

SECTION 08710- DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Door hardware for new, secure vestibule door.
2. Electro-mechanical devices and access control components as specified herein.

1.2 REFERENCED STANDARDS

A. American National Standards Institute (ANSI):

1. International Code Council (ICC): ANSI/ICC A117.1: Accessible and Usable Buildings and Facilities, edition as adopted by local Authority Having Jurisdiction (AHJ).
2. Builders Hardware Manufacturer's Association (BHMA)
 - a. ANSI/BHMA A156.1; Butts & Hinges; 2013 edition
 - b. ANSI/BHMA A156.2; Bored and Preassembled Locks and Latches; 2011 edition
 - c. ANSI/BHMA A156.3; Exit Devices; 2014 edition
 - d. ANSI/BHMA A156.4; Door Controls - Closers; 2013 edition
 - e. ANSI/BHMA A156.18; Materials and Finishes; 2012 edition
3. International Building Code (IBC 2015) Chapter 10

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate layout, templating, and installation of work with other sections as required. Provide templates, product information, schedules, and diagrams required to fully coordinate the work.

1. Coordinate blocking for wall stops and other wall mounted hardware.

1.4 QUALITY ASSURANCE

A. Qualifications

1. Supplier Qualifications:
 - a. Supplier shall have documented experience in the supply of door hardware for five (5) years or for three (3) prior projects similar in scope, size, and quality. Supplier shall be a certified direct distributor and be a full sales and service organization for the manufacturer(s) listed. Supplier shall have warehousing facilities within 75 miles of the project site.
2. Installer Qualifications:
 - a. Installer shall have documented experience in the installation of door hardware for five (5) years or for three (3) prior projects similar in scope, size, and quality.
3. Manufacturer Sourcing Qualifications:
 - a. Obtain each type of door hardware (hinges, latch and locksets, exit devices, closers, etc.) from a single manufacturer, although several may be indicated as offering products complying with requirements.
 - b. Provide electrified hardware from same manufacturer as mechanical door hardware unless otherwise indicated. Manufacturer's that perform electrical modifications that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction (AHJ) are acceptable.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Marking and Packaging: Package hardware items manufacturer's standard packaging, clearly marked with hardware set number correlating to door hardware schedule and architect's door number.
- B. Delivery and Acceptance: Coordinate with construction schedule and deliver packaged hardware items to place of installation (e.g. project site, fabrication shop). Upon delivery, inspect and inventory door hardware. Immediately notify supplier of defective or missing items.
 - 1. Deliver keys and cores to owner by registered mail or overnight package service. Ship keys separately from cores.
- C. Storage and Handling:
 - 1. Provide secure, dry storage area for door hardware delivered to the project site, but not yet installed. Store items on shelves or pallets to prevent damage.
 - 2. Control handling and installation of hardware items that are not immediately replaceable so that completion of work will not be delayed by hardware losses both before and after installation.

1.6 WARRANTY

- A. Warranty: Provide a written warranty, executed by the product manufacturer agreeing to repair or replace components of door hardware that fail in materials or workmanship within the specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including excessive deflection, cracking, or breakage.
 - b. Faulty operation of door hardware.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal wear.
 - 2. Warranty Period: Two (2) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Approved Manufacturers: Subject to the requirements included herein, hardware provided by the following manufacturers may be acceptable. Asterisks indicate manufacturer listed in HW Set.
 - 1. Hinges: Ives (IVE)* or any BHMA member manufacturer.
 - 2. Door Bolts & Accessories: Ives (IVE)* or any BHMA member manufacturer.
 - 3. Locks & Latches: Best (BES).
 - 4. Cylinders & Keys: Best (BES).
 - 5. Exit Devices & Accessories: Dorma (DOR).
 - 6. Electric Strikes: Von Duprin (VON)* or any BHMA member manufacturer.
 - 7. Surface Door Closers: Dorma (DOR).
 - 8. Automatic Operators: Dorma (DOR).
 - 9. Protection Plates & Guards: Ives (IVE)* or any BHMA member manufacturer.
 - 10. Door Stops & Holders Ives (IVE)* or any BHMA member manufacturer.
 - 11. Thresholds & Gasketing: Zero (ZER)* or any BHMA member manufacturer.
- B. Substitution requests will be reviewed for approval based on compliance with referenced standards.

