

## **SECTION 08710**

### **DOOR HARDWARE**

#### **PART 1 - GENERAL**

##### **1.1 PRODUCTS FURNISHED BUT INSTALLED UNDER OTHER SECTIONS**

- A. Templates and other installation data required prior to hardware delivery, or at fabricators located off the job site. Furnish in a timely manner per construction schedule.

##### **1.2 RELATED SECTIONS**

- A. Section 08110 - Steel Doors and Frames
- B. Section 08465 – Automatic Sliding Entrance Doors
- C. Section 08711 - Door Schedule
- D. Section 08911 - Aluminum Curtain and Window Walls
- E. Section 13710 – Access Control System

##### **1.3 APPLICABLE PUBLICATIONS**

- A. Publications listed below form a part of this Specification. Publications may be referred to in the text by basic designation only. In case of conflict the most stringent shall govern:
  1. Underwriters Laboratories, Inc. (UL) - Fire Resistance Index, and Building Materials Directory.
  2. National Fire Protection Association (NFPA) - Standard for Fire Doors and Windows, No. 80.
  3. American National Standards Institute/Builders Hardware Manufacturers Association (ANSI/BHMA) A156 series as specified.
  4. American Society of Testing and Materials (ASTM) ASTM D1056 - Specification for Flexible Cellular Materials - Sponge or Expanded Rubber.
  5. ASTM D2497 - Tolerances for Man-Made Organic Base Filament Single Yarns.
  6. Americans with Disabilities Act (ADA) Accessibility Guidelines (ADAG).

##### **1.4 PERFORMANCE REQUIREMENTS**

- A. When manufacturer and model number is given, it shall be used to establish minimum equivalent technical data and performance requirements for other manufacturers unless "no substitute" is specified.
- B. Substitutions per Specification Section 01600 – Material and Equipment.

##### **1.5 FIRE RESISTIVE OPENINGS**

- A. When a fire-resistive classification is scheduled, provide hardware compatible with the Underwriters Laboratories (UL), Warnock Hersey or other testing agency approved by building authority listed for condition of use required by the opening assembly.

- B. Entire opening assembly shall be compatible and function in compliance with the Uniform Building Code (UBC) Standard 7-2 as amended by local building authority.

#### **1.6 SUBMITTALS**

- A. Samples may be required for any proposed alternatives to hardware listed to establish equivalency. Samples will be returned after inspection.
- B. List manufacturers, model numbers, key schedule, and location and mounting heights of hardware in completed work. Use Contract Document door designations. Provide abbreviation legend for abbreviations used.
- C. Manufacturer's certificate that fire rated hardware meets specified requirements.
- D. Manufacturer's descriptive literature for each different item.
- E. Vertically schedule (list) each door opening separately. Use Contract Document door designations.
- F. Maintenance-Adjustment Manuals and parts list with name and telephone number of stock location.
- G. Indicate location of closers on doors and frames.
- H. Supply templates to door and frame manufacturers, to enable proper sizing and locations of cut outs and reinforcements for hardware.
- I. Manufacturers experience qualification.

#### **1.7 QUALITY ASSURANCE**

- A. Manufacturers: Companies specializing in commercial building hardware in the U.S. for the past 5 years minimum.

#### **1.8 MANUFACTURER ASSISTANCE**

- A. Provide assistance of the finish hardware supplier representative knowledgeable in the system specified for the following meetings in Anchorage, Alaska.
  - 1. Final Installation and adjustment and maintenance of Door Hardware: Minimum 8 hours.

#### **1.9 PACKAGING AND MARKING**

- A. Single group of hardware packaged separately for each opening complete with all necessary accessories, fasteners, and templates.
- B. Mark each package with group numbers corresponding to the approved hardware schedule identifying its contents and location in the completed work.

#### **1.10 DELIVERY AND STORAGE**

- A. Hardware shall be checked upon arrival to job site and acceptance verified by the DEPARTMENT Representative in writing.

- B. Hardware shall be adequately protected from corrosion and pilferage until acceptance of building.

