

## SECTION 087100

### DOOR HARDWARE

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions of Division 01 Specification Sections, apply to this Section.

##### 1.2 SUMMARY

- A. This Section includes items known commercially as door or finish hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.
- B. This Section includes the following, but is not necessarily limited to:
  - 1. Door hardware, including electric hardware.
  - 2. Storefront and Entrance door hardware.
  - 3. Gate hardware.
  - 4. Card reader access control devices.
  - 5. Low-energy automatic operators, including sensors and actuators.
  - 6. Wall-mounted electromagnetic hold-open devices.
  - 7. Thresholds, gasketing and weather-stripping.
- C. Related Sections: The following sections are noted as containing requirements that relate to this Section, but may not be limited to this listing.
  - 1. Section 081113 - Hollow Metal Doors and Frames.
  - 2. Section 081416 - Flush Wood Doors.
  - 3. Section 083473 - Sound Control Door Assemblies.
  - 4. Section 084128 - Interior Entrances and Storefronts.
  - 5. Division 28 Sections - Access Control & Fire/Life-Safety Systems.

##### 1.3 REFERENCES

- A. 2019 California Building Code, CCR Title 24, Part 2
- B. BHMA - Builders' Hardware Manufacturers Association
- C. DHI - Door and Hardware Institute
- D. NFPA - National Fire Protection Association.
  - 1. NFPA 80 - Fire Doors and Other Opening Protectives
  - 2. NFPA 105 - Smoke and Draft Control Door Assemblies
- E. UL - Underwriters Laboratories.

1. UL 10C - Fire Tests of Door Assemblies
2. UL 305 - Panic Hardware

F. WHI - Warnock Hersey Incorporated

G. SDI - Steel Door Institute

#### 1.4 SUBMITTALS & SUBSTITUTIONS

- A. General: Submit in accordance with Conditions of the Contract and Division 01 Specification sections.
- B. Submit product data (catalog cuts) including manufacturers' technical product information for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
- C. Submit electronic PDF copies of schedule organized vertically into "Hardware Sets" with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:

1. Include a Cover Sheet with:

- a. Job Name, location, telephone number.
- b. Architects name, location and telephone number.
- c. Contractors name, location, telephone number and job number.
- d. Suppliers name, location, telephone number and job number.
- e. Hardware consultant's name, location and telephone number.

2. Job Index information included:

- a. Numerical door number index including; door number, hardware heading number and page number.
- b. Complete keying information (referred to DHI hand-book "Keying Systems and Nomenclature"). Provision should be made in the schedule to provide keying information when available; if it is not available at the time the preliminary schedule is submitted.
- c. Manufacturers' names and abbreviations for all materials.
- d. Explanation of abbreviations, symbols, and codes used in the schedule.
- e. Mounting locations for hardware.
- f. Clarification statements or questions.
- g. Catalog cuts and manufacturer's technical data and instructions.

3. Vertical schedule format sample:

Heading Number 1 (Hardware group or set number - HW Group #1)						
(a) 1 Single - Door #101 - Corridor 101 to Exterior			(b) 90°	(c) RH		
(d) 3'-0" x 7'-0" x 1-3/4" - Wood Door x Hollow Metal Frame - 20 Minute						
(e) 1.	(f) 3 ea	(g) Hinges -	(h) 5BB1 4.5 x 4.5 NRP	(i) 1/2 TMS	(j) 630	(k) IVE
2.	1 ea	Lockset -	ND80P6D x RHO x RH x	10-025 x JTMS	626	SCH

3.	1 ea	Closer - 4040XP x EDA x TBSRT	689	LCN
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- (a) Single or pair of doors with opening number and location.
- (b) Degree of opening.
- (c) Hand of door(s).
- (d) Door/frame dimensions and material; Label requirements, if any.
- (e) Hardware item line # (Optional).
- (f) Quantity.
- (g) Product description.
- (h) Product part number.
- (i) Fastenings and other pertinent information.
- (j) Hardware finish codes per ANSI/BHMA A156.18.
- (k) Manufacturer abbreviation.

- D. Make substitution requests in accordance with Division 01. Substitution requests must be made prior to bid date. Include product data and indicate benefit to the project. Furnish samples of any proposed substitution.
- E. Wiring Diagrams: Provide product data and wiring and riser diagrams for all electrical products listed in the Hardware Schedule portion of this section.
- F. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.
- G. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- H. Furnish as-built/as-installed schedule with close-out documents, including keying schedule and transcript, wiring/riser diagrams, manufacturers' installation and adjustment and maintenance information.
- I. Fire Door Assembly Testing: Submit a written record of each fire door assembly to the Owner to be made available to the Authority Having Jurisdiction (AHJ) for future building inspections.
- J. LEED Certification Points: Submit information and certifications necessary to achieve maximum points for LEED certification; coordinate and cooperate with Owner and Architect in providing information necessary for required LEED rating.

### 1.5 QUALITY ASSURANCE

- A. Obtain each type of hardware (latch and lock sets, hinges, closers, exit devices, etc.) from a single manufacturer.
- B. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this project and that employs an experienced architectural hardware consultant (AHC) who is available to Owner, Architect, and Contractor, at reasonable times during the course of the Work, for consultation.
  - 1. Responsible for detailing, scheduling and ordering of finish hardware.
  - 2. Meet with Owner to finalize keying requirements and to obtain final instructions in writing.

