

SECTION 08 70 00

FINISH HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Finish hardware.
 - 2. Electric door assisting device.
 - 3. Inspection and testing of door operation.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 - Procurement and Contracting Requirements.
 - 2. Division 01 - General Requirements.
 - 3. Section 08 11 00 - Metal Doors and Frames.

1.2 QUALITY ASSURANCE

- A. All door hardware shall be provided by a single hardware supplier.
 - 1. Hardware is to be provided under this Specification Section, unless noted otherwise, for doors specified in:
 - a. Specification Section 08 41 10.
- B. Referenced Standards:
 - 1. Americans with Disabilities Act (ADA):
 - a. Accessibility Guidelines for Buildings and Facilities (ADAAG).
 - 2. American National Standards Institute/Builders Hardware Manufacturers Association (ANSI/BHMA):
 - a. A156.1, Butts and Hinges.
 - b. A156.3, Exit Devices.
 - c. A156.4, Door Controls -Closers.
 - d. A156.6, Architectural Door Trim.
 - e. A156.8, Door Controls - Overhead Stops and Holders.
 - f. A156.13, Mortise Locks.
 - g. A156.16, Auxiliary Hardware.
 - h. A156.18, Materials and Finishes.
 - i. A156.21, Thresholds.
 - 3. American National Standards Institute/Steel Door Institute (ANSI/SDI).
 - a. A250.8, Specifications for Standard Steel Doors and Frames (SDI-100).
 - 4. Door and Hardware Institute (DHI).
 - 5. National Fire Protection Association (NFPA):
 - a. 101, Life Safety Code.
- C. Qualifications:
 - 1. Installation shall be inspected by a certified Architectural Hardware Consultant (AHC).

1.3 DEFINITIONS

- A. AHC: Architectural Hardware Consultant, certified by DHI.
- B. Installer or Applicator:
 - 1. Installer or applicator is the person actually installing or applying the product in the field at the Project site.
 - 2. Installer and applicator are synonymous.
- C. All weather: Capable of operation from -50 to +120 DEGF.

- D. Active Leaf: Right-hand leaf when facing door from keyed side unless noted otherwise on Drawings.

1.4 SUBMITTALS

- A. Shop Drawings:
1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
 2. Qualifications
 - a. AHC qualifications.
 3. Certification from AHC stating:
 - a. All door hardware has been reviewed by AHC and verified to be compatible with doors and frames.
 - b. All electrified door hardware has been reviewed by AHC and has been coordinated with power supply and access control system.
 - c. No submittals will be reviewed until Engineer has received AHC certification.
 4. Product technical data including:
 - a. Acknowledgement that products submitted meet requirements of standards referenced.
 - b. Manufacturer's installation instructions.
 5. Schedule of all hardware being used on each door.
 - a. Number hardware sets and door references same as those indicated on Drawings.
 6. Technical data sheets on each hardware item proposed for use.
 7. Warranty information for all hardware devices having extended warranties.
- B. Informational Submittals:
1. Certifications:
 - a. Certification from AHC stating all door hardware has been provided per approved Shop Drawings, has been installed in accordance with manufacturer's recommended installation instructions and all doors have been inspected and tested and found to be in proper working order.
 - 1) Door assemblies required to swing in the direction of egress have been inspected and tested in accordance with NFPA 101.
 - 2) Fire-rated door assemblies have been inspected and tested in accordance with NFPA 80.

1.5 WARRANTY

- A. Provide all individual manufacturers' extended warranties as advertised.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
1. Hinges:
 - a. Hager Companies.
 - b. McKinney Manufacturing Co.
 - c. Stanley by dormakaba Holding, Inc.
 2. Locksets and latchsets:
 - a. Best Access Solutions, Inc. by dormakaba Holding, Inc.
 - b. Corbin Russwin, Inc. by ASSA ABLOY.
 3. Exit devices:
 - a. Corbin Russwin, Inc. by ASSA ABLOY.
 - b. PRECISION by dormakaba Holding, Inc.
 - c. SARGENT Manufacturing Company by ASSA ABLOY.
 - d. Von Duprin by Allegion PLC.