#### **1.11 MAINTENANCE ACCESSORIES**

- A. Provide special field adjustment and maintenance tools, such as special screwdrivers and wrenches, and dogging keys for each different item supplied.

#### **1.12 EXTRA HARDWARE**

- A. For subsequent repair and maintenance by DEPARTMENT provide hardware matching that installed in new work.
  1. 2 door closers.
  2. 2 locksets. (Office entry function).
  3. 1 rim exit device.
  4. 2 door sets of weather stripping.

### **PART 2 - PRODUCTS**

#### **2.1 GENERAL**

- A. Provide items as listed in schedule and as specified for "Typical" door installations. If not scheduled or noted, provide specified items for each hardware group.

#### **2.2 FINISHES**

- A. Exterior: ANSI A156.18 No. 630 Satin Stainless Steel (US 32D Stainless Steel, satin finish)
- B. Interior: ANSI A156.18 No. 652 Satin Chrome plated (US 26D Brushed Chrome).
- C. Matte Aluminum paint for door closers.
- D. Mill finish aluminum for weatherstrip and seal moldings.
- E. Exit Devices: Clear anodized aluminum body with brushed stainless steel touch bar.

#### **2.3 MOUNTING ACCESSORIES**

- A. Screws, bolts, escutcheons, brackets and similar supplemental items as necessary and recommended by manufacturer for conditions of use for complete functional use. Provide stainless steel fasteners which are compatible with both hardware and substrate which will not cause dissimilar metal corrosion. Mount surface hardware on doors with shouldered thru-bolts.

#### **2.4 HINGES (TYPICAL)**

- A. Full mortise, plated steel with steel pins at interior, stainless steel with stainless steel pins at exterior: Stanley, Hager, McKinney or Lawrence.
- B. Heavy weight hinges not less than 0.180 inches thick on exterior doors, doors over 3 feet wide, and doors over 100 pounds.

- C. Standard weight hinges not less than 0.134 inches thick on interior doors three feet and less in width.
- D. Doors up to 7 feet high shall have 3 hinges.
- E. Use ball bearing hinges on doors with closers.
- F. Hinges on lockable doors shall have non-removable pins secured with setscrew in barrel or other method tamperproof when door is closed.
- G. Width of hinges shall be sufficient to clear trim detail conditions and provide up to 180-degree door swing or until door returns to adjacent wall.
- H. 4-1/2 inch minimum height of hinges. For doors over 3 feet wide use 5-inch high hinges.

## **2.5 MORTISE LOCKSETS**

- A. Heavy duty commercial mortise type ANSI A156.13 Grade I operational of one manufacturer and design: Corbin Russwin ML2000 Series or equivalent Sargent 8100, or equivalent Schlage L series with threaded cylinder enclosure ready to receive DEPARTMENT provided MEDECO 6-pin biaxial interchangeable key core specified in KEYING.
- B. Backset 2-3/4 inch.
- C. 3/4-inch latch throw. Provide locking doors with auxiliary latch. Dead bolts not allowed.
- D. Operating Handles: approximately 4-1/2-inch cast lever handle curved to within 1/2 inch of door face with wrought 7-1/2 by 2-1/4 inch escutcheon trim plate. Knurled or abrasive coating at outside of utility, mechanical and electrical rooms.
- E. UL listed for use on fire resistive doors.
- F. Boxed strike with extended curved lip to fit jamb.

## **2.6 KEYING**

- A. DEPARTMENT will provide MEDECO 6-pin biaxial interchangeable key core for locks and exit devices. Contractor shall provide cylindrical threaded lock housing that will accept this core for each lock provided.
- B. DEPARTMENT will provide MEDECO interchangeable "construction" key cores and 20 construction keys. A cash deposit refunded upon return of construction keys will be charged. At completion acceptance of work DEPARTMENT will provide and install permanent key cores and keys.

## **2.7 CLOSERS (TYPICAL)**

- A. UL and UBC 7-2 positive pressure fire listed cast iron shell with steel rack and pinion-piston type surface mount rectangular enclosure non-handed, field adjustable for interior and exterior doors to 48 inch wide rated for heavy duty high-use by manufacturer for conditions of use: LCN 4041, or equivalent Norton, or Corbin Russwin.