3. Stock parts for products supplied and are capable of repairing and replacing hardware items found defective within warranty periods.
- C. Hardware Installer: Company specializing in the installation of commercial door hardware with five years documented experience.
- D. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and tested by UL or Warnock Hersey for given type/size opening and degree of label. Provide proper latching hardware, door closers, approved-bearing hinges and seals whether listed in the Hardware Schedule or not.
  1. Where emergency exit devices are required on fire-rated doors, (with supplementary marking on doors' UL labels indicating "Fire Door to be Equipped with Fire Exit Hardware") provide UL label on exit devices indicating "Fire Exit Hardware".
- E. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.
- F. Product packaging to be labelled in compliance with CA Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. Coordinate delivery of packaged hardware items to the appropriate locations (shop or field) for installation.
- B. Hardware items shall be individually packaged in manufacturers' original containers, complete with proper fasteners. Clearly mark packages on outside to indicate contents and locations in hardware schedule and in work.
- C. Provide locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, etc.
- D. Contractor to inventory door hardware jointly with representatives of hardware supplier and hardware installer until each all are satisfied that count is correct.

#### 1.7 WARRANTY

- A. Provide warranties of respective manufacturers' regular terms of sale from day of final acceptance as follows:
  1. Locksets: Ten (10) years.
  2. Closers: Thirty (30) years.
  3. Automatic Operators: Two (2) years.
  4. Exit devices: Three (3) years.
  5. Electronic: One (1) year.
  6. All other hardware: Two (2) years.

1.8 MAINTENANCE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

1.9 PRE-INSTALLATION CONFERENCE

- A. Convene a pre-installation conference at least one week prior to beginning work of this section.
- B. Attendance: Architect, Construction Manager, Contractor, Security Contractor, Hardware Supplier, Installer, Key Owner's Personnel, and Project Inspector.
- C. Agenda: Review hardware schedule, products, installation procedures and coordination required with related work. Review Owner's keying standards.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

<u>Item</u>	<u>Manufacturer</u>	<u>Acceptable Substitutes</u>
Hinges	Ives	Hager, Stanley, McKinney
Locks, Latches & Cylinders	Schlage	None – District Standard
Exit Devices	Von Duprin	None – District Standard
Electronic Locks	SecureALL	None – District Standard
Closers	LCN	None – District Standard
Push, Pulls & Protection Plates	Ives	Trimco, BBW, DCI
Flush Bolts	Ives	Trimco, BBW, DCI
Coordinators	Ives	Trimco, BBW, DCI
Door Stops	Ives	Trimco, BBW, DCI
Overhead Stops	Glynn-Johnson	Or Approved Equal
Thresholds	Zero	Pemko, National Guard
Seals & Bottoms	Zero	Pemko, National Guard

2.2 MATERIALS

- A. Hinges:
  - 1. Provide hinges conforming to ANSI/BHMA A156.1.
  - 2. Hinges shall be sized in accordance with the following:
    - a. Height:
      - 1) Doors up to 42" wide: 4-1/2 inches.
      - 2) Doors 43" to 48" wide: 5 inches.
    - b. Width: Sufficient to clear frame and trim when door swings 180 degrees.

- c. Number of Hinges: Provide 3 hinges per leaf to 7'-5" in height. Add one for each additional 2 feet in height.
3. Exterior out-swinging hinges shall be non-ferrous material and shall have stainless steel hinge pins. All doors to have non-rising pins.
  4. Furnish non-removable pins (NRP) at all exterior out-swing doors and interior key lock doors with reverse bevels.
  5. Provide hinges with electrified options as scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component.
- B. Continuous Hinges:
1. Provide aluminum geared continuous hinges fabricated from 6063-T6 aluminum conforming to ANSI/BHMA A156.26, Grade 1.
  2. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
  3. Provide continuous hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
  4. Provide continuous hinges 1" shorter in length than nominal height of door, unless otherwise noted, with symmetrical hole pattern.
  5. Install continuous hinges with fasteners supplied by manufacturer.
- C. Heavy Duty Cylindrical Locks and Latches: Schlage "ND" Series as scheduled with "Rhodes" lever design.
1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3 hour fire doors.
  2. Provide cylindrical locksets exceeding the ANSI/BHMA A156.2 Grade 1 performance standards for strength, security, and durability in the categories below:
    - a. Abusive locked lever torque – minimum 3,100 inch-pounds without gaining access.
    - b. Offset lever pull – minimum 1,600 foot pounds without gaining access.
    - c. Vertical lever impact – minimum 100 impacts without gaining access.
    - d. Cycle Test – tested to minimum 16 million cycles with no visible lever sag; without the use of performance aids such as set screws or spacers.
  3. Cylinders: Refer to "KEYING" article, herein.
  4. Provide locks with standard 2-3/4" backset, unless noted otherwise, with 1/2" latch throw. Provide proper latch throw for UL listing at pairs.
  5. Provide locksets with separate solid steel anti-rotation thru-bolts, and no exposed screws.
  6. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
  7. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
  8. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.
  9. Provide levers with vandal resistant technology as scheduled for use at abusive applications.
- D. Heavy Duty Mortise Locks and Latches: Schlage "L" Series as scheduled with "06" style lever and "A" style rose.
1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3 hour fire doors.

2. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
3. Provide lock case that is multi-function and field reversible for handing without opening case.
4. Provide locks with standard 2-3/4" backset with full 3/4" throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1" throw, constructed of stainless steel.
5. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
6. Cylinders: Refer to "KEYING" article, herein.
7. Indicators: Where specified, provide indicator above cylinder or emergency release for visibility while operating the lock that identifies an occupied/unoccupied status of the lock or latch.
8. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.

E. Exit devices: Von Duprin as scheduled.

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
2. Provide certificate by independent testing laboratory that device has completed over 1,000,000 cycles and can still meet ANSI/BHMA A156.3 standards.
3. Provide touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
4. Provide exit devices cut to door width and height. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
5. Mount mechanism case flush on face of doors, or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
6. Provide flush end caps for exit devices.
7. Exit devices shall comply with CBC Section 11B-404.2.7 and shall be mounted between 34" and 44" above the finished floor surface.
8. Provide exit devices UL certified to meet 5 lbs. maximum unlatching force requirements according to the CBC Section 11B-309.4.
9. Cylinders: Refer to "KEYING" article, herein.
10. Provide cylinder or hex-key dogging as specified at non fire-rated openings.
11. Provide cylinder dogging indicators (CDSI) for visible indication of dogging status as specified.
12. Removable Mullions: Provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
13. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
14. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
15. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.
16. Provide exit devices with manufacturer's approved strikes.
17. Provide electrified options as scheduled.

F. Closers: LCN as scheduled.

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.

3. Provide certificate by independent testing laboratory that door closers have completed over 10,000,000 cycles and can still meet ANSI/BHMA A156.4 standards.
4. Cylinder Body: 1-1/2" diameter with 3/4" diameter double heat-treated pinion journal.
5. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120° F to -30° F.
6. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
7. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
8. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
9. Pressure Relief Valve (PRV) Technology: Not permitted.
10. Provide door closers powder coated to match balance of door hardware. Powder coating finish shall be certified to exceed 100 hours salt spray testing as described in ANSI/BHMA A156.4 and ASTM B117.
11. Provide special rust inhibitor (SRI) in highly corrosive areas, and where noted in hardware sets.
12. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

G. Electro Mechanical Automatic Operators: LCN Senior Swing as scheduled.

1. Provide low energy automatic operator units that are electro-mechanical design complying with ANSI/BHMA A156.19.
2. Opening: Powered by DC motor working through reduction gears.
3. Closing: Spring force.
4. Manual, hydraulic, or chain drive closers: Not permitted.
5. Operation: Motor is off when door is in closing mode. Door can be manually operated with power on or off without damage to operator. Provide variable adjustments, including opening and closing speed adjustment.
6. Cover: Aluminum.
7. Provide units with manual off/auto/hold-open switch, push and go function to activate power operator, vestibule interface delay, electric lock delay, hold-open delay adjustable from 2 to 30 seconds, and logic terminal to interface with accessories, mats, and sensors.
8. Provide drop plates, brackets, or adapters for arms as required to suit details.
9. Provide hard-wired motion sensors and/or actuator switches for operation as specified. Provide weather-resistant actuators at exterior applications.
10. 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. Sequence operation of exterior and vestibule doors with automatic operators to allow ingress or egress through both sets of openings as directed by Architect. Locate actuators, key switches, and other controls as directed by Architect.
11. Provide caution signs as described in ANSI/BHMA A156.19.

H. Flush Bolts & Dust Proof Strikes:

1. Automatic flush bolts shall be of the low operating force design.
2. Provide top bolt only model for interior doors where applicable and as permitted by testing procedures.
3. Provide dust proof strikes at openings using bottom bolts.
4. Manual flush bolts shall only be permitted on storage or mechanical openings, as scheduled.



- I. Door Stops:
  - 1. Unless otherwise noted in hardware sets, provide floor type with appropriate fasteners. Where floor type cannot be used, provide wall type. If neither can be used, provide overhead type.
  - 2. Do not install floor stops more than four (4) inches from the face of the wall or partition (CBC Section 11B-307).
  - 3. Provide backing plate at wall framing behind wall type.
  - 4. Overhead stops shall be made of stainless steel and non-plastic mechanisms and finished metal end caps. Field-changeable hold-open, friction and stop-only functions. Stop-only function shall be provided at fire-rated openings.
  
- J. Protection Plates:
  - 1. Provide kick, mop, and/or armor plates minimum of 0.050" thick, with four beveled edges. Furnish with sheet metal or wood screws, finished to match plates.
  - 2. Kick plates shall be sized 10" high and 2" less door width (LDW) at single doors and 10" high and 1" LDW at pairs or doors.
  - 3. Provide mop and armor plates with sizes as scheduled in hardware sets.
  
- K. Thresholds: As scheduled and per details.
  - 1. Thresholds shall not exceed 1/2" in height, with a beveled surface of 1:2 maximum slope. Thresholds shall comply with CBC Section 11B-404.2.5.
  - 2. Set thresholds in a full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements in Division 07 "Thermal and Moisture Protection".
  - 3. Use 1/4" fasteners, red-head flat-head sleeve anchors (SS/FHSL).
  