2.2 GENERAL MATERIALS

- A. Miscellaneous Hardware Items: Where hardware items are scheduled, but are not included in the requirements of the specification, provide item as scheduled or a product similar in appearance,

quality, performance, and function. Where possible, provide product to comply with the requirements of the applicable ANSI/BHMA A156 standard.

- B. Fasteners: Provide fasteners for each hardware item and application as recommended by the hardware manufacturer. Finish of fasteners shall match adjacent hardware and shall be concealed wherever possible. Where sets indicate hardware is to be supplied with security screws, provide manufacturer's recommended fastener with a torx-drive head.

2.3 HINGES

- A. Provide hinges for exterior doors to be constructed of stainless steel with stainless steel pins. Provide hinge with grade, number of knuckles, and type (e.g. full mortise) as scheduled.
- B. Provide hinges with non-rising pins with flat button tips.
- C. Provide minimal hinge width required to allow hinge barrel to clear jamb and trim and allow door to swing 180 degrees. Provide hinge height and ANSI/BHMA A156.1 grade as follows:
 - 1. Doors 2 inches thick, up to 42 inches wide: 5 inch hinge, Grade 1
- D. Provide a minimum of 3 hinges per door leaf.
- E. Acceptable Products:
 - 1. Grade 1: Ives 5BB1HW or equivalent product by any BHMA Member Manufacturer.

2.4 DOOR BOLTS & ACCESSORIES

- A. Flush Bolts
 - 1. Provide flush-mounted door bolts of the type scheduled. Provide model recommended by hardware manufacturer for the door material for each opening. Where possible, provide length as required for top bolt to mount no higher than 72 inches above finished floor to center of bolt release mechanism and bottom bolt to mount no lower than 12 inches above finished floor to center of bolt release mechanism. Where opening is scheduled to receive a bottom bolt, provide a dust proof strike.
 - 2. Acceptable Products:
 - a. Ives FB50/FB60 Series or equivalent product by any BHMA Member Manufacturer.
- B. Bar Coordinators, Filler Bars, and Mounting Brackets
 - 1. Provide bar type coordinators meeting ANSI/BHMA A156.3, Type 21A. Size coordinator per manufacturer's recommendations based on door leaf sizes. Provide filler bars to fill the remainder width of the opening. Where necessary, provide the appropriate mounting brackets for soffit mounted hardware such as closer arms. Provide coordinators with any special-templating or factory-preparations needed to coordinate with other scheduled hardware on each opening.
 - 2. Acceptable Products:
 - a. Coordinator & Filler Bars: Ives COR x FL Series or equivalent product by any BHMA Member Manufacturer.
 - b. Mounting Brackets: Ives MB Series or equivalent product by any BHMA Member Manufacturer.

2.5 LOCKS & LATCHES

- A. Grade 1 Cylindrical Locks & Latches
 - 1. Provide cylindrical lock meeting ANSI A156.2 Series 4000, Grade 1. Lock shall have chassis constructed of chrome or zinc-dichromate plated steel. Provide lock with

minimum of 1/2 inch stainless steel latchbolt. Latchbolt shall deadlatch at locking functions. Provide lockset with cylinder preps as necessary for compatibility with the specified cylinders/cores.

2. Acceptable Products:
 - a. Best 9K Series or equivalent product by any BHMA Member Manufacturer..
- B. Trim: Provide trim with levers constructed of stainless steel. Levers shall be solid, not having any voids or fillers. Provide cast or wrought rose escutcheons and levers with design as scheduled.
- C. Strikes: Provide locks with standard 4-7/8 inch ANSI strike plate. On single openings, strike shall have curved lip with dimension necessary to extend 1/8 inch beyond trim. On paired openings, strike shall have flat lip with dimension necessary to extend flush to face of door leaf.