- B. Adjustable closing speed, 3 second maximum from 70 degrees to 3 inches from the latch for accessible use separate adjustable latching speed and separate adjustable back check.
- C. 5-pound adjustable maximum opening pressure on interior non-fire rated doors.
- D. Through mounting bolts with spacers or sex bolts and mounting bracket adaptors as necessary for door and frame conditions. Special extra clearance mount arms so that weather striping and sound seals and smoke seals are not cut, and clearance is provided for overhead stays and coordinators. Mount closer on inside of exterior doors, and room side of corridor doors.
- E. Fire resistant and low temperature fluid for satisfactory operation to 30 degrees F and no permanent damage if subjected to minus 30 degrees F.
- F. Closers may be regular arm type or heavy-duty parallel arm type as required for mounting on room side of corridor doors and inside of exterior door.
- G. Full metal cover.
- H. Closer mounting appurtenances shall permit door to open as far as construction permits.

## 2.8 EXIT DEVICES

- A. Horizontal Surface Touch Bar: Von Duprin 98 Series or as approved.
  - 1. Rim or vertical surface rod type as scheduled.
  - 2. Electric Mortise Lock: Remote lock and unlock without retracting latch bolt on security doors: Von Duprin E7500.
  - 3. Outside Trim on Pull Side: Round bar lever handle operation with vandal resistant breakaway or free wheeling feature and key cylinder lock. Lever handle curved to within ½ inch of door face: Von Duprin No. 03. Key unlocks and locks lever.
  - 4. Vertical rod and latch guard: protects bottom rod from impacts stainless steel: Von Duprin RG-27 or as approved.
  - 5. UL listed as accident – panic and fire hardware.
  - 6. Keying: DEPARTMENT provided cylinder as specified in KEYING.
  - 7. Roller strike plate.
  - 8. Shims as necessary over vision light moldings.
  - 9. Self-contained “request to exit” signal switch – on security doors.
  - 10. Self-contained signal switch monitoring touch bar and latch bolt – on security doors.
  - 11. Self-contained electric latch retraction.
  - 12. Self-contained delayed exit device and associated electrical accessories for controlled egress.
- B. Operation:
  - 1. When exit device is operated, alarm will sound along with rapid flashing of indicator light. Push pad will remain in locked state for predetermined period of delay. After delay period, push pad will unlock allowing retraction of latch bolt permitting egress.
  - 2. Time delay shall be factory set to 15 seconds.
  - 3. Depression of exit device for more that 2 seconds shall signal internal audible alarm. Momentary depression of exit shall not operate delayed release or signal alarm in order to eliminate nuisance alarms from casual touches.
  - 4. Connect to fire alarm system to automatically release lock when fire alarm is active.
- C. Control unit operating modes:

1. Emergency safe exit mode where door is immediately released and alarm sounded upon safety alarm or power failure. System shall be manually reset.
  2. Secure mode with alarm and conditional release: When exit device is operated, alarm sounds and electromagnetic lock is activated to hold door closed for 15-second delay. Alarm shall be manually reset.
  3. Authorized exit mode: Authorized exit through use of card reader allows release of door without sounding alarm.
  4. Acceptable manufacturer: Von Duprin "Chexit" or approved equal.
- D. Provide with interface control module, power supply and other accessories needed for proper operation.
1. 24 VDC 2 amp/12 VDC 4 amp, regulated, UL listed, power supply with keylock and batter backup (2 hours minimum).
  2. 19 gage steel housing.
  3. Acceptable manufacturer: Von Duprin PS873-BK or approved equal.

## **2.9 AUTOMATIC FLUSH BOLTS**

- A. Concealed mortise type for door pairs inactive leaf: top and bottom bolts: Door controls INC 800 series, Trimco 3800 Series, or Glynn-Johnson FB 30/40.
1. U.L. Listed for fire doors.
  2. Strikes to fit jambs detailed. Dust proof floor strike.