- L. Seals: Provide silicone gasket at all rated and exterior doors.
  - 1. Smoke & Draft Control Doors: Provide UL10C Classified gasketing that complies with NFPA 80 & NFPA 252 for use on "S" labeled Positive Pressure door assemblies.
  
- M. Silencers: Furnish silencers for interior hollow metal frames, 3 for single doors, 2 for pairs of doors. Omit where sound or light seals occurs, or for fire-resistive-rated door assemblies.

## 2.3 KEYING

- A. Furnish a Proprietary Schlage masterkey system as directed by the owner or architect. Key system to be designated and combined by the Schlage Master Key Department even if pinned by the Authorized Key Center, Authorized Security Center or a local authorized commercial dealer.
- B. A detailed keying schedule is to be prepared by the owner and/or architect in consultation with a representative of Allegion or an Authorized Key Center or Authorized Security Center. Each keyed cylinder on every keyed lock is to be listed separately showing the door #, key group (in BHMA terminology), cylinder type, finish and location on the door.
- C. Furnish all interchangeable cores and cylinders in the Schlage Small Format Interchangeable Core (SFIC) style. Verify Schlage Everest "B" keyway with district. Pack change keys independently (PKI).
- D. Furnish construction keying for doors requiring locking during construction.

- E. Furnish all keys with visual key control.
  - 1. Stamp key "Do Not Duplicate".
  - 2. Stamp (BHMA) key symbol on key.
  - 3. Stamp unique owner identifier from the key bow.
  
- F. Furnish all cylinders with visual key control.
  - 1. Stamp (BHMA) key symbol on side of cylinder (CKC).
  
- G. Furnish mechanical keys as follows:
  - 1. Furnish 2 cut change keys for each different change key code.
  - 2. Furnish 1 uncut key blank for each change key code.
  - 3. Furnish 6 cut masterkeys for each different masterkey set.
  - 4. Furnish 3 uncut key blanks for each masterkey set.
  - 5. Furnish 2 cut control keys cut to the top masterkey for permanent I/C cylinders.
  - 6. Furnish 1 cut control key cut to each SKD combination.
  
- H. Furnish Schlage Padlocks and the cylinders to tie them into the masterkey system for gates, storage boxes, utility valve security, roof hatches and roll-up doors keyed as directed in the keying schedule.
  - 1. Furnish KS43F2200 padlock for use with non-I/C Schlage cylinders. Furnish 47-413 (conventional core) or 47-743 (Primus core) with above.
  - 2. Furnish KS43F3200 padlock for use with FSIC Schlage cylinders. Furnish 23-030 (FSIC core) or 20-740 (Primus core) with above.
  
- I. Furnish one Schlage cabinet lock for each cabinet door or drawer so designated on the drawings or keying schedule to match the masterkey system.
  - 1. Furnish CL100PB for use with non-I/C Schlage cylinders.
  - 2. Furnish CL777R for use with FSIC Schlage cylinders.

## 2.4 FINISHES

- A. Generally to be satin chrome US26D (626 on bronze and 652 on steel) unless otherwise noted.
- B. Furnish push plates, pull plates and kick or armor plates in satin stainless steel US32D (630) unless otherwise noted.
- C. Door closers shall be powder-coated to match other hardware, unless otherwise noted.
- D. Aluminum items to be finished anodized aluminum except thresholds which can be furnished as standard mill finish.

## 2.5 FASTENERS

- A. Screws for strikes, face plates and similar items shall be flat head, countersunk type, provide machine screws for metal and standard wood screws for wood.
- B. Screws for butt hinges shall be flathead, countersunk, full-thread type.

- C. Fastening of closer bases or closer shoes to doors shall be by means of sex bolts and spray painted to match closer finish.
- D. Provide expansion anchors for attaching hardware items to concrete or masonry.
- E. All exposed fasteners shall have a phillips head.
- F. Finish of exposed screws to match surface finish of hardware or other adjacent work.
- G. All Exit Devices and Lock Protectors shall be fastened to the door by the means of sex bolts or through bolts.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Verify that doors and frames are square and plumb and ready to receive work and dimensions are as instructed by the manufacturer.
- B. Beginning of installation means acceptance of existing conditions.
- C. Fire-Rated Door Assembly Inspection: Upon completion of the installation, all fire door assemblies shall be inspected to confirm proper operation of the closing device and latching device and that only the manufacturer's furnished fasteners are used for installation and that it meets all criteria of a fire door assembly per NFPA 80 (Standard for Fire Doors and Other Opening Protectives) 2016 Edition. A written record shall be maintained and transmitted to the Owner to be made available to the Authority Having Jurisdiction (AHJ). The inspection of the swinging fire doors shall be performed by a certified FDAI (Fire Door Assembly Inspector) with knowledge and understanding of the operating components of the type of door being subjected to the inspection. The record shall list each fire door assembly throughout the project and include each door number, an itemized list of hardware set components at each door opening, and each door location in the facility.