4. Closers:
 - a. Corbin Russwin, Inc. by ASSA ABLOY.
 - b. LCN by Allegion PLC.
 - c. Norton by ASSA ABLOY.
5. Door stops and holders:
 - a. Trimco.
 - b. Rockwood by ASSA ABLOY.
 - c. IVES by Allegion PLC.
6. Overhead stops:
 - a. Glynn-Johnson by Allegion PLC.
 - b. Rockwood by ASSA ABLOY.
 - c. Trimco.
 - d. Rixson by ASSA ABLOY.
7. Weatherstripping and thresholds:
 - a. Pemko by ASSA ABLOY.
 - b. Reese Enterprises, Inc.
 - c. Zero International, Inc.
 - d. National Guard Products.
8. Door bolts, coordinators and strikes:
 - a. IVES by Allegion PLC.
 - b. Trimco.
 - c. Hager Companies.
 - d. Rockwood by ASSA ABLOY.
 - e. dormakaba.
9. Other materials: As noted.

B. Submit request for substitution in accordance with Specification Section 01 25 00.

2.2 MATERIALS

- A. General: As indicated in the FABRICATION Article in PART 2 of this Specification Section.
- B. Fasteners: Stainless steel or aluminum.
- C. Closers:
 1. Standard closer:
 - a. Shell: Aluminum or cast iron.
 - b. Arms and piston: Forged steel.
- D. Kickplates:
 1. Stainless steel.
- E. Thresholds: Aluminum.
- F. Overhead Stops and Wall Stops: Stainless steel or aluminum.
- G. Keys: Brass or bronze.
- H. Weatherstripping and Smoke Seals: Polypropylene, neoprene, or EPDM.
- I. Pulls and Push Plates: Stainless steel.
- J. Silencers: Rubber.

2.3 COMPONENTS

- A. Hinges:
 1. Butt hinges:
 - a. ANSI/BHMA A156.1.
 - 1) A5111: Stainless steel, full-mortise, anti-friction bearing, Grade 1.
 - b. Ball bearing.
 - c. Flat button tips.

- d. Butt hinges:
 - 1) Hager BB1199.
 - 2) McKinney T4B3386.
 - e. Hinge size:
 - 1) Doors up to and including 46 IN wide: 4.5 IN x 4.5 IN.
 - 2) Doors over 46 IN up to and including 60 IN wide: 5 IN high x 4.5 IN.
- B. Mortise Locks and Latches:
- 1. ANSI/BHMA A156.13, Series 1000, Operational Grade 1, Security Grade 1.
 - a. Meet requirements of ADA.
 - 2. Antifriction two-piece mechanical latchbolt with stainless steel anti-friction insert.
 - a. One-piece stainless steel deadbolt, minimum 1-1/4 IN x 9/ 16 IN thick with 1 IN throw.
 - b. 2-3/4 IN backset.
 - c. Cylinder: Brass, 6-pin, with interchangeable core.
 - d. ADA compliant thumb turn lever.
 - 3. Locking, latching and retracting mechanism and lock case:
 - a. Steel, unless noted otherwise.
 - 1) Chrome or zinc dichromate plated.
 - 4. Trim design: Corbin Russwin, Inc. "NSP".
 - a. Functions as indicated in following table in accordance with ANSI/BHMA A156.13.

MORTISE LOCK NUMBERS		
ANSI	FUNCTION	CORBIN RUSSWIN, INC.
F01	Passage	ML2010
F19	Privacy	ML2030
F05	Classroom	ML2055
F07	Storeroom	ML2057
F13	Entrance or Office	ML2065

- C. Exit Devices:
- 1. ANSI/BHMA A156.3, Grade 1.
 - 2. Single doors: .
 - 3. Pairs of doors: vertical rods.
 - 4. Trim: Sargent "ET".
 - a. Lever operation.
 - b. Lever style: Sargent "L".
 - 5. Sargent "80 Series".
 - a. Function as indicated on Hardware Schedule.
- D. Bolts:
- 1. ANSI/BHMA A156.16.
 - 2. Surface bolts: Rockwood 580 Series with top and bottom strikes.
- E. Door Pulls, Push Plates and Bars:
- 1. ANSI/BHMA A156.6.
 - 2. Push plate: 4 x 16 IN, square corner, flat plate, with beveled edges.
 - 3. Push bar: Round.
 - 4. Push/Pull set:
 - a. 4 IN x 16 IN square corner flat plate with beveled edges and 3/4 IN DIA x 12 IN long pull.
 - b. Provide 2-1/2 IN clearance.
 - 5. Provide cutouts as required for cylinders.