## **2.10 AUTOMATIC DOOR COORDINATOR**

- A. U.L. listed for fire doors, for door pairs with astragal, to ensure inactive door closes prior to active door stop mount rectangular bar type with filler: Door Controls International 600 Series, Hager 279, Trimco 3094, or Glynn-Johnson COR.

## **2.11 EXIT DEVICE SIGN**

- A. Sign reading: "EMERGENCY EXIT-KEEP PUSHING THIS DOOR WILL OPEN IN 15 SECONDS. ALARM WILL SOUND." Sign lettering shall be at least 1-inch high with minimum stroke width 1/8 inch.
- B. Sign material shall be non-glare light colored letters on dark background vinyl adhesive applied film.
- C. Install above and within 12-inches of each delayed device on door.

## **2.12 ASTRAGAL**

- A. Provide for door pairs with fire rating over 20 minute: U.L. listed 2 inch by 3/16 inch steel astragal, prime painted: Pemko 357SP or equivalent Stanley or Zero.
- B. Door pairs without fire rating: "T" shaped concealed screw attach with pile sound seal: Pemko 355 or equivalent Stanley or Zero.

## **2.13 BALANCED MAGNETIC SWITCH**

- A. Balanced magnetic type switches signals door position.

- B. Device shall consist of two units mounted adjacent to each other in door and frame.
  - 1. Switch unit: Doorframe mounted containing magnetic switch.
  - 2. Magnet unit: Door mounted, containing permanent magnet.
- C. Acceptable manufacturer; Sentrol 2767 High Security or approved equal.

#### **2.14 ELECTROMAGNETIC LOCKS**

- A. Concealed into jamb shear type, comply with ANSI 156.23 UL listed, 12 volt, beveled edge. Provide type to accommodate door application:
  - 1. Single door application; Vertical mount; Acceptable manufacturer: Von Duprin SL4120 Series RC12 or approved equal.
  - 2. Double door application; Horizontal mount; Acceptable manufacturer: Von Duprin SL4110 Series RC12
- B. Holding force: 1775 pounds.
- C. Provide with interface control module, power supply and other accessories needed for proper operation.
  - 1. 24 VDC 2 amp/12 VDC 4 amp, regulated, UL listed, power supply with keylock and battery backup (2 hours min.)
  - 2. 19 gage steel housing.
  - 3. Acceptable manufacturer: Von Duprin PS873-BK or approved equal.

#### **2.15 ELECTRICAL POWER TRANSFER (EPT)**

- A. Electric power transfers compatible with hardware being installed, electrical requirements, and access control functions. Transfers transfer electrical current and signal from frame to door.
- B. Type: Door/frame mount. Unit shall be completely concealed when door is in the closed position. 180-degree door swing, 10 conductor, 24 gage, 1 amp Von Duprin EPT-10, or approved equal.

#### **2.16 ELECTRIC STRIKES**

- A. Allow release of locked door without retracting latch bolt through release of electric strike lip. When door closes, latch bolt rides up over lip and secures in pocket.
- B. Compatible with 3/4 inch latch bolt throw.
- C. UL listed for fire and Burglary-Resistant Electric Strike Doors.
- D. Fail secure feature (FSE): On loss of power, strike is locked.
- E. Voltage: 12 VDC
- F. Gold plated contacts for low current operation.
- G. Mounting:
  - 1. Jamb mount for use with mortise lock without deadbolt; Acceptable manufacturer: Von Duprin 6213 FSE with monitor switch option, or approved equal.

2. Door mount for use without deadbolt, Acceptable manufacturer: Von Duprin 6223 FSE with monitor switch option, or approved equal.
- H. Provide with interface control module, power supply and other accessories needed for proper operation.
1. 24 VDC 2 amp/12 VDC 4 amp, regulated, UL listed, power supply with keylock and battery backup (2 hours min.)
  2. 19 gage steel housing.
  3. Acceptable manufacturer: Von Duprin PS873-BK or approved equal.