### 3.2 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and requirements of DHI.
- B. Use the templates provided by hardware item manufacturer.
- C. Mounting heights for hardware shall be as recommended by DHI. Operating hardware shall be located between 34" and 44" above finish floor to comply with CBC Section 11B-404.2.7.
- D. Door Closers:
  1. Place door closers inside building, stairs, rooms, etc. Closers shall be installed to permit doors to swing 180 degrees or maximum allowable by conditions.
  2. Maximum effort to operate closers shall not exceed 5 lbs., such pull or push effort being applied at right angles to hinged doors.
  3. When fire doors are required, the maximum effort to operate the closer may be increased but shall not exceed 15 lbs. when specifically approved by fire marshal.

4. All closers shall be adjusted to operate with the minimum amount of opening force and still close and latch the door. These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position.
  5. Compensating devices or automatic door operators may be utilized to meet the above standards.
  6. Per CBC Section 11B-404.2.8.1, doors shall take minimum of 5 seconds to move from an open position of 90 degrees to 12 degrees to the latch jamb.
- E. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
  - F. Drill and countersink units that are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
  - G. Set thresholds for exterior doors in full bed of butyl-rubber sealant.
  - H. If hand of door is changed during construction, make necessary changes in hardware at no additional cost.
  - I. Electronic Hardware:
    1. Hardware Installer shall coordinate with security contractor to route cable to connect electrified locks, panic hardware and fire exit hardware to power transfers or electric hinges at the time these items are installed so as to avoid disassembly and reinstallation of hardware.
    2. Hardware Installer shall also be present with the security contractor when the power is turned on for the testing of the electronic hardware applications. Installer shall make adjustments to solenoids, latches, vertical rods and closers to insure proper and secure operation.
    3. All wiring for electro-mechanical hardware mounted on the door shall be connected through the power transfer and terminated in the interface junction box specified for in the Electrical Section.
    4. Conductors shall be minimum 18 gage stranded, multicolored. A minimum 12 in. loop of conductors shall be coiled in the interface junction box. Each conductor shall be permanently marked with its function.
    5. If a power supply is specified in the hardware sets, all conductors shall be terminated in the power supply. Make all connections required for proper operation between the power supply and the electro-mechanical hardware. Provide the proper size conductors as specified in the manufacturer's technical documentation.

### 3.3 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.
- B. Clean adjacent surface soiled by hardware installation.
- C. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy, return to that work area and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

- D. Instruct Owner's Personnel in proper adjustment and maintenance of hardware finishes, during the final adjustment of hardware.
- E. Continued Maintenance Service: Approximately six months after the completion of the project, the Contractor accompanied by the Architectural Hardware Consultant, shall return to the project and re-adjust every item of hardware to restore proper functions of doors and hardware. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures. Replace hardware items which have deteriorated or failed due to faulty design, materials or installation of hardware units. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

3.4 HARDWARE LOCATIONS

- A. Conform to CCR, Title 24, Part 2; and ADAAG; and the drawings for access-compliant positioning requirements for the disabled.

3.5 FIELD QUALITY CONTROL

- A. Contractor is responsible for providing the services of an Architectural Hardware Consultant (AHC) or a proprietary product technician to inspect installation and certify that hardware and its installation have been furnished and installed in accordance with manufacturers' instructions and as specified herein.

3.6 HARDWARE SCHEDULE

- A. The items listed in the following schedule shall conform to the requirements of the foregoing specifications.
- B. While the hardware schedule is intended to cover all doors, and other movable parts of the building, and establish type and standard of quality, the contractor is responsible for examining the Plans and Specifications and furnishing proper hardware for all openings whether listed or not. If there are any omissions in hardware groups in regard to regular doors they shall be called to the attention of the Architect prior to bid opening for instruction; otherwise, list will be considered Complete. No extras will be allowed for omissions.
- C. The Door Schedule on the Drawings indicates which hardware set is used with each door.

MANUFACTURERS ABBREVIATIONS

GLY	=	Glynn-Johnson	Overhead Door Stops
IVE	=	Ives	Hinges, Door Pulls, Flush Bolts, Coordinators, Door Stops, Kick Plates & Silencers
LCN	=	LCN	Door Closers & Automatic Operators
SCH	=	Schlage Lock	Locks, Latches & Cylinders
SEC	=	SecureALL	Electronic Locks & Exit Device Trim
VON	=	Von Duprin	Exit Devices
ZER	=	Zero International	Thresholds, Gasketing & Weather-stripping

**HW GROUP NO. 01**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
2	EA	CONT. HINGE	112XY EPT	628	IVE
2	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC PANIC HARDWARE	QEL-PA-9849-EO 24 VDC	626	VON
1	EA	ELEC PANIC HARDWARE	QEL-PA-9849-NL-OP-110MD 24 VDC	626	VON
1	EA	SFIC RIM CYLINDER	80-159	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV B	626	SCH
2	EA	LONG DOOR PULL	9264F 72" O	630	IVE
2	EA	OH STOP	100S ADJ	630	GLY
2	EA	SURFACE CLOSER	4040XP EDA TB	689	LCN
1	SET	WEATHERSTRIP	SEALS BY DOOR/FRAME MFR		
1	EA	THRESHOLD	PER DETAIL	A	ZER
1	EA	CARD READER	SA-PWR		SEC
1	EA	POWER SUPPLY	PS904 900-4RL 120/240 VAC		VON

