

## **SECTION 087100 DOOR HARDWARE**

### **PART 1 GENERAL**

#### **1.01 SECTION INCLUDES**

- A Hardware for wood, aluminum, and hollow metal doors.
- B Thresholds.
- C Weatherstripping and gasketing.

#### **1.02 REFERENCE STANDARDS**

- A ADA Standards - 2010 ADA Standards for Accessible Design 2010.
- B BHMA (CPD) - Certified Products Directory Current Edition.
- C BHMA A156.1 - Standard for Butts and Hinges 2021.
- D BHMA A156.2 - Bored and Preassembled Locks and Latches 2022.
- E BHMA A156.4 - Door Controls - Closers 2019.
- F BHMA A156.5 - Cylinders and Input Devices for Locks 2020.
- G BHMA A156.7 - Template Hinge Dimensions 2016.
- H BHMA A156.14 - Sliding and Folding Door Hardware 2019.
- I BHMA A156.16 - Auxiliary Hardware 2018.
- J BHMA A156.21 - Thresholds 2019.
- K BHMA A156.22 - Standard for Gasketing 2021.
- L BHMA A156.28 - Standard for Recommended Practices for Mechanical Keying Systems 2018.
- M BHMA A156.115 - Hardware Preparation in Steel Doors and Steel Frames 2016.
- N DHI (H&S) - Sequence and Format for the Hardware Schedule 2019.
- O DHI (KSN) - Keying Systems and Nomenclature 2019.
- P DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames 2004.
- Q ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.
- R NFPA 101 - Life Safety Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

#### **1.03 ADMINISTRATIVE REQUIREMENTS**

- A Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.
- B Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.

#### **1.04 SUBMITTALS**

- A Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.
- B Shop Drawings - Door Hardware Schedule: Submit detailed listing that includes each item of hardware to be installed on each door. Use door numbering scheme as included in Contract Documents.

1. Comply with DHI (H&S) using door numbers and hardware set numbers as indicated in construction documents.
  2. List groups and suffixes in proper sequence.
  3. Provide complete description for each door listed.
  4. Provide manufacturer name, product names, and catalog numbers; include functions, types, styles, sizes and finishes of each item.
- C Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- D Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
1. Submit manufacturer's parts lists and templates.
- E Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
1. Tools: One set of each special wrench or tool applicable for each different or special hardware component, whether supplied by hardware component manufacturer or not.

#### **1.05 QUALITY ASSURANCE**

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

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.

#### **1.07 WARRANTY**

- A Manufacturer's Warranty: Provide warranty against defects in material and workmanship for period indicated. Complete forms in Owner's name and register with manufacturer.
1. Closers: Five years, minimum.
  2. Locksets and Cylinders: Three years, minimum.
  3. Other Hardware: Two years, minimum.

### **PART 2 PRODUCTS**

#### **2.01 DESIGN AND PERFORMANCE CRITERIA**

- A Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.
- B Provide individual items of single type, of same model, and by same manufacturer.
- C Provide door hardware products that comply with the following requirements:
1. Applicable provisions of federal, state, and local codes.
  2. Accessibility: ADA Standards and ICC A117.1.
  3. Applicable provisions of NFPA 101.
  4. Listed and certified compliant with specified standards by BHMA (CPD).
  5. Hardware Preparation for Steel Doors and Steel Frames: BHMA A156.115.
- D Lock Function: Provide lock and latch function numbers and descriptions of manufacturer's series. See Door Hardware Schedule.

E Fasteners:

1. Provide fasteners of proper type, size, quantity, and finish that comply with commercially recognized standards for proposed applications.
  - a. Aluminum fasteners are not permitted.
  - b. Provide phillips flat-head screws with heads finished to match door surface hardware unless otherwise indicated.
2. Provide machine screws for attachment to reinforced hollow metal and aluminum frames.
  - a. Self-drilling (Tek) type screws are not permitted.
3. Provide stainless steel machine screws and lead expansion shields for concrete and masonry substrates.