### **2.17 MANUAL FLUSH BOLTS**

- A. Mortise extension lever type UL listed for fire door 12-inch minimum extension length per ANSI A156.16 type L 04081.
- B. Install in pairs, 1 at top and 1 at bottom.
- C. Dustproof floor strike, use wood, concrete, or threshold type floor installation as required.

### **2.18 DOOR KICK AND ARMOR PROTECTION PLATES**

- A. Satin finish stainless steel, at least 0.05 inch thick and 2 inches less than door width, or as required to fit special door seals per ANSI A156.6.
- B. Kick plates: 10 inches high.
- C. Mop plates: 4 inches high.
- D. Armor plates: 40 inches high.
- E. Provide 1 kick plate at push side of door for all doors with closers and when scheduled. When kick plate is scheduled together with armor plate install on pull side. Kick plates both sides scheduled as "2 kick plates".

### **2.19 PUSH PLATE**

- A. Satin finish stainless steel 15 inch by 6 inch by 1/8 inch cut out for cylinder where scheduled, beveled 4 sides with square corners per ANSI A156.6. Attachment screws to match plate finish.

### **2.20 PUSH BAR**

- A. 1 inch round solid stainless steel bar 90 degree end return 2 inch projection by 3-1/2 inch less than door width: per ANSI 156.6 type J501.

### **2.21 DOOR PULL**

- A. 1 inch round solid stainless steel bar 90 degree end return 2-1/4 inch projection by 10 inch center to center long through bolt per ANSI A156.6 type J401.
- B. Mount on stainless steel 15 inch by 3 inch by 1/8 inch ANSI A156.6 plate. Cut out for cylinder where scheduled.

## **2.22 DOOR STOPS**

- A. Provide for all doors, preventing knobs, lever handles and pulls from striking wall surfaces or other doors. Provide floor stops where wall stops not possible. Not required when overhead door stay scheduled.
  - 1. Wall stops: 2-3/8 inch round resilient-rubber: with metal mount screw attach: ANSI A156.16 grade 1, type L0210.
  - 2. Floor stops: Metal-rubber: dome type screw and peg attach: ANSI A156.16 Grade 1, Type L0216 as necessary for door and floor construction.

## **2.23 DOOR HOLDERS**

- A. Door surface mount, plunger type, with rubber tip per ANSI A156.16 type L01411.

## **2.24 THRESHOLDS (TYPICAL)**

- A. Exterior: Extruded aluminum full width single piece at exterior doors. 6 inch by 1/2 inch with anti-slip fluted top in accord with ANSI/BHMA A156.21: J32130, Pemko 172A or equivalent Zero or Reese.
- B. Interior: Extruded fluted aluminum full width single piece at fire-rated doors. Not required at 20-minute doors. 2-1/2 inch by 5/16 inch Pemko 166A or equivalent Zero or Reese. Use carpet separator threshold specified below where carpet occurs on both sides of fire rated door, and at exterior vestibules.
  - 1. Carpet Separator Threshold: Extruded aluminum full width single piece 4 inch wide by 7/16 inch high saddle with fluted top in accord with ANSI/BHMA A156.21 J32140: Pemko 2364A or equivalent Zero or Reese.
  - 2. Carpet-to-vinyl, carpet-to-concrete, and vinyl-to-concrete separator threshold: Extruded aluminum full width single piece 2-1/2 inch wide by 3/8 inch high saddle with fluted top and offset in accord with ANSI/BHMA A156.21 J32180: Pemko 174C or equivalent Zero or Reese.

## **2.25 WEATHERSTRIPPING**

- A. Dense layered plastic bristle brush weatherstrip. Install at exterior doors and interior vestibule doors. Brush fibers fused into place, flexible at minus -30 degrees F. held in extruded aluminum holder-mount with pre-punched pre-slotted holes for mounting with screws. Mount on inside warm face. ANSI and Sealeze Corporation numbers listed, equivalent Pemko, or Zero acceptable.
- B. Full-length single piece.
- C. U.L. listed when used on fire doors.
- D. Door Top and Side Jambs: 40 to 45-degree angle mount, 3/8 inch brush ANSI R3A36 Sealeze J140.
- E. Door Bottom: 1-inch brush; ANSI R3A415 and Sealeze D480.
- F. Paired Doors Meeting Rails: 1/2-inch brush; ANSI R3A635 and Sealeze C380.

