SECTION 08710
FINISH HARDWARE

PART 1 - GENERAL

1.1 SUMMARY:

A. Section Includes:

1. Items known commercially as finish hardware or builders hardware, required for swing, sliding, or folding doors.

2. Types of finish hardware:
   a. Hinges
   b. Continuous Hinges (subject to approval by Access Services)
   c. Pivots
   d. Spring hinges
   e. Lock cylinders and keys
   f. Lock and latch sets
   g. Bolts
   h. Exit devices
   i. Push/Pull units
   j. Sliding door equipment
   k. Closers
   l. Overhead holders
   m. Miscellaneous door control devices
   n. Door trim units
   o. Protection plates
p. Weatherstripping for exterior doors
q. Sound stripping for interior doors
r. Automatic drop seals (door bottoms)
s. Astragals or meeting seals on pair of doors
t. Thresholds
u. Automatic door operators
v. Electrically activated panic hardware

B. Related Sections:

1. Section 06200 - Finish Carpentry: Installation of finish hardware.
2. Section 08100 - Metal Doors and Frames.
3. Section 08210 - Wood Doors.
4. Section 08740 - Electro-Mechanical Hardware.
5. Hardware for Special Door Units: Refer to applicable special door sections.
6. Divisions 6 and 12: Casework hardware.

1.2 REFERENCES:


B. Fire-Rated Openings:

1. National Fire Protection Association (NFPA) Standard No. 80. This requirement takes precedence over other requirements for such hardware.
2. Underwriters Laboratory (UL).

C. Emergency Exit Devices:
1. Fire-Rated Doors: Provide UL or WHI label on exit devices indicating "Fire Exit Hardware".

1.3 SUBMITTALS:

A. Manufacturer's technical product data of each item of hardware.

B. Hardware Schedule:

1. Organize hardware schedule into "hardware sets" indicating complete designations of every item.

2. Include specific hardware directions for every door opening.

C. Templates:

1. Hardware templates to fabricators of other work which is to receive finish hardware.

1.4 PRE AND POST INSTALLATION AND INSPECTION

A. After installation of all door closers, locks, and exit devices, General Contractor to have Manufacturer's representative submit a written report to the Architect with copies to the General Contractor and hardware supplier upon completion of service. This report shall include any installation errors and specifying specific door number.

B. Contractor shall contact UCB Access Services for Medeco cylinders to verify all cylinders have been provided based on door hardware schedule. Contractor shall sign a cylinder received document.

1.5 QUALITY ASSURANCE:

A. Supplier Qualifications:

1. Recognized builders hardware supplier, with warehousing facilities, who has been furnishing hardware in the Denver-Metro area for a period of not less than 3 years.

2. Employs an experienced AHC certified hardware consultant, available for consultation during the course of the work.

1.6 WARRANTY:

A. Mechanical failure on door closers for 10 years.
PART 2 - PRODUCTS

2.1 HINGES:

A. Manufacturers:

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<th>Stanley</th>
<th>Hager</th>
<th>Ives</th>
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<td>BB1279</td>
<td>5BB1</td>
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<td>BB1199</td>
<td>5BB1-HW (BRASS)</td>
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<tr>
<td>FBB168</td>
<td>BB1168</td>
<td>5BB1-HW (STEEL)</td>
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B. Five knuckle, button tip, full mortise template type with non-rising loose pins and ball or oilite bearings.

C. Exterior Doors: 4 ball bearing, non-ferrous .180 or .190 gage hinges with non-removal pin construction or non-rising loose pin with security set screw.

1. Doors to 36" Width: 4.5" x 4.5" hinges.

2. Doors over 36" Width: 5" x 5" hinges.

D. Interior Doors: Ball bearing type, wrought steel construction, with .134 or .145 gage.

1. Doors to 36" Width: 4.5" x 4.5" hinges.

2. Doors over 36" Width: 5" x 5" hinges.

E. Number of Hinges:

1. Minimum 3 hinges per door leaf for doors 84" or less in height.

2. One additional hinge for each 24" of additional height.

3. Or substitute Continuous Hinge (subject to approval by Access Services), stainless steel pin and barrel only (Lues 700)

2.2 LOCKS:

A. Manufacturers:
1. Schlage L9000 Series (no substitutions) with the following characteristics:
   a. Non-handed case.
   b. Ability to reverse locking hub without opening case cover.
   c. Independent spindles.

