    - c. HPC, Inc.
    - d. Lund Equipment Co., Inc
    - e. MMF Industries
    - f. TelKee; Oasis International
  - 2. Wall-Mounted Cabinet: Grade 1 cabinet with hinged-panel door equipped with key-holding panels and pin-tumbler cylinder door lock.

## 2.12 KEY LOCK BOX

- A. Key Lock Box: Exterior wall mount lock box with metal body and weather cover. Box shall have resettable combination push button design.
  - 1. Products: Subject to compliance with requirements, provide the following:
    - a. Master Lock Model Number 5423D.
  - 2. Size: 3 1/8 inch wide lock body
  - 3. Internal dimensions: 3 1/2 inch height, 2 1/4 inch width, 1 inch depth.
  - 4. Box to be located at or near a door as indicated on the drawings or at the Owners or Architects direction.
    - a. Rockwood Manufacturing Company; an ASSA ABLOY Group Company.

## 2.13 SURFACE CLOSERS

- A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written instructions for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force. Provide closers to be mounted utilizing hardware without the use of through bolts.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Allegion plc
    - b. DORMA USA, Inc.
    - c. Hager Companies.
    - d. SARGENT Manufacturing Company; ASSA ABLOY.
    - e. Stanley Commercial Hardware; a division of Stanley Security Solutions.
- B. NOTE: SURFACE CLOSERS SHALL BE PLACED ON THE MORE PRIVATE SIDE OF THE DOOR.

## 2.14 MECHANICAL STOPS AND HOLDERS

- A. Wall- and Floor-Mounted Stops: BHMA A156.16.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Allegion plc.
    - b. Baldwin Hardware Corporation.
    - c. Don-Jo Mfg., Inc.
    - d. Hager Companies.
    - e. Rockwood Manufacturing Company; an ASSA ABLOY Group Company.

## 2.15 OVERHEAD STOPS AND HOLDERS

- A. Overhead Stops and Holders: BHMA A156.8.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Allegion plc.
    - b. DORMA USA, Inc.

- c. Hager Companies; Series 7000
- d. Rixson Specialty Door Controls; an ASSA ABLOY Group company.
- e. SARGENT Manufacturing Company; ASSA ABLOY.

## 2.16 DOOR GASKETING

- A. Door Gasketing: BHMA A156.22; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. M-D Building Products, Inc.
    - b. National Guard Products, Inc.
    - c. Pemko Manufacturing Co.
    - d. Reese Enterprise, Inc.
- B. Maximum Air Leakage: When tested according to ASTM E 283 with tested pressure differential of 0.3-inch wg, as follows:
  - 1. Smoke-Rated Gasketing: 0.3 cfm/sq. ft. of door opening.
  - 2. Gasketing on Single Doors: 0.3 cfm/sq. ft. of door opening.
  - 3. Gasketing on Double Doors: 0.50 cfm per foot of door opening.

## 2.17 THRESHOLDS

- A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. M-D Building Products, Inc.
    - b. National Guard Products, Inc.
    - c. Pemko Manufacturing Co.
    - d. Reese Enterprise, Inc.

## 2.18 AUXILIARY DOOR HARDWARE

- A. Auxiliary Hardware: BHMA A156.16.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Allegion plc.
    - b. Baldwin Hardware Corporation.
    - c. Don-Jo Mfg., Inc.
    - d. Hager Companies.
    - e. Rockwood Manufacturing Company; an ASSA ABLOY Group company.
    - f. Trimco.

2.19 FINISHES

- A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights indicated on Drawings to comply with the following unless otherwise indicated or required to comply with governing regulations.
  - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
  - 2. Custom Steel Doors and Frames: HMMA 831.
- B. Install each door hardware item to comply with manufacturer's 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. Do not install surface-mounted items until finishes have been completed on substrates involved.
- C. Hinges: Install types and in quantities indicated in door hardware schedule, but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- D. Lock Cylinders: Install construction cores to secure building and areas during construction period.
  - 1. Replace construction cores with permanent cores as indicated in keying schedule.
- E. Key Control System:
  - 1. Key Control Cabinet: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
  - 2. Key Lock Boxes: Install where indicated or approved by Architect to provide controlled access for fire and medical emergency personnel.
  - 3. Key Control System Software: Set up multiple-index system based on final keying schedule.
- F. Thresholds: Set thresholds for exterior doors and other doors indicated in mastic tape for full length.
- G. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.
- H. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
  - 1. Do not notch perimeter gasketing to install other surface-applied hardware.
- I. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.



3.2 ADJUSTING

- A. 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.

3.3 DOOR HARDWARE SCHEDULE: See Section 08 7110

END OF SECTION 08 7100