- G. Manufacturers standard pile or nylon brush weatherstripping is acceptable for aluminum doors. Coordinate with door manufacturer.

## **2.26 SMOKE SEALS**

- A. 1/4-inch compressible silicone rubber bulb seal ANSI R0E154, self-adhesive mount to door head and side jambs. Install at 20-minute smoke rated and at fire door assemblies.
  - 1. UBC Standard 7-2 positive pressure tested for fire rated assemblies.
  - 2. Pemko S88 - Silicone Seal, black color, or approved.
  - 3. Pemko 305DN overlapping neoprene at door pair meeting rails.

## **2.27 (DESIGN MEMO 36)FIRE DEPARTMENT KEY BOX**

- A. Hardened steel plate recessed in wall approximately 7 inch W by 7 inch H by 5 inch D double entry lock, neoprene weather seal, dark bronze color: KNOX 4400-R telephone 800/552-5669 or equal as approved by Fire Department.
- B. Build into exterior wall near main entry where directed by DEPARTMENT.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine the DRAWING details and field conditions for defects that will adversely affect the work, and for deviations beyond allowable tolerances.
- B. Beginning of installation shall mean acceptance of the interfacing surfaces as capable of producing an acceptable job.

### **3.2 SOLID BACKING**

- A. Provide within structure and doors for hardware mounting, including wall doorstops and closers. Coordinate as required during construction. Provide special mounting accessories, built-in if required.

### **3.3 MOUNTING LOCATION**

- A. Per ADAG, approved submittals, manufacturer's standard practice and coordinated with door and frame manufacturers.
- B. Closers shall be mounted on least trafficked side of door, i.e.: Mount on boiler side of corridor to boiler room door. Mount closers on interior side of exterior doors and on room side of corridor doors.
- C. Mount resilient weatherstrip on inside of door assembly to form vapor retarder.
- D. Other Mounting Shall Be As Follows:
  - 1. Wall DoorStop: lockset handle to strike center of stop.
  - 2. Exit Device Operating Bar: 37 inches from finished floor to center.
  - 3. Pull Plates: 42 inches from finished floor to center 5-inch backset to center of push and pulls.

### **3.4 INSTALLATION**

- A. In accord with applicable ANSI standards, approved submittals, the manufacturer's written instructions and ADAG for the conditions of use. Install closers and closer arm with bolts through doors and frames.
- B. Do not install surface mounted items until finishes are completed on substrate. Coordinate as necessary. Remove hardware after fitting if necessary for painting and reinstall.
- C. Apply exterior hardware with gaskets or in continuous silicone sealant bed specified in Section 07920 - Joint Sealants. Do not cut weatherseal at closers.
- D. Electrical device installation:
  - 1. Perform work in accord with National Electrical Code as amended locally using applicable portions of Division 16 – Electrical.
  - 2. Coordinate exact location for electrical power and control wiring connections.
  - 3. Verify electrical power and control is operative.

### **3.5 FINAL ADJUSTMENT**

- A. Per manufacturer's written instructions, including cleaning and lubrication and to meet ADAG.
- B. Adjust doors, compensating for completed, operating heating system. Latches and bolts shall engage keepers in latched position and not rattle.
- C. Doors with closers shall close and latch without assistance.
- D. Doors shall open and close smoothly and easily with 1 hand. Weather-strips, smoke gaskets, and sound seals shall be in continuous contact in latched position.

### **3.6 CLEANING**

- A. Remove shipping labels and leave hardware surfaces clean.

