
SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Provide hardware for hollow metal and wood doors.
 - 1. Provide cylinders for doors fabricated with hardware.
- B. Related Sections:
 - 1. Section 06 40 00: Cabinet hardware.
 - 2. Section 08 11 10: Door silencers at pressed steel frames.
 - 3. Section 08 17 00: Integrated door assemblies including hardware.
 - 4. Section 08 41 20: All-glass manual entrance hardware except cylinders.
 - 5. Section 08 42 30: All-glass automatic entrance hardware except cylinders.
 - 6. Section 08 44 10: Window walls including door hardware except cylinders.
 - 7. Section 08 53 00: Vinyl window and door hardware.
 - 8. Review other sections for doors fabricated with hardware.

1.2 REFERENCES

- A. ANSI A115 and A115W Series: Door and Frame Preparation Standards.
- B. ANSI A156 Series: Standards for various hardware items.
- C. National Fire Protection Association: NFPA 80, Fire Doors and Windows.
- D. California Building Code: California Code of Regulations, Title 24, Part 2.
- E. Americans with Disabilities Act (ADA) Standards.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate hardware installation doors including but not necessarily limited to following.
 - 1. Coordinate hardware installation with hollow metal doors and frames installation in Section 08 11 10.
 - 2. Coordinate hardware with installation with wood doors installation in Section 08 14 00.
- B. Pre-Installation Meeting: Convene pre-installation meeting prior to commencing work of this section. Include persons involved with installation of doors, frames, and hardware.

1.4 SUBMITTALS

- A. Product Data: Submit catalog cuts for each type of hardware clearly marked to indicate hardware type to be provided, style, finish, and options.
 - 1. Supply templates to door and frame manufacturers for proper and accurate sizing and locations of cut-outs for hardware.

- B. Shop Drawings: Indicate locations and mounting heights of hardware.
- C. Samples: Indicate required style and finish of exposed door hardware.
- D. Keying Schedule: Coordinate directly with Owner's Representative.
- E. AHC Certification: Submit certification by AHC indicating hardware complies with applicable codes and Contract Documents.
- F. Closeout Submittal: Record actual locations of installed cylinders and master key codes on Project Record Documents.
- G. Maintenance Materials: Submit manufacturer's parts list and maintenance instructions for each type of hardware supplied and necessary wrenches and tools required for proper maintenance of hardware.

1.5 QUALITY ASSURANCE

- A. Supplier Qualifications: Recognized builder's hardware supplier with minimum five years successful experience in scheduling and furnishing hardware.
 - 1. Provide services of architectural hardware consultant to supervise hardware supply.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hardware in manufacturer's original packages, marked for intended opening and use.
- B. Pack complete with necessary screws, bolts, keys, instructions, and installation template, if necessary, for spotting mortising tools.
- C. Upon delivery, furnish complete list of hardware for checking, clearly marked to correspond with marking on each package.
 - 1. Review list for completeness and accuracy.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. System Description: Provide door hardware and accessories as required for complete operational installation.
 - 1. Review Drawings for door locations and types; comply with following general requirements; inform Architect where conflicts occur.
 - 2. Provide hardware items with accessories complete to door function as intended, as specified, and as required by applicable codes and regulations.
 - 3. Provide heavy duty commercial grade units of each type of hardware (hinges, pivots, locksets, latchsets, closers, trim) from single manufacturer unless otherwise indicated.

B. Regulatory Requirements:

1. Fire Rated Doors: Comply with requirements of NFPA 80 and applicable codes for fire rated door hardware; provide hardware bearing Underwriters Laboratory (UL) labels.
 - a. Doors indicated in fire rated partitions and walls shall be positive latching and self closing, with smoke gaskets.
 - b. Smoke Control in Pressurized Areas: Provide automatic door bottoms in addition to standard smoke gaskets for fire and smoke rated doors in pressurized areas such as stair wells.
2. Access for Persons with Disabilities: Comply with California Building Code and Americans with Disabilities Act (ADA) Standards.