- F. Door Closers:
 - 1. ANSI/BHMA A156.4, Grade 1.
 - 2. Size door closers to comply with ANSI recommendations for door size and location.
 - 3. Fabricate all closers with integral back check.
 - 4. Provide integral stop unless noted otherwise.
 - a. Do not provide integral stop at closers indicated to be installed on pull side of door.
 - b. Provide all weather fluid for all closers used in exterior doors .
 - 5. Full cover.
 - a. Manufacturer's standard plastic cover.
 - 6. Arms, brackets, and plates: As required for complete installation.
 - 7. Closers:
 - a. LCN 4040 Series or Norton 7500 Series or Corbin Russwin, Inc. DC6200 Series.
 - 8. Provide manufacturer's standard 10 year warranty.
- G. Door Stops:
 - 1. ANSI/BHMA A156.16.
 - a. Wall stops: IVES WS406-CVX or WS406-CCV.
- H. Overhead Door Holders/Stop:
 - 1. ANSI/BHMA A156.8.
 - 2. Provide 'hold-open' function on all stops unless noted otherwise.
 - a. Do not provide 'hold-open' function at fire rated doors.
 - 3. Surface mounted stops: Rockwood N14400 Series or Glynn Johnson 90 Series.
 - 4. Concealed stops: Rockwood N11000 Series or Glynn Johnson 100 Series.
- I. Kickplates:
 - 1. ANSI/BHMA A156.6.
 - 2. 8 IN high x 2 IN less than door width.
 - 3. Beveled on all edges.
 - 1. Thickness:
 - a. Stainless steel: 0.050 IN.
- J. Thresholds:
 - 1. ANSI/BHMA A156.21.
 - 2. One-piece unit.
 - 3. Height: 1/2 IN high maximum.
 - 4. Width: .
 - 5. Provide required bolt cutouts.
- K. Astragal: UL listed for labeled doors.
- L. Weatherstripping:
 - 1. Weather seal at jambs and head:
 - a. Self-adhesive strip: Reese #797.
 - b. Color: .
 - 2. Sweep at bottom of doors:
 - a. Reese 701.
 - b. Color: .
 - 3. Weather seal astragal at meeting edges of pairs of doors:
 - a. Reese 92 each leaf.
 - b. Color: .

2.4 ACCESSORIES

- A. Silencers:
 - 1. Hollow metal frames: Trimco 1229A or Rockwood 608.
 - 2. Self-adhesive silencers are not acceptable.

- B. Keying:
 - 1. Establish keying with Owner.
 - a. Provide and set up complete visible card indexed system with key tags and control slips.
 - b. Tag and identify keys.
 - c. Provide two keys for each lock or cylinder.
 - d. Master key and key in groups as directed.
 - e. Provide construction master keys for all exterior doors.
- C. Strikes:
 - 1. Curved lips.
 - a. Extended lips when required.
 - 2. Furnish strike boxes.
 - 3. Appropriate for function and hardware listed.

2.5 FABRICATION

- A. General:
 - 1. Generally prepare for Phillips head machine screw installation.
 - 2. Exposed screws to match hardware finish or, if exposed in surfaces of other work, to match finish of other work as closely as possible.
 - 3. Provide concealed fasteners unless thru bolted.
 - 4. Through bolt closers on all doors.
 - 5. Furnish items of hardware for proper door swing.
 - 6. Furnish lock devices which allow door to be opened from inside room without a key or any special knowledge.
- B. Hardware:
 - 1. Fabricate hardware for fire rated openings in compliance with UL and NFPA 80.
 - a. This requirement takes precedence over other requirements for such hardware.
 - b. Provide only hardware which has been tested and listed by UL for types and sizes of doors.
 - 2. Provide following ANSI/BHMA A156.18 finishes:
 - a. Locksets, latchsets and strikes: 630.
 - b. Door pulls, push bars, push plates: 630.
 - c. Kickplates:
 - 1) Stainless steel: 630.
 - d. Exit devices: 630 where available; 626 if 630 is not available.
 - 1) Provide 630 finish on trim.
 - e. Butt hinges: 630.
 - f. Door stops, dead locks, mortise bolts, and miscellaneous hardware: 630 where available, 626 if 630 not available.
 - g. Door overhead stops: 630.
 - h. Closers: 600 prime coat with 689 finish coat, unless noted otherwise.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install products in accordance with manufacturer's installation instructions.
 - 1. Perform installation by or under the direct supervision of an AHC.
- B. Provide all hardware in accordance with the building code.
- C. Fit hardware before final door finishing.
- D. Permanently install hardware after door finishing operations are complete.
- E. Locate hardware in accordance with ANSI/SDI A250.8.