### **3.7 TYPICAL HARDWARE GROUPS**

- A. Provide 1 set for each opening.
- B. Provide typical items such as hinges, thresholds and weatherstrips as specified under "Products" and as shown on DRAWINGS for each set.
  - 1. Provide unique items such as locksets and closers according to Door Hardware Schedule. ANSI A156.13 (mortise locks) lock functions listed.
    - a. F01 "Passage" function: Latch bolt operated by lever from either side at all times.
    - b. F04 "Entry" function: Latch bolt operated by lever either side except when outside lever is made inoperative by toggle on case strike face; when outside lever locked, latch bolt is retracted by Key outside or by operating lever inside. Auxiliary dead latch, no deadbolt.
    - c. F07 "Storeroom" function: Latch bolt operated key outside or by lever inside. Outside lever always inoperative. Auxiliary dead latch, no deadbolt.
    - d. F22 "Privacy" function: Latch bolt operated by lever from either side except when locked by turn inside and by emergency release from outside.

- C. Include any special maintenance adjustment tools necessary.
- D. Refer to DRAWINGS and Door Schedule for locations and details. "Security 1, etc." Coordinate with Section 13710 – Access Control System and DRAWINGS X701 and X702.

### 3.8 DOOR HARDWARE SCHEDULE

1. Hardware Group 1 – elev, sto, chase, shaft
  - 1 Lockset FO7 Storeroom Function
  - 1 Closer
  - 1 Mag Switch
  - 1 Kickplate – no plate on Level 4
2. Hardware Group 2, **Security 4 or Security 11** – exit, corr, into stairs
  - 1 Rim Exit Device
  - 1 Closer
  - 1 Mag Switch
  - 1 Power Transfer
3. Hardware Group 3, **Security 11** – stair, hall
  - 1 Rim Exit Device
  - 1 Closer
  - 2 Kickplates - no plates on aluminum doors
4. Hardware Group 4 – pair – hall, fan-to-fan
  - 1 Lockset FO7 Storeroom Function
  - 1 Closer
  - 1 Pair Manual Flush Bolts
  - 4 Kickplates
  - 2 Door holders
5. Hardware Group 5 – hall to toilet
  - 1 Lockset F22 Privacy Function
  - 1 Closer
  - 2 Kickplates
6. Hardware Group 6 – shower, toilet
  - 1 Lockset F22 Privacy Function
  - 2 Kickplates
7. Hardware Group 7 – break room, ATO, office, lounge
  - 1 Lockset FO4 Entry Function
  - 1 Closer
  - 1 Door holder where not fire rated
  - 2 Kickplates

8. Hardware Group 8 – Pair, **Security 2** – hall to sto, bag to PPO, recycle vest
  - 1 Lockset FO7 Storeroom Function
  - 2 closers
  - 1 Pair auto flush bolts
  - 1 Auto coordinator
  - 1 Electric strike (inactive leaf)
  - 1 Power transfer
  - 2 Mag switches
  - 1 Astragal
  - 2 Kickplates – no plates on Level 4
9. Hardware Group 9 – **Security 3** – hall to MDF, elev, PPO, Jan
  - 1 Lockset FO7 Storeroom Function
  - 1 closer
  - 1 Electric strike FSE
  - 1 Mag switch
  - 1 Kickplate – no plate on Level 4
10. Hardware Group 10, vest to Fan
  - 1 Lockset FO4 Entry Function
  - 1 Closer
  - 1 Pair Manual Flush Bolts
  - 4 Kickplates
  - 2 Door holders
11. Hardware Group 11, access door
  - 1 Lockset FO7 Storeroom Function
12. Hardware Group 12, Pair **Security 2** – exit opening
  - Reuse existing hardware
  - Add:
    - 1 Electric Strike (inactive leaf)
    - 2 Mag switches
    - 1 Power transfer
13. Hardware Group 13, Pair – hall to sto
  - 1 Lockset FO4 Entry Function
  - 2 Closers
  - 1 Astragal
  - 1 Pair Auto Flush Bolts
  - 1 Auto coordinator
  - 2 Kickplates
14. Hardware Group 14, **Security 5** – into bag, hall into vest
  - 1 Lockset FO4 Entry Function
  - 1 Closer
  - 1 Electromag lock
  - 1 Mag Switch
  - 2 Kickplates
15. Hardware Group 15 – bag to ramp exterior
  - 1 Lockset FO4 Entry Function
  - 1 Closer
  - 2 Kickplates