2. Minor Rekeying at Remodel Work: Match existing key system.

3. Yale 5400LN ANSI Grade 1 cylindrical lever locksets, no substitutions, (ANSI/BHMA A156.2) heavy-duty commercial grade lockset with the following characteristics:
   a. Non-handed and installs easily without specialized tools.
   b. Lockset chassis shall be constructed of heavy gauge cold rolled steel, trivalent chrome plated to protect against rust and corrosion.
   c. Anti-rotation through bolts with no exposed mounting screws.
   d. UL – cUL Fire Label for all door functions up to 3 hours.
   e. Capable of accepting Medeco high security (Medeco M3 technology) 31T0100A 7-pin Large Format Interchangeable Core cylinders. The Medeco M3 technology provides expansion capacity for large master keyed systems and is the key system standard for the campus, no substitutions.
   f. Free Wheeling lever on all locking functions, locked outside lever will rotate freely up and down while remaining securely locked.
   g. Seven year comprehensive mechanical warranty on lockset, lifetime warranty against lever sag and lever spring breakage.
   h. Solid one piece cast levers without plastic inserts, minimum length of 5 ¼”.
   i. Stainless steel latch bolt.
j. Multiple Architectural finishes available including 612 (US10) and 626 (US 26D), finishes determined by Hardware Schedule.

k. All lockset must comply with the following certifications: UL 3 Hour Fire Rating, ANSI/BHMA A156.2 Series 4000 Grade 1, ANSI A117.1 Accessibility Code, ANSI/BHMA A156.115 or A156.115W Preparation.

B. Keys and Cylinders

1. Supply all keyed function locks with capability of accepting Medeco 31 series Large Format Interchangeable Core (LFIC). Mortise locks shall be provided with mortise cylinder housings that will accept Medeco 31 series 6-pin Large Format Interchangeable Core cylinders. Exit devices shall be provided with rim/mortise cylinder housings that will accept Medeco 31 series 7-pin Large Format Interchangeable Core cylinders. All keyed function locks to be supplied with LFIC housing, compatible with Medeco 31 series LFIC cylinders, less core. Approved mortise cylinder housings include Medeco part number 31-0175 (6 pin). Approved rim cylinder housings include Medeco part number 31-0153H (7 pin). Contact Access Services for any questions and/or clarifications.

2. Hardware supplier/Contractor to supply and install construction cores (Yale/Medeco 31 series type LFIC) to secure the building during construction.

3. Owner to provide permanent Medeco High Security cores (Medeco 31- series, 6-pin and 7-pin). The Contractor/Installer shall install permanent Medeco 31 series cores prior to building certificate of occupancy. Permanent Medeco 31 series cores and control key to be provided by Access Services.

4. Must contact Access Services for any questions and/or clarifications.

5. Finish to be determined by Hardware Schedule.

6. Hardware schedule to include following Medeco LFIC Housings, to be provided by hardware supplier:

   a. Rim Cylinder Housings 7-pin less core: 31-0153H Medeco Part Number
   
   b. Mortise Cylinder Housings 6-pin less core 31-0175 Medeco Part Number
c. Cams and Tailpieces to match and be compatible with specified lock/hardware manufacturer.

d. Mortise and Rim cylinder collars (when needed) to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes, example: Medeco part number 94-0188 x Finish. Finish to be determined by Hardware Schedule.

e. Mortise and Rim cylinder housing to be of proper length to engage hardware chassis/lock body locking mechanism and also not protrude excessively from escutcheons.

C. Heavy-duty mortise type.

D. Supply all locks with construction cylinders to secure the building until replaced by Owner with "Medeco" cylinders at job completion. All locks must accommodate "Medeco" cylinders.

E. Lock Throw: 3/4" minimum throw of latch and 1" minimum throw of deadbolt.

F. Trim: Cast lever and cast escutcheon, Schlage Lock Co. #03L on Schlage L 9000 series mortise locks and #06L on VonDuprin 996 panic hardware. (no substitutions).

G. Finish:


2. Remodel Projects: Match finish of existing hardware in adjacent areas.

2.3 DOOR CLOSERS:

A. Manufacturer:

1. LCN (no substitutions).

2. Closer Series is 4040XP

   a. Provide EDA arm (Extra Duty Arm) on parallel arm applications.

   b. Provide "CUSH" arm where required.
3. Through bolted on all doors unless otherwise directed by Owner.


5. Interior Doors: Delayed action and conform to UFAS requirements.

6. Flood Doors: Norton 5900 Series X-in Power Operator or LCN 9500 series with approval from Access Services

B. Size of Units:

1. Adjust closers to comply with the manufacturer's recommendations for size of door control unit, depending upon size of door, exposure to weather, wind conditions, and adjust for positive latching security doors.

2.4 EXIT DEVICES:

A. Manufacturer:

1. Von Duprin, Inc. (no substitutions).

2. Vertical rods shall be 9927 Less Bottom Rod for Wood Doors and 9947 Less Bottom Rod for Metal Doors requiring a fire rating with double door situation with no mullion. Exterior double doors with no mullion should receive maglocks as locking mechanism.

3. Series shall be Von Duprin #99 (or #33 if necessary).

B. Exit Device Dogging: Except on fire-rated doors, wherever closers are provided on doors equipped with exit devices, equip the units with Allen key dogging device to hold the push bar down and the latch bolt in the open position.