**HW GROUP NO. 01A**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
2	EA	CONT. HINGE	112XY EPT	628	IVE
2	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC PANIC HARDWARE	QEL-PA-9849-EO 24 VDC	626	VON
1	EA	ELEC PANIC HARDWARE	QEL-PA-9849-NL-OP-110MD 24 VDC	626	VON
1	EA	SFIC RIM CYLINDER	80-159	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV B	626	SCH
2	EA	LONG DOOR PULL	9264F 72" O	630	IVE
1	EA	CONC. AUTO OPERATOR	2853 STD/OP2 MS AS REQ (120/240 VAC)	ANCLR	LCN
4	EA	ACTUATOR	8310-853T	630	LCN
2	EA	MOUNTING BOX	8310-867F		LCN
1	EA	BOLLARD	B-6SQ-RT-32D-SM-HL	630	WIK
1	SET	WEATHERSTRIP	SEALS BY DOOR/FRAME MFR		
1	EA	THRESHOLD	PER DETAIL	A	ZER
1	EA	CARD READER	SA-PWR		SEC
1	EA	POWER SUPPLY	PS904 900-4RL 120/240 VAC		VON

**HW GROUP NO. 02**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
2	EA	CONT. HINGE	224XY EPT	628	IVE
2	EA	POWER TRANSFER	EPT10	689	VON
1	EA	REMOVABLE MULLION	KR4954 X 154	689	VON
1	EA	ELEC PANIC HARDWARE	QELX-PA-AX-98-DT	626	VON
1	EA	ELEC PANIC HARDWARE	QELX-PA-AX-98-NL	626	VON
1	EA	SFIC MORTISE CYL.	80-132	626	SCH
1	EA	SFIC RIM CYLINDER	80-159	626	SCH
2	EA	SFIC EVEREST CORE	80-037 EV B	626	SCH
2	EA	OH STOP	100S ADJ	630	GLY
1	EA	SURF. AUTO OPERATOR	9553 REG2 MS AS REQ (120/240 VAC)	ANCLR	LCN
4	EA	ACTUATOR	8310-853T	630	LCN
4	EA	MOUNTING BOX	8310-867F		LCN
2	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
2	EA	DOOR SWEEP	328AA	AA	ZER
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	MULLION SEAL	8780NBK PSA	BK	ZER
1	EA	THRESHOLD	PER DETAIL	A	ZER
1	EA	CARD READER	SA-PWR		SEC
1	EA	POWER SUPPLY	PS904 900-4RL 120/240 VAC		VON

**HW GROUP NO. 03**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
1	EA	CONT. HINGE	112XY	628	IVE
1	EA	PANIC HARDWARE	LD-PA-AX-98-EO	626	VON
1	EA	ELEC EXIT DEVICE TRIM	SA-PHR	626	SEC
1	EA	SURFACE CLOSER	4040XP EDA TB	689	LCN
1	EA	FLOOR STOP	FS18S	BLK	IVE
1	EA	DOOR SWEEP	328AA	AA	ZER
1	SET	WEATHERSTRIP	SEALS BY DOOR/FRAME MFR		
1	EA	THRESHOLD	PER DETAIL	A	ZER

**HW GROUP NO. 04**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
1	EA	CONT. HINGE	112XY	628	IVE
1	EA	PANIC HARDWARE	PA-AX-98-L-06-WH	630	VON
1	EA	SFIC RIM CYLINDER	80-159	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV B	626	SCH
1	EA	SURFACE CLOSER	4040XP RW/PA TB	689	LCN
1	EA	FLOOR STOP	FS436	626	IVE
1	SET	WEATHERSTRIP	SEALS BY DOOR/FRAME MFR		
1	EA	THRESHOLD	PER DETAIL	A	ZER

**HW GROUP NO. 05 (ADDENEDUM 03)**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
1	EA	CONT. HINGE	112XY	628	IVE
1	EA	PANIC HARDWARE	LD-PA-AX-98-EO	626	VON
1	EA	SURFACE CLOSER	4040XP EDA TBSRT	689	LCN
1	EA	FLOOR STOP	FS18S	BLK	IVE
1	EA	DOOR SWEEP	328AA	AA	ZER
1	SET	WEATHERSTRIP	SEALS BY DOOR/FRAME MFR		
1	EA	THRESHOLD	PER DETAIL	A	ZER

**HW GROUP NO. 06**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	PANIC HARDWARE	LD-PA-AX-98-EO	626	VON
1	EA	SURFACE CLOSER	4040XP EDA TB	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	FLOOR STOP	FS18S	BLK	IVE
1	EA	DOOR SWEEP	328AA	AA	ZER
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	THRESHOLD	PER DETAIL	A	ZER

**HW GROUP NO. 07**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	ELEC STOREROOM LOCK	SA-CDR	626	SEC
1	EA	SURFACE CLOSER	4040XP EDA TB	689	LCN
1	EA	FLOOR STOP	FS18S	BLK	IVE
1	EA	DOOR SWEEP	328AA	AA	ZER
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	THRESHOLD	PER DETAIL	A	ZER