- 16. Hardware Group 16, **Security 3** – exterior, hall to Airline
  - 1 Lockset FO4 Entry Function
  - 1 Closer
  - 1 Electric strike FSE
  - 1 Mag switch
  - 2 Kickplates
  
- 17. Hardware Group 17 – **Security 7**
  - 2 Exposed Rod Exit Devices
  - 2 Closers
  - 2 Mag Switches
  - 2 Electromag Locks
  - 2 Power Transfers
  - 2 Armor Plates
  - 2 Kickplates
- 18. Hardware Group 18 - **Security 6**
  - 1 Rim Exit Device
  - 1 Closer
  - 1 Electromag Lock
  - 1 Power Transfer
  - 1 Mag switch
  - 1 Kickplate
- 19. Hardware Group 19 – chase closet, sprink cab
  - 1 Lockset FO7 Storeroom Function
  - 1 Kickplate
- 20. Hardware Group 20 – Double – 2-way hall
  - 2 Rim Exit Devices
  - 2 Push plates
  - 2 Closers
  - 4 Kickplates
- 21. Hardware Group 21, Pair, **Security 8** –into staging, elev to ATO
  - 1 Lockset FO4 Entry Function
  - 2 Closers
  - 2 Electromag locks
  - 1 Pair Auto flush bolts
  - 1 Auto coordinator
  - 2 Mag switches
  - 1 Astragal
  - 4 Kickplates
- 22. Hardware Group 22 – stair out
  - 1 Rim Exit Device
  - 1 Closer
  - 1 Kickplate – no plate on aluminum doors
- 23. Hardware Group 23, Pair, **Security 1** – hall out
  - 2 Exposed Rod Exit Devices
  - 2 Closers
  - 2 Electromag Locks
  - 2 Power Transfers
  - 2 Mag Switches
  - 2 Kickplates

- 24. Hardware Group 24, **Security 10** – gate to stair
  - 1 Rim Exit Device
  - 1 Closer
  - 1 Mag Switch
  - 1 Power transfer
  - 2 Kickplates
- 25. Hardware Group 25, **Security 9** – Load bridge to gate
  - 1 Rim Exit Device
  - 1 Closer
  - 1 Electric Strike FSE
  - 1 Mag Switch
- 26. Hardware Group 26, Aluminum – Skycap
  - 1 Lockset FO4 Entry Function
  - 1 Closer
- 27. Hardware Group 27, **Security 6** - mid stair, hall to stair
  - 1 Rim Exit Device
  - 1 Closer
  - 1 Electromag Lock
  - 1 Power Transfer
  - 1 Mag Switch
  - 2 Kickplates
- 28. Hardware Group 28, **Security 5** – onto roof, hall to aisle
  - 1 Lockset FO4 Entry Function
  - 1 Closer
  - 1 Electromag Lock
  - 1 Mag Switch
  - 1 Kickplate – no plate on Level 4
- 29. Hardware Group 29, Pair – roof mech replace
  - 1 Lockset FO7 Storeroom Function
  - 1 Pair Manual flush bolts
  - 2 Door holders
- 30. Hardware Group 30, Pair, **Security 8** – no fire rate – onto roof chiller
  - 1 Lockset FO4 Entry Function
  - 1 Electromag Lock (active leaf)
  - 1 Pair Manual flush bolts
  - 1 Power Transfer
  - 2 Mag Switches
  - 2 Kickplates
- 31. Hardware Group 31, **Security 3** – roof into stair
  - 1 Lockset FO7 Storeroom Function
  - 1 Closer
  - 1 Electric Strike FSE
  - 1 Mag Switch
- 32. Hardware Group 32, fire rated – RR Tunnel
  - 1 Rim Exit Device
  - 4 Hinges
  - 1 Closer
  - 1 Kickplate

**END OF SECTION**