C. Design Requirements:

1. Finishes: Provide finishes to match: other hardware on same door; hardware on other doors in same area; and as required to match other metal finishes in same room such a white metal finishes in bathrooms with chrome fixtures.
2. Security: Coordinate security requirements such as locking, electrically controlled hardware, and electric monitoring devices directly with Owner and Owner's security consultant.
3. Complete Sets: Provide complete sets of hardware for each door considering requirements for both sides of doors and including coordinating devices and accessories as would normally be anticipated for specific door applications.

D. Performance Criteria (Acoustical Door Hardware): Provide acoustic hardware capable of achieving maximum possible acoustic performance, sound transmission class (STC) ratings based on door type, frame type, and hardware types specified.

1. Base results on verified testing of similar assemblies using ASTM E90 testing and E413 classification for rating sound insulation.

E. Hinges and Butts: ANSI A156.1; comply with following unless otherwise indicated.

1. Manufacturers:

- a. Hager Co.
- b. Lawrence Hardware Inc.
- c. McKinney Products Co., Div of ASSA ABLOY.
- d. Stanley Hardware.
- e. Substitutions: Refer to Section 01 25 00.

2. Doors 1-3/4" Thick: 4-1/2" heavy weight, extra heavy weight ball or oilite bearing where over 40" wide.

- a. Provide widths sufficient to clear trim projection when door swings 180 degrees.

3. Provide minimum three hinges to 90" high, four hinges to 120" high for each door leaf, unless otherwise indicated.
 4. Provide nonferrous butts with non-removable pins at exterior and locked outswinging doors, non-rising at interior doors; stainless steel where labeled; steel butts at labeled interior doors.
 5. Provide ball bearing or oilite bearing hinges at doors with closers.
 6. Tips: Flat button tips with matching plug unless otherwise indicated.
- F. Locking Devices: Provide of metal matching specified finish; interior parts of steel and zinc-dichromate plating, to resist rusting and corrosion; do not supply plastic, die-cast or aluminum mechanisms.
1. Manufacturers:
 - a. Schlage Lock Co. Div. Allegion.
 - b. Sargent Manufacturing Co., Division of ASSA ABLOY Group.
 - c. Yale Security, Inc. Division of ASSA ABLOY Group.
 - d. Best Access Systems a Stanley Company.
 - e. Von Duprin, Inc. Div. Allegion.
 - f. Substitutions: Refer to Section 01 25 00.
 2. Type: Provide locksets with not less than 6 pin tumbler cylinders unless higher level of security is required by Owner.
 - a. Mortise Locksets and Latchsets: ANSI A156.13, Series 1000, Grade 1, Mortise Type.
 - 1) Provide at exterior doors and doors separating private space from public space.
 - b. Cylindrical Locksets and Latchsets: ANSI A156.2, Series 4000, Grade 1, Bored Type (cylindrical).
 - 1) Provide at interior doors within private spaces only; provide privacy locksets at offices, single occupancy toilets, and similar spaces that could require privacy by occupant.
 - c. Panic/Emergency Exit Devices: ANSI A156.3, Grade 1.
 - 1) Type: Mortise device with concealed vertical rods unless otherwise indicated.
 - 2) Style: Modern.
 3. Lockset and Latchset Design: Solid lever with rose, as selected by Architect.
 4. Backset: 2-3/4".
 5. Strikes: Furnish standard strikes with extended lips where required to protect trim from being marred by latch bolt; verify type of cutouts provided in metal frames.