- F. Butt Hinges:
 - 1. Provide non-removable pin (NRP) at:
 - a. Exterior doors.
 - b. Reverse handed doors equipped with locks.
 - 2. Quantities:
 - a. Door height 61 - 90 IN: Three.
 - b. Door height 91 - 114 IN: Four.
 - c. Doors over 48 IN wide and over 96 IN high:
 - 1) Provide top butt hinge within 6 IN of the top of the door to top of hinge.
 - 2) Provide one additional butt hinge approximately 6 IN below the bottom of the top butt hinge.
 - 3. Provide power transfer as necessary where electrified lockset or exit device is specified or as otherwise indicated in Hardware Schedule.
- G. Closers:
 - 1. Mount closers on push side of doors unless noted otherwise.
- H. Provide coordinator when required by hardware specified.
- I. Overhead Stops:
 - 1. Provide overhead stop when corrosion resistant closer is specified.
 - 2. Provide concealed overhead stop on doors scheduled to receive closer mounted on pull side of door.
 - 3. Provide at interior doors not scheduled to receive a closer as follows:
 - a. Doors that swing more than 105 DEG without encountering a wall or obstruction.
 - 1) Stop shall limit swing of door from impacting wall or obstruction.
 - b. Inactive leaves of pairs of doors.
- J. Wall Mount Door Stops:
 - 1. Provide where specifically indicated on Hardware Schedule and at doors not otherwise indicated to receive:
 - a. Overhead stop.
 - b. Closer with integral stop.
- K. Floor mounted stops are not acceptable unless noted otherwise in this Specification Section.
- L. Install astragal on all pairs of UL labeled fire doors.
- M. Provide silencers for door frames.
 - 1. Hollow metal frames: See Specification Section 08 11 00.
- N. Provide weather seal, door sweep and threshold at all exterior doors and where scheduled on interior doors.
 - 1. Set thresholds in a full bed of sealant.
 - 2. Mount door sweeps on exterior face of door.
 - 3. Mount weather seal astragal at meeting edges of pairs of doors on the exterior face of the doors.
- O. Provide smoke seals on all fire rated doors.
- P. Mount kickplates on push side of doors.

3.2 FIELD QUALITY CONTROL

- A. Adjust and check each operating item of hardware to assure proper operation or function.
 - 1. Lubricate moving parts with lubricant recommended by manufacturer.
- B. During week prior to startup, make a final check and adjustment of all hardware items.
 - 1. Clean and lubricate as necessary to assure proper function and operation.
 - 2. Adjust door control devices to compensate for operation of heating and ventilating equipment.

C. Inspection and Testing:

1. AHC shall inspect and test all door assemblies and provide written certification that door assemblies are in proper working order.
 - a. Door assemblies required to swing in the direction of egress shall be inspected and tested in accordance with NFPA 101.
2. Submit documentation and certification of testing in accordance with the certifications paragraph in the SUBMITTALS Article in PART 1 of this Specification Section.

3.3 SCHEDULES

A. Hardware Schedule:

HARDWARE SCHEDULE			
Hardware Set	Quantity	Unit	Description
HW-1	1-1/2	PR	Butts
	1	EA	Mortise Exit Device – Classroom Function
	1	EA	Closer w/Stop – Push Side Mounted
	1	EA	Weatherstripping
HW-2	1-1/2	PR	Butts
	1	EA	Lockset – Privacy Function
	1	EA	Closer w/Stop – Pull Side Mounted
HW-3	1-1/2	PR	Butts
	1	EA	Mortise Latchset – Passage Function
	1	EA	Closer w/Stop – Pull Side Mounted
	1	EA	Smoke Seals
HW-4	3	PR	Butts
	1	EA	Mortise Lockset – Passage Function
	1	EA	Flush bolts (inactive leaf)
	2	EA	Stops
	2	EA	Kickplates
HW-5	3	PR	Butts
	1	EA	Mortise Lockset – Storeroom Function
	1	EA	Flush bolts (inactive leaf)
	2	EA	Stops
	2	EA	Kickplates
HW-6	3	PR	Butts
	1	EA	Mortise Exit Device – Classroom Function
	1	EA	Flush Bolts – Top and Bottom (inactive leaf)
	1	EA	Closer w/ Stop (active leaf)
	1	EA	Overhead Stop – Hold-open (inactive leaf)
	1	EA	Weatherstripping
	1	EA	Threshold
	1	EA	Sweep

HARDWARE SCHEDULE			
Hardware Set	Quantity	Unit	Description
HW-7	1-1/2	PR	Butts
	1	EA	Lockset – Classroom Function
	1	EA	Closer w/ Stop – Push Side Mounted
	1	EA	Smoke Seals

END OF SECTION