## **2.02 HINGES**

A Manufacturers:

1. Basis of Design: Stanley, dormakaba Group.
2. McKinney; an Assa Abloy Group company: [www.assaabloydss.com/#sle](http://www.assaabloydss.com/#sle).
3. Hager Companies: [www.hagerco.com/#sle](http://www.hagerco.com/#sle).
4. Or Approved Equal.

B Hinges: Comply with BHMA A156.1, Grade 1.

1. Butt Hinges: Comply with BHMA A156.1 and BHMA A156.7 for templated hinges.
  - a. Provide hinge width required to clear surrounding trim.
2. Provide hinges on every swinging door.
3. Provide following quantity of butt hinges for each door:
  - a. Doors From 60 inches High up to 90 inches High: Three hinges.

## **2.03 TRACK AND HANGERS**

A Manufacturers:

1. Basis of Design: Johnson Hardware.
2. Knappe & Vogt: [www.kv.com/#sle](http://www.kv.com/#sle).
3. Or Approved Equal.

B Sliding and Bifolding Door Hardware: Comply with BHMA A156.14.

1. Provide track, hanger fasteners, guides, and pulls; size track and hangers in accordance with manufacturer's recommendations for weight of doors.
2. Provide one pull for each pair of panels hinged together.
3. Provide flush cup pull on each sliding panel.

## **2.04 LOCK CYLINDERS**

A Manufacturers:

1. Basis of Design: Sargent.

B Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.

1. Provide full size interchangeable core (FSIC) type cylinders, Grade 1, with six-pin core in compliance with BHMA A156.5 at locations indicated.
2. Provide cylinders from same manufacturer as locking device.

3. Provide cams and/or tailpieces as required for locking devices.

## **2.05 CYLINDRICAL LOCKS**

### **A Manufacturers:**

1. Basis of Design: Sargent.
2. Best, dormakaba Group: [www.bestaccess.com/#sle](http://www.bestaccess.com/#sle).
3. Schlage, an Allegion brand: [www.allegion.com/us/#sle](http://www.allegion.com/us/#sle).
4. Or Approved Equal.

### **B Cylindrical Locks (Bored): Comply with BHMA A156.2, Grade 1, 4000 Series.**

1. Bored Hole: 2-1/8 inch diameter.
2. Latchbolt Throw: 1/2 inch, minimum.
3. Backset: 2-3/4 inch unless otherwise indicated.
4. Strikes: Provide manufacturer's standard strike for each latchset or lockset with strike box and curved lip extending to protect frame in compliance with indicated requirements.
  - a. Finish: To match lock or latch.

## **2.06 CLOSERS**

### **A Manufacturers; Surface Mounted:**

1. Basis of Design: Sargent.
2. Hager Companies: [www.hagerco.com/#sle](http://www.hagerco.com/#sle).
3. LCN, an Allegion brand: [www.allegion.com/us/#sle](http://www.allegion.com/us/#sle).
4. Or Approved Equal.

### **B Closers: Comply with BHMA A156.4, Grade 1.**

1. Type: Surface mounted to door.
2. Provide door closer on each exterior door.
3. At outswinging exterior doors, mount closer on interior side of door.

## **2.07 FLOOR STOPS**

### **A Manufacturers:**

1. Basis of Design: Ives.
2. Rockwood; an Assa Abloy Group company: [www.assaabloydss.com/#sle](http://www.assaabloydss.com/#sle).
3. Hager Companies: [www.hagerco.com/#sle](http://www.hagerco.com/#sle).
4. Or Approved Equal.

### **B Floor Stops: Comply with BHMA A156.16, Grade 1 and Resilient Material Retention Test as described in this standard.**

1. Provide floor stops when wall surface is not available; be cautious not to create a tripping hazard.
2. Type: Manual hold-open, with bumper floor stop.
3. Material: Aluminum housing with rubber insert.

## **2.08 THRESHOLDS**

### **A Manufacturers:**

1. Basis of Design: Pemko.
2. Hager Companies: [www.hagerco.com/#sle](http://www.hagerco.com/#sle).
3. Zero International, Inc: [www.zerointernational.com/#sle](http://www.zerointernational.com/#sle).