- G. Cylinders, Keys, and Keying: Hardware manufacturers shall provide for grand master, master key alike or key different keying as directed by Owner.
 - 1. Manufacturer: Provide cylinders by lockset manufacturer unless otherwise indicated.
 - 2. Interchangeable Cores: Provide cylinders with interchangeable cores unless otherwise indicated.
 - 3. Provide cylinders of extruded brass bar material.
 - 4. Provide construction cylinders for doors requiring locking during construction; construction cylinders shall be removed and replaced just prior to Owner occupancy.
 - 5. Submit keys for final use to Owner; provide not less than two keys for each lockset, six of each type and level of masterkey, two grand master keys, and 5% extra blanks.
 - 6. Hardware manufacturers shall key and register lock cylinders unless otherwise directed by Owner.
 - 7. Key Control System: Provide complete key control system with identification and storage capacity suitable for Project.
- H. Proximity Keyfob (Fob) Systems and Security Systems: Provide proximity keyfob type access control system as approved by Owner's security consultant; premium grade system with computerized recognition, recording, and revision.
 - 1. Type: Saflok/Quantum RFID x BLE Lock with auto deadbolt option (ADB) at Guestroom Entry Doors or ASSA ABLOY/VingCard Signature RFID with BLE x Wing Lever and auto deadbolt option (ADB).
 - a. Provide with Safelock/System 6000 or ASSA ABLOY/Visionline front desk microprocessor system as required by Marriott International, Inc.
 - 2. Provide Fob systems for public use areas accessible to tenants such as public entry doors, laundry room doors, community room doors, courtyard doors, bicycle storage rooms, elevator cabs, exterior gates, and garage entry doors.
 - 3. Door Monitoring: Provide door monitoring system for common area doors as directed by Owner's security consultant; coordinate with Fob system and computerized information storage.
 - 4. Local Alarms: Provide alarms on doors where directed by Owner and Owner's security consultant.

- I. Closers: ANSI A156.4, furnish products of one manufacturer; full rack and pinion type with steel spring and non-freezing hydraulic fluid.
 1. Manufacturers:
 - a. LCN Closers Division Allegion/4000 Series.
 - b. Norton Division, ASSA ABLOY/7500 Series.
 - c. Dorma Door Controls/8900 Series Full Cover.
 - d. Substitutions: Refer to Section 01 25 00.
 2. Provide controls for regulating closing, latching, speeds and back check.
 3. Arm types shall suit individual conditions, as approved; supply parallel-arm closers at reverse bevel doors and where doors swing full 180 degrees.
 4. Mount closers on room side or pull side unless otherwise indicated.
 5. Sizes: Adjustable to following maximum door operating pressures:
 - a. Typical Doors: 5 pounds.
 - b. Fire Rated Doors: Not more than 15 pounds as directed by authorities.
 - c. Make labeled doors self-closing.
 - d. Closers shall be adjusted by factory representative.
 6. Design: ANSI Modern Type with Cover, unless otherwise indicated.
- J. Thresholds, Stops, Trim, and Miscellaneous Hardware: Provide as indicated, as specified, as included in Hardware Schedule, and as required for complete installation.
 1. Manufacturers:
 - a. Adams Rite Div. ASSA ABLOY.
 - b. Builders Brass Works Corp.
 - c. Glynn-Johnson Co. Div. Allegion.
 - d. Ives Div. Allegion.
 - e. National Guard Products.
 - f. Pemko Mfg. Co. Div. ASSA ABLOY.
 - g. Richard Wilcox.
 - h. Rixson Div. of ASSA ABLOY.
 - i. Trimco, Triangle Brass Mfg. Co.
 - j. Tydix Products.
 - k. Zero International, Inc., Div. Allegion.
 - l. Substitutions: Refer to Section 01 25 00.
 2. Door Stops: Required at all doors; locate as indicated, as required to minimize trip hazard and obstruction as approved and where not otherwise indicated.
 3. Weather-Stripping: Provide continuous weather-stripping at top and sides of exterior doors.
 4. Fire Rated Gaskets: Provide continuous fire rated gaskets at top and sides of fire rated doors.

5. Pulls: Provide with bolts to secure from opposite door face; provide with pull plates unless otherwise indicated.
6. Door Viewers: Provide as required to achieve maximum view outside door without allowing viewing of interior from exterior; provide second door viewer at rooms accessible to persons with disabilities as indicated and required by code.
7. Kick Plates: Height indicated by 1" less than door width; minimum 0.050" thick; provide as indicated, where not otherwise indicated provide as directed by Owner based on AHC recommendations.
8. Fire Department Rapid Entry System: Provide Knox Company/Knox Box as indicated, as required by applicable authorities where not otherwise indicated; flush mounted unless otherwise indicated.

