08 7100
Door Hardware

Last Update: August 10, 2021

A. Quality Assurance:

1. Single Source Responsibility: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer.
2. Specify access control hardware and infrastructure in Division 28 Section "Access Control". Coordinate references and requirements between both sections.
3. Specify coordination of electrically powered hardware, power requirements, and raceways with the Door Frame, Doors, and Electrical drawings and specifications. Provide elevation details in Drawings.

B. Qualifications

1. Products Requiring Electrical Connection: Listed and classified by testing firm acceptable to authority having jurisdiction as suitable for purpose specified and indicated.
   a. Hardware Installers shall be factory trained and certified by manufacturers of electronic door hardware.

C. Pre-Installation Meetings

1. Access Control Hardware: Hardware Supplier shall meet with electrical installer and University Electronics Shop representatives early during the construction period to coordinate requirements for power and for low voltage conduit/chases. Hardware supplier and electrical installer shall communicate continually during construction as necessary to coordinate power with low voltage (hardware) requirements.

D. Door Hardware

1. Hinges: Provide ball bearing at interior high-frequency doors and doors with closers.
   a. Ives, 5BB series
   b. Bommer, BB5000 Series
   c. Hagar, BB Series
   d. Stanley,
   e. Requirements:
      1) Provide three hinges per door leaf for doors 90 inches or less in height, and one additional hinge for each 30 inches of additional door height.
      2) Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
         a) Steel Hinges: Steel pins
         b) Non-Ferrous Hinges: Stainless steel pins
         c) Out-Swinging Exterior Doors: Non-removable pins

d) Out-Swinging Interior Lockable Doors: Non-removable pins
e) Interior Non-lockable Doors: Non-rising pins

3) Hinge Width: 4-1/2 inches at 1-3/4 inch thick doors, 5 inches at 2 inches or thicker doors. Provide hinge width as required for door, frame, and wall conditions to allow proper degree of opening.
4) Doors 36 inches wide or less furnish hinges 4-1/2 inches high; doors greater than 36 inches wide furnish hinges 5 inches high, heavy weight or standard weight as appropriate.
5) Provide hinges with electrified options as scheduled in the hardware sets. Provide with sufficient number of conductors of wire gage to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component.
6) Provide mortar guards for electrified hinges.
7) Provide spring hinges where permitted by Owner. Provide two spring hinges and one bearing hinge per door leaf for doors 90 inches or less in height. Provide one additional bearing hinge for each 30 inches of additional door height.

2. Continuous Hinges: Provide continuous hinges at exterior and oversize doors..

a. Ives

b. Pemko

c. Select

d. Requirements:
1) Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.25, Grade 2, fabricated from 6063-T6 aluminum, with 0.25-inch diameter Teflon coated stainless steel hinge pin and split nylon bearings.
2) Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
3) On fire-rated doors, provide continuous hinges that are classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
4) Provide continuous hinges with electrified option scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric function of specified hardware.

3. Locksets and Latch Sets: Lever handle type, accept Best Small Format cores.

a. Schlage, L-Series (Mortise), ND Series (Cylindrical),

b. Best, 40H Series (Mortise), 9K Series (Cylindrical)

c. Use: Provide mortise locksets unless otherwise approved or directed by Facilities Planning.

d. Trim:
1) Lever Handle: Curved type with return, similar to Schlage 17.
2) Mortise Trim: Sectional trim, 2-1/2 inch nominal rose, similar to Schlage B.
3) Provide cylinder guards.
4) Provide "Occupied" indicators at All-Gender Restrooms and Shower Rooms and at Lactation Rooms.

e. Aluminum Door Deadbolt:

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1) Adams Rite MS1850 Series, full 1-13/32 (36mm) deadbolt throw.