**HW GROUP NO. 08**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	ELEC STOREROOM LOCK	SA-CDR	626	SEC
1	EA	SURFACE CLOSER	4040XP SCUSH TB	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	DOOR SWEEP	328AA	AA	ZER
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	THRESHOLD	PER DETAIL	A	ZER



**HW GROUP NO. 09**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
6	EA	HINGE	5BB1HW 5 X 4.5 NRP	630	IVE
1	SET	AUTO FLUSH BOLT	FB31P	630	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	ELEC STOREROOM LOCK	SA-CDR	626	SEC
1	EA	COORDINATOR	COR X FL	628	IVE
2	EA	MOUNTING BRACKET	MB	689	IVE
2	EA	SURFACE CLOSER	4040XP EDA TB	689	LCN
2	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
2	EA	FLOOR STOP	FS18S	BLK	IVE
1	EA	DOOR SWEEP	328AA	AA	ZER
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	ASTRAGAL	44STST OR BY HM DOOR MFR	STST	ZER
1	EA	THRESHOLD	PER DETAIL	A	ZER

**HW GROUP NO. 10**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
1	EA	CONT. HINGE	112XY	628	IVE
1	EA	PANIC HARDWARE	LD-PA-AX-98-EO	626	VON
1	EA	ELEC EXIT DEVICE TRIM	SA-PHR	626	SEC
1	EA	SURFACE CLOSER	4040XP EDA TB	689	LCN
1	EA	FLOOR STOP	FS436	626	IVE
1	EA	SEALS	BY ALUMINUM FRAME MFR		

**HW GROUP NO. 11**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	ELEC STOREROOM LOCK	SA-CDR	626	SEC
1	EA	FLOOR STOP	FS436	626	IVE
1	EA	SEALS	BY ALUMINUM FRAME MFR		

PROVIDE 3 HINGES AT DOORS UNDER 7'-6" TALL

**HW GROUP NO. 12**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	ELEC STOREROOM LOCK	SA-CDR	626	SEC
1	EA	SURFACE CLOSER	4040XP RW/PA TB	689	LCN
1	EA	FLOOR STOP	FS436	626	IVE
1	EA	GASKETING	488SBK OR BY AL FRAME MFR	BK	ZER

**HW GROUP NO. 13**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
4	EA	HINGE	5BB1HW 5 X 4.5 NRP	652	IVE
1	EA	FIRE EXIT HARDWARE	PA-AX-98-EO-F	626	VON
1	EA	ELEC EXIT DEVICE TRIM	SA-PHR	626	SEC
1	EA	SURFACE CLOSER	4040XP EDA TB	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	FLOOR STOP	FS436	626	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

**HW GROUP NO. 14**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	FIRE EXIT HARDWARE	PA-AX-98-L-BE-F-06	626	VON
1	EA	SURFACE CLOSER	4040XP RW/PA TB	689	LCN
1	EA	FLOOR STOP	FS436	626	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

**HW GROUP NO. 15**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	VANDL OFFICE LOCK	ND91BD RHO	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV B	626	SCH
1	EA	FLOOR STOP	FS436	626	IVE
1	EA	GASKETING	488SBK OR BY AL FRAME MFR	BK	ZER

**HW GROUP NO. 16**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
4	EA	INVISIBLE HINGE	218	652	SOS
1	EA	ELEC STOREROOM LOCK	SA-CDR	626	SEC
1	EA	SURFACE CLOSER	4040XP SCUSH TB	689	LCN
1	EA	SEALS	BY ALUMINUM FRAME MFR		

**HW GROUP NO. 17**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	BY STC ASSEMBLY MFR		
1	EA	ELEC STOREROOM LOCK	SA-CDR	626	SEC
1	EA	FLOOR STOP	FS436	626	IVE
1	SET	ACOUSTICAL SEALS	BY STC ASSEMBLY MFR		
1	EA	DOOR BOTTOM	BY STC ASSEMBLY MFR		

**HW GROUP NO. 18**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY LOCK W/ IND	L9040 06A L583-363 L283-722	626	SCH
1	EA	SURFACE CLOSER	4040XP RW/PA TB	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS401/402CCV	626	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

PROVIDE 3 HINGES AT DOORS UNDER 7'-6" TALL

**HW GROUP NO. 19**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	ELEC PRIVACY LOCK	SA-CRR	626	SEC
1	EA	SURFACE CLOSER	4040XP SCUSH TB	689	LCN
1	EA	GASKETING	488SBK PSA	BK	ZER

**HW GROUP NO. 20**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PASSAGE SET	ND10S RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP SCUSH TBSRT	689	LCN
1	EA	GASKETING	488SBK PSA	BK	ZER

**HW GROUP NO. 21**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	ELEC STOREROOM LOCK	SA-CDR	626	SEC
1	EA	SURFACE CLOSER	4040XP SCUSH TB	689	LCN
1	EA	GASKETING	488SBK PSA	BK	ZER

**HW GROUP NO. 22**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	ELEC STOREROOM LOCK	SA-CDR	626	SEC
1	EA	FLOOR STOP	FS436	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

PROVIDE 3 HINGES AT DOORS UNDER 7'-6" TALL

**HW GROUP NO. 23**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	ELEC STOREROOM LOCK	SA-CDR	626	SEC
1	EA	OH STOP & HOLDER	90F	652	GLY
3	EA	SILENCER	SR64	GRY	IVE