2.6 EXIT DEVICES & ACCESSORIES

- A. Conventional Push Pad Type Exit Devices
 1. Provide conventional push pad type exit device complying with ANSI A156.3 Grade 1. Device shall have deadlocking pullman type latchbolt constructed of stainless steel. Where scheduled at doors exceeding 36 inches in width, provide device designed for wide doors. Where scheduled at fire rated doors, provide device labeled as "Fire Exit Hardware". Where required by the stile-width, provide narrow-stile type device.
 2. Acceptable products:
 - a. Dorma 9000 Series or equivalent product by any BHMA Member Manufacturer.

2.7 ELECTRIC STRIKES

- A. Provide heavy duty electric strikes constructed of stainless steel. Strikes shall meet ANSI/BHMA A156.5 Grade 1, ANSI/BHMA A156.31, Grade 1, UL 1034 Burglary-resistant, and UL10C. Strikes shall be continuous duty rated and shall be rated for a minimum of 1,500 pound holding force and 1,300 pound static strength. Provide strike mounting applications and options as scheduled. Provide strikes to accept 24VDC or 12VDC as required by power source.
- B. Acceptable Products
 1. Von Duprin 6000 Series or equivalent product by any BHMA member manufacturer.

2.8 SURFACE DOOR CLOSERS

- A. Heavy Duty
 1. Provide closers certified to ANSI A156.4 grade 1, with non-handed body constructed of aluminum. Closers shall have 1-1/2 inch piston, 5/8 inch journals, heat treated pinions, and springs sized 1-6. Closers shall have independent valves for backcheck, main speed, and latch speed. Closer shall be able to meet ADA opening force requirements. Provide arms as scheduled.
 2. Acceptable Products:
 - a. Dorma 8900 Series or equivalent product by any BHMA Member Manufacturer.

2.9 AUTOMATIC OPERATORS

- A. Provide automatic operator to meet ANSI A156.19 requirements. Provide units with on/off switch for manual operation, motor start up delay, vestibule interface delay, electric lock delay, and door hold open delay. Provide drop plates, brackets, or adapters for arms as required for details. Provide actuator switches for operation as specified. Provide weather-resistant actuators at exterior applications.
- B. Provide complete assemblies of controls, switches, power supplies, relays, and parts/material

recommended and approved by manufacturer of automatic operator for each individual leaf.

C. Acceptable Products:

1. Dorma ED900 Series or equivalent product by any BHMA Member Manufacturer..

2.10 DOOR STOPS & HOLDERS

A. General: Wall stops are the preferred stopping method. Where conditions limit the use of a wall stop, provide floor stops. Where conditions do not allow the use of a floor stop without posing a tripping hazard, provide an overhead stop.

B. Wall Stops:

1. Provide stops constructed of cast brass or bronze that comply with ANSI/BHMA A156.16 requirements. Wrought wall stops are not acceptable. Provide concave bumpers where scheduled with cylindrical lockset functions utilizing push buttons on the adjacent lever, otherwise provide convex bumpers. Provide stop with fasteners appropriate to mount the stop based on the adjacent wall material.
2. Acceptable Products:
 - a. Ives WS400 Series or equivalent product by any BHMA Member Manufacturer

2.11 THRESHOLDS & GASKETING

A. Thresholds: Provide thresholds of type and width as scheduled. Provide saddle thresholds of continuous length equal to frame width from rabbet to rabbet, and panic thresholds of continuous length equal to opening width plus frame face dimension. Notch threshold as required to fit frame profile, miter and weld any exposed corners. Where scheduled with floor closer, provide the appropriate preparation for compatibility with the scheduled closer. Provide threshold with stainless steel fasteners and lead anchors. Where heavy equipment will be moved over threshold, provide threshold with no voids under the profile whether composite filled or solid extrusion.

B. Perimeter Gasketing: Provide gasketing of type scheduled with length as required to provide a continuous seal between the door and frame without gaps. Provide any required brackets or accessories to allow mounting of lock strikes, closer arms, or other hardware without cutting or notching gasketing. Where openings are not provided with perimeter gasket, provide silencers.