4. Exit Device:
   a. Von Duprin, 99 Series, 33 Series (narrow frame).
   b. Provide rim devices with keyed removable mullion at paired doors except where exposed vertical rod devices are requested by Owner.
   c. At classrooms with an occupant load of 50 or more, provide -2SI double-cylinder with thumb interior side thumb turn and "unlocked" indicator.
   d. Lever trim, if provided, shall be "Sparta" style.
5. Door Closers:
   a. LCN 4041 Series
6. Automatic Door Operators
   a. LCN 4600 Series AutoEqualizer and control boxes.
   b. DITEC Entrematic HA-8, where permitted by Owner.
   a. Provide low energy automatic operator units with hydraulic closer complying with ANSI/BHMA A156.19.
   b. Provide units with conventional door closer opening and closing forces unless power operator motor is activated. Provide door closer assembly with adjustable spring size, back-check, and opening and closing speed adjustment valves to control door
   c. Provide units with on/off switch for manual operation, motor start up delay, vestibule interface delay, electric lock delay, and door hold open delay.
   d. Provide drop plates, brackets, or adapters for arms as required.
   e. Provide hard-wired actuator switches for operation, except where wireless actuators are approved by the Owner.
   f. Provide weather-resistant actuators at exterior applications.
   g. Provide key switches with indicator LED's, with Owner standard cylinders.
   h. Provide complete assemblies of controls, switches, power supplies, relays, and parts/material recommended and approved by manufacturer of automatic operator for each individual leaf. Actuators control both doors simultaneously at pairs.
   i. Provide units with vestibule inputs that allow sequencing operation of two units, and SPDT relay for interfacing with latching or locking devices.
   j. In residence halls and where directed by the Owner, connect operator to building security system to provide remote lock-down function to interrupt power to the operator.
7. Cylinders:
   a. Keying schedule shall be provided by the Owner.
   b. Best Access Systems, IE7, 7-pin small-format interchangeable (SFIC) core.

c. Contractor will provide permanent Best lock cores and keys, unless otherwise directed by the Owner.

d. Contractor shall provide all construction cores.

e. Owner will provide cores and keys for construction site access, such as fence locks and building access.

8. Door Controls and Overhead Holders:

   a. Glynn Johnson

9. Door Accessories:

   a. Push plates: 8 inch by 16 inch minimum, 0.050 inch stainless steel beveled four edges, except where narrower required to fit door stile. Provide plates with engraved "PUSH" indication.

   b. Door pulls: 1 inch diameter by 10 inch minimum, offset style, solid bar stock stainless steel.

   c. Pull Plate: 4 inch by 16 inch minimum, 0.050 inch stainless steel beveled four edges, except where narrower required to fit door stile.

   d. Push Bars: 1 inch diameter, solid bar stock stainless steel, mounted back-to back with door pull.

   e. Kick Plates: 10 inch, 0.050 inch stainless steel beveled four sides, or to match existing building, push side only.

   f. Mop plates: 4 inch, 0.050 inch stainless steel beveled four sides, or to match existing building, pull side only.

   g. Door Stops: Wall Stops equal to Ives WS401 Series, unless otherwise directed by Facilities Planning. Floor stops should not be used without prior approval.

10. Access Control Hardware:

    a. Refer to Section 28 13 00 – Access Control for access control interface and devices.

    b. Provide low-voltage electronically operated door hardware, electrical transfer hardware, door and frame preparations required for electronic access control.
       1) Utilize electric power transfer hardware unless electric transfer hinges are necessary.
       2) Provide power supplies for electrically operated door hardware separate from power supplies for electronic access control devices, unless connection to door hardware power supply is essential to device operation.

E. Key Control System: Provide for all new building construction, major building renovations, or as directed by Ball State Facility Planning & Management.

1. Manufacturers:

   a. Standard Manufacturer: Telkee

   b. Acceptable Manufacturers: HPC, Lund

2. Requirements:

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a. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.

b. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.

c. Provide hinged-panel type cabinet for wall mounting

F. Finishes

1. Finishes: ANSI A156.18; furnish following finishes except where otherwise indicated in Schedule.
2. Finishes:
   a. Satin chrome (626/652 or US26D) or satin stainless steel (630 or US32D). Painted exit devices to match are 789.
   b. For work in existing buildings, match existing hardware finishes unless otherwise instructed by the Owner.

G. Applications:

1. Classroom Security: ANSI Function F04 operation, thumb-turn activation with visible locked/unlocked indicator. Provide at all rooms indicated to receive a call box.

END OF SECTION