C. Fire Rated Exit Devices: Provide with U.L. Label showing listing for "Fire Exit Hardware."

D. Through-bolt on all doors including center cases, end cases, rod guides and latches.

2.5 DOOR TRIM, STOPS, AND HOLDERS:

A. Manufacturers:

1. Ives

2. Hager
3. Trimco
4. Rockwood
5. Quality
6. Master Manufacturers, Inc.
7. Glynn-Johnson
8. Approved substitute.

B. Door Stops:
   1. Locate in position to permit maximum door swing but not to present a hazard or obstruction.

C. Push/Pull Units and Kick Plates:
   1. Manufacturer's standard exposed fasteners.
   2. Through-bolted push/pull units for matched pairs, but not for single units.
   3. Trim Plates: .050" in thickness.
   4. Protection Plates (armor, kick, or mop): Minimum 2" less than door width on stop side and minimum 1/2" less than door width on pull side.
   5. Wheelchair Entries: Kick plates shall be a minimum 12" high and 3/8” from bottom of door.

D. Thresholds:
   1. Height and slope shall conform to ANSI A117.1 and UFAS requirements.
   2. Equip all exterior openings with flat corrugated thresholds, with abrasive surfaces.

E. Mullions:

PROVIDE SOLID BLOCKING IN WALLS FOR WALL MOUNTED STOPS TO PREVENT "PUNCH THROUGH" BY DOOR ACTION.
1. Tube Steel Removable Mullions shall conform to ANSI/BHMA A156.3

2. Removable steel mullion with malleable-iron top and bottom retainers and a primed paint finish. Provide keyed removable feature, stabilizers, and mounting brackets as specified in the Hardware Sets. At openings designed for severe wind load conditions due to hurricane or tornadoes, provide manufacturers approved mullion and accessories to meet applicable state and local windstorm codes.


4. Acceptable Manufacturers:
   a. Corbin Russwin Hardware (RU) – 700/900 Series
   b. Sargent Manufacturing (SA) – 980S Series
   c. Von Duprin (VD) – 9954/4954 Series
   d. Yale Locks and Hardware (YA) – M200 Series

F. Overhead Holders:

   Glynn Johnson 900 or 100 Series – No Substitutions

   1. Use surface mounted devices unless otherwise approved by the Owner.
   2. Through bolt mount on all doors unless otherwise approved by the Owner.
   3. Do not use devices with "hold-open" feature, electromagnetic or otherwise, for doors which are to be used for “airlock” vestibules (typically at exterior doors), or stairwells that serve as vestibules.

G. Automatic Flush Bolts and Coordinators:

   1. Do not use automatic flush bolts or coordinators unless otherwise approved by the Owner or required by Code.
2.6 DOOR STRIP UNITS:

A. Manufacturers:
   1. Pemko.
   2. Reese.
   4. Master Manufacturers, Inc.
   5. National Guard.
   6. Approved substitute.

B. Continuous Weatherstripping:
   1. At each edge of every exterior door leaf.
   2. At each edge of computer room doors.

C. Smoke Seal Applications: As required to meet all applicable codes.
   1. Provide National Guard No. 2525 or approved substitute.

2.7 FINISHES:

NOTE: USE OF NATIONAL GUARD NO. 2525 SMOKE SEAL ELIMINATES THE NEED FOR AUTOMATIC FLUSH BOLTS AND DOOR COORDINATORS, AND IS THE PREFERRED DESIGN SOLUTION.

B. Fasteners:
   1. Unless otherwise noted, use manufacturer's standard exposed fasteners for door trim units (kick plates, edge trim, viewers, knockers, mail drops, and similar units).
   2. Noncorrosive fasteners as recommended by manufacturer for application indicated.

C. Weatherstrip and Smoke Seals:
   1. Silicone rubber seal; vinyl not acceptable.
A. Match the finish of the locksets.

B. Closers: Finish to match door hardware (powder coated)

C. Thresholds and Weatherstrip Housing: Aluminum with natural aluminum finish.

D. Coordinate all the various manufactured items furnished on this work to ensure an acceptable uniform finish.

2.8 KEYING:

A. Final cylinders and keying shall be "Medeco" purchased by the Owner and installed by the Contractor.

2.9 AUTOMATIC DOOR OPERATORS:

A. Manufacturer:

   1. LCN-Pneumatic only (no substitutions). Power keyed cutoff switch (contact Access Services for type). Reference UCB Standards 08740, Part 2.1, B. 7981 ES or 7982ES

B. Handicap Accessibility Features: Design system to allow handicap access after-hours when building is secured. Provide devices which may be left turned on after-hours without causing damage or undue wear to the device or any other associated hardware. Use ES relay if integrated into electronic hardware.

C. Rod and Arm Assembly Shoes: Through bolt on all doors.

D. Wall Plate Actuators: 8310-856 Hardwired or 8310-844 & 8310-865

E. Card Reader Integration or Exterior Disable: Contact Access Services

2.10 ELECTRICALLY ACTIVATED PANIC HARDWARE:

A. Manufacturer:

   1. Von Duprin RX-EL99 or RX-EL33 with PS873x2 BB and EPT-10 (no substitution except at certain historical locations).

PART 3 – EXECUTION

A. Inspections:

   1. Adhere to all requirements in Section 08740, 3.2, A, B & D
END OF SECTION 08710