C. Door Bottoms and Door Sweeps: Provide door bottoms and/or door sweeps as scheduled with a length equal to door width.

D. Rain Drips: Provide rain drips at exterior openings. One rain drip shall be provided for each exterior facing side of the opening. Rain drips shall have a continuous length equal to 4 inches longer than the opening width.

E. Basis of Design Products:

1. Zero International (ZER) products as scheduled or equivalent products by any BHMA Member Manufacturer.

2.12 FINISHES

A. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18, "Materials and Finishes," including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify conditions of walls, flooring, doors, frames, and hardware are satisfactory for installation of hardware. Conditions that do not allow proper installation of hardware shall be corrected before proceeding.

3.2 INSTALLATION

A. General

- 1. Install door hardware as detailed in the approved hardware schedule using only approved fasteners and in accordance with manufacturer's recommended procedures and methods.
- 2. Install hardware and signage at fire rated openings in accordance with NFPA 80 requirements.

- B. Hardware Mounting Heights: Mount door hardware units at hollow metal door manufacturer's standard heights.

- C. Surface Mounted Door Closers: Install surface mounted door closers on room side of openings, except where prohibited by scheduled hardware. Use appropriate arms, spacers, brackets, and accessories to properly install surface mounted door closers. Adjust spring power to the appropriate setting to ensure the doors reliably close under normal operating conditions.

D. Wall Mounted Door Stops And Holders

- 1. Locate wall mounted door stops at the appropriate height and location to properly contact protruding door trim.
- 2. Where indicated in the HW Sets, mount floor stops at exterior doors as a wall stop.

- E. Gasketing: Install gasketing to provide a continuous seal around the perimeter of the opening. Install soffit mounted hardware using the proper brackets, spacers, and accessories to allow proper installation without cutting or notching gasketing material or mounting channels.

3.3 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.

- B. Clean operating items as necessary to restore proper function and finish.

- C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

**Colorado Mountain College
Dillon Campus ADA Entry Vestibule**

Jeff Johnson Architectural, PC

PART 4 - SCHEDULE

4.1 GENERAL

- A. The following scheduled hardware set shall be considered a guide. It shall be the hardware supplier's responsibility to furnish all required hardware.
- B. Where items of hardware are not definitely or correctly specified and are required for completion of the Work, a written statement of such omission, error, conflict, or other discrepancy shall be sent to the Architect.
- C. Adjustments to the Contract Sum will not be allowed for omissions or items of hardware not clarified prior to bid opening.

4.2 HARDWARE SET

1 EA	CARD READER	COORDINATE WITH SECURITY	✓ BLK B/O
1 EA	MOTION SENSOR	COORDINATE WITH SECURITY	✓ BLK SCE
1 EA	DOOR CONTACT	COORDINATE WITH SECURITY	✓ WHT SCE
1 EA	LOW VOLTAGE POWER	COORDINATE WITH ELECTRICAL/SECURITY	✓ B/O
1 SET	RACEWAY AND CONDUIT	COORDINATE WITH ELECTRICAL/SECURITY	✓ B/O
1 SET	WIRING & CONNECTIONS	COORDINATE WITH ELECTRICAL/SECURITY	✓ B/O
1 EA	AUTO-UNLOCK SYSTEM	COORDINATE WITH SECURITY	✓ B/O
1 EA	ACCESS CONTROL INTERFACE	COORDINATE WITH SECURITY	✓ B/O
1 EA	HINGE	112HD 628 IVE	
1 EA	EXIT DEVICE	9303 CD V103CV 626 DOR	
1 SET	CYLINDER(S)	TYPE & QTY AS REQ'D BY HARDWARE 626 BES	
1 SET	PERM. CORE(S)	1C7-2 (MATCH OWNER'S KEYSYSTEM) 626 BES	
1 EA	CLOSER	8916 DS ABP 689 DOR	
1 SET	PERIMETER SEALS	BY DOOR/FRAME MANUFACTURER TBD B/O	
1 EA	DOOR SWEEP	BY DOOR/FRAME MANUFACTURER TBD B/O	
1 EA	THRESHOLD	BY DOOR/FRAME MANUFACTURER TBD B/O	
2 EA	ELECTRIC STRIKE	6300 FSE 12/24VDC	✓ 630 VON