**HW GROUP NO. 24**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	BY GATE FABRICATOR		
1	EA	ELEC STOREROOM LOCK	SA-CDR	626	SEC
1	EA	SURFACE CLOSER	4040XP SCUSH TB	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN

**HW GROUP NO. 25**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
8	EA	HINGE	5BB1HW 5 X 4.5	652	IVE
1	EA	FIRE EXIT HARDWARE	PA-AX-9849-EO-F-LBL	626	VON
1	EA	FIRE EXIT HARDWARE	PA-AX-9849-L-BE-F-06-LBL	626	VON
2	EA	SURFACE CLOSER	4040XP RW/PA TB	689	LCN
2	EA	FIRE/LIFE WALL MAG	SEM7850 12V/24V/120V	689	LCN
2	SET	MEETING STILE	328AA-S	AA	ZER
1	EA	GASKETING	488SBK PSA	BK	ZER

MAGNETIC HOLDERS TIED TO FIRE ALARM SYSTEM

**HW GROUP NO. 26**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
6	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	AUTO FLUSH BOLT	FB31T	630	IVE
1	EA	ELEC STOREROOM LOCK	SA-CDR	626	SEC
1	EA	COORDINATOR	COR X FL	628	IVE
2	EA	OH STOP	90S	630	GLY
2	EA	SURFACE CLOSER	4040XP RW/PA TB	689	LCN
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	ASTRAGAL	44STST OR BY HM DOOR MFR	STST	ZER

**HW GROUP NO. 27**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
6	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	MANUAL FLUSH BOLT	FB358	626	IVE
1	EA	ELEC STOREROOM LOCK	SA-CDR	626	SEC
1	EA	OH STOP & HOLDER	90F	652	GLY
1	EA	SURFACE CLOSER	4040XP HCUSH TB	689	LCN
1	EA	ASTRAGAL	44STST OR BY HM DOOR MFR	STST	ZER
2	EA	SILENCER	SR64	GRY	IVE

**HW GROUP NO. 28**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
6	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	CONST LATCHING BOLT	FB51T	630	IVE
1	EA	VANDL STOREROOM LOCK	ND96BD RHO	626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV B	626	SCH
1	EA	OH STOP & HOLDER	90F	652	GLY
1	EA	SURFACE CLOSER	4040XP HCUSH TBSRT	689	LCN
1	EA	ASTRAGAL	44STST OR BY HM DOOR MFR	STST	ZER
2	EA	SILENCER	SR64	GRY	IVE

**HW GROUP NO. 29**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
6	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	FIRE EXIT HARDWARE	PA-AX-9849-EO-F-LBL	626	VON
1	EA	FIRE EXIT HARDWARE	PA-AX-9849-L-BE-F-06-LBL	626	VON
2	EA	SURFACE CLOSER	4040XP RW/PA TB	689	LCN
2	EA	FIRE/LIFE WALL MAG	SEM7850 12V/24V/120V	689	LCN
1	SET	MEETING STILE	328AA-S	AA	ZER
1	EA	GASKETING	488SBK PSA	BK	ZER

MAGNETIC HOLDERS TIED TO FIRE ALARM SYSTEM

**HW GROUP NO. 30**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
1	EA	CONT. HINGE	112XY	628	IVE
1	EA	PANIC HARDWARE	AX-35A-L-BE-06	626	VON
1	EA	SURFACE CLOSER	4040XP EDA TBSRT	689	LCN
1	EA	FLOOR STOP	FS436	626	IVE
1	EA	SEALS	BY ALUMINUM FRAME MFR		

**HW GROUP NO. 31**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
1	EA	CONT. HINGE	112XY	628	IVE
1	EA	ELEC STOREROOM LOCK	SA-CDR	626	SEC
1	EA	SURFACE CLOSER	4040XP RW/PA TB	689	LCN
1	EA	FLOOR STOP	FS436	626	IVE
1	EA	SEALS	BY ALUMINUM FRAME MFR		

**HW GROUP NO. 32**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	BY GATE FABRICATOR		
1	EA	PANIC HARDWARE	CD-PA-AX-98-NL-WH	630	VON
1	EA	SFIC MORTISE CYL.	80-132 XQ11-948	626	SCH
1	EA	SFIC RIM CYLINDER	80-159	626	SCH
2	EA	SFIC EVEREST CORE	80-037 EV B	626	SCH
1	EA	CLOSER	BY GATE FABRICATOR		

**HW GROUP NO. 33**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
5	EA	SPRING OPEN HINGE	1257 4.5 X 4.5	652	HAG
1	EA	BALL CATCH	347	626	IVE
1	EA	EDGE PULL	SR 3/8" X 4"	626	TYD

**HW GROUP NO. 34**

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>	<u>FINISH</u>	<u>MFR</u>
1	EA	CONT. HINGE	224XY	628	IVE
1	EA	ROLLER LATCH	RL30	626	IVE
1	EA	FLUSH PULL	RM790	630	ROC

**HW GROUP NO. 35 - HARDWARE BY DOOR MANUFACTURER****END OF SECTION**