2.2 ACCESSORIES

- A. General: Provide complete hardware with accessories as required for doors and applications indicated.
- B. Templates: Furnish templates or physical hardware items to manufacturers concerned sufficiently in advance to avoid delay in Work.
- C. Reinforcing Units: Furnished by door manufacturer, coordinated by hardware manufacturer.
- D. Fasteners: Furnish as recommended by manufacturer and as required to install secure hardware.
 1. Finish: Match hardware.
 2. Furnish screws for items applied on gypsum board sufficiently long to provide solid connection to framing or backing
- E. Through Bolts: Through bolts and grommet nuts shall be avoided on door faces in highly visible areas, unless no alternative is possible, as directed and approved, and shall not be used for solid wood core doors.
- F. Electrical and Mechanical: Make provisions and coordinate requirements for mechanical and electrical devices in connection with hardware.

2.3 FINISHES

- A. General: Provide following finishes except where otherwise indicated.
- B. Typical:
 1. Exterior: BHMA 630 (US32D), satin finished stainless steel.
 2. Interior: BHMA 606 (US4), satin brass (yellow), clear coated.
- C. Closers: BHMA 600 (USP), primed for painting.

- D. Thresholds: BHMA 628 (US28), satin aluminum, clear anodized.
- E. Other Items: Provide manufacturer's standard finishes matching similar hardware types on same door, and maintain acceptable finish considering anticipated use.

PART 3 - EXECUTION**3.1 INSTALLATION**

- A. Install finish hardware specified under this section; coordinate with manufacturer and installation of doors and frames.
- B. Fit hardware prior to painting. Remove for painting of doors and frames before final installation of hardware.
- C. Install hardware in accordance with manufacturer's instructions.
- D. No extra cost will be allowed because of changes or corrections necessary to facilitate installation of hardware.

3.2 MOUNTING POSITIONS

- A. General: Heights given are center line heights from finished floor; comply with following unless otherwise required by applicable codes or regulations.
 - 1. Locks and Latches: 38" to center of lever.
 - 2. Door Pulls: 42" to center of grip.
 - 3. Push Plate: 42"; coordinate with pull location.
 - 4. Push-Pull Bar: 42" to center of bar.
 - 5. Top Hinge: To jamb manufacturer's standard, but not greater than 10" from head of frame to center line of hinge.
 - 6. Bottom Hinge: To jamb manufacturer's standard, but not greater than 12-1/2" from floor to center line of hinge.
 - 7. Intermediate Hinges: Equally spaced between top and bottom hinges and from each other.
 - 8. Hinge Mortise on Door Leaf: 1/4" to 5/16" from stop side of door.
 - 9. Dead Bolt: Not more than 44" from floor to operating lever.
- B. Standards: Comply with recommendations of Builders Hardware Manufacturers Association, subject to approval, for heights of items not indicated.

3.3 ADJUSTING

- A. Qualified hardware supplier's or manufacturer's representatives shall inspect installation and make adjustments.
 - 1. Adjust closers, locks, and critical operational hardware.
 - 2. Deliver instructions for maintenance and future adjustments to Owner's Representative.

3.4 HARDWARE SCHEDULE

- A. The Hardware Schedule establishes a type and standard of quality.
- B. Examine Drawings and Specifications and furnish proper hardware for door openings, whether listed or not.
- C. Bring omissions to attention of Architect prior to bid opening for instructions; otherwise, list will be considered complete; no extras will be allowed.
- D. Hardware Groups General: Base bids on manufacturers' items specified for locks, closers and panic devices.
 - 1. Client is seeking bidders' best price on these items.
 - 2. After acceptance of original bid based on items specified, other manufacturers may be presented for cost saving purposes only, or at the direct request of Owner and Architect.
 - 3. In some cases, quantity of hinge pairs will vary with height of door (see Hardware Section under materials on Hinges).
- E. Hardware Groups: Refer to Drawings.

END OF SECTION