4. Or Approved Equal.
- B Thresholds: Comply with BHMA A156.21.
  1. Provide threshold at each exterior door, unless otherwise indicated.
  2. Type: Ramped, accessible with maximum 1:12 slope.
  3. Material: Aluminum.
  4. Threshold Surface: Thermally broken.
  5. Field cut threshold to profile of frame and width of door sill for tight fit.
  6. Provide non-corroding fasteners at exterior locations.

## **2.09 WEATHERSTRIPPING AND GASKETING**

- A Manufacturers:
  1. Basis of Design: Kawneer Sealair System.
  2. Pemko; an Assa Abloy Group company: [www.assaabloydss.com/#sle](http://www.assaabloydss.com/#sle).
  3. National Guard Products, Inc: [www.ngpinc.com/#sle](http://www.ngpinc.com/#sle).
  4. Or Approved Equal.
- B Weatherstripping and Gasketing: Comply with BHMA A156.22.
  1. Head and Jamb Type: Adjustable.
  2. Material: Aluminum, with brush weatherstripping.
  3. Provide weatherstripping on each exterior door at head, jambs, and meeting stiles of door pairs, unless otherwise indicated.

## **2.10 KEY CONTROL SYSTEMS**

- A Manufacturers:
  1. Basis of Design: Sargent.
- B Key Control Systems: Comply with guidelines of BHMA A156.28.
  1. Provide keying information in compliance with DHI (KSN) standards.
  2. Keying: Grand master keyed.
  3. Include construction keying and control keying with removable core cylinders.
  4. Key to existing keying system.
    - a. Owner to provide additional information on keying system and number of keys required during submittal approval.

## **2.11 FINISHES**

- A Finishes: Identified in schedule at end of section.

# **PART 3 EXECUTION**

## **3.01 EXAMINATION**

- A Verify that doors and frames are ready to receive this work; labeled, fire-rated doors and frames are properly installed, and dimensions are as indicated on shop drawings.

## **3.02 INSTALLATION**

- A Install hardware in accordance with manufacturer's instructions and applicable codes.
- B Use templates provided by hardware item manufacturer.
- C Do not install surface mounted items until application of finishes to substrate are fully completed.
- D Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item.

1. For Steel Doors and Frames: Install in compliance with DHI (LOCS) recommendations.
  2. Mounting heights in compliance with ADA Standards:
    - a. Locksets: 40-5/16 inch.
- E Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.

### **3.03 ADJUSTING**

- A Adjust hardware for smooth operation.
- B Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

### **3.04 CLEANING**

- A Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.
- B Clean adjacent surfaces soiled by hardware installation.
- C Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

### **3.05 PROTECTION**

- A Do not permit adjacent work to damage hardware or finish.

### **3.06 SCHEDULE**

- A Hardware Set #1
  1. 1 1/2 Pair Hinges: Stanley FBB199 4 1/2" x 4" x US26D
  2. 1 Lockset: Sargent 7G05 x LL x US26D
  3. 1 Closer: Sargent 351 Series x US26D
  4. 1 Threshold: Pemko 2005AT
  5. 1 Weatherseal (head and jambs): Kawneer Sealair System
- B Hardware Set #2
  1. 1 1/2 Pair Hinges: Stanley FBB199 4 1/2" x 4" x US26D
  2. 1 Latchset: Sargent 7G15 x LL x US26D
  3. 1 Closer: Sargent 351 Series x US26D
- C Hardware Set #3
  1. 1 1/2 Pair Hinges: Stanley FBB199 4 1/2" x 4" x US26D
  2. 1 Lockset: Sargent 7G05 x LL x US26D
  3. 1 Floor Stop: Ives FS Series x US26D
- D Hardware Set #4
  1. Sliding Door: Johnson 10SD hardware set
- E Hardware Set #5
  1. 1 1/2 Pair Hinges: Stanley FBB199 4 1/2" x 4" x US26D
  2. 1 Lockset: Sargent 7G65 x LLx US26D
  3. 1 Closer: Sargent 351 Series x US26D

**END OF SECTION**