SECTION 08 7100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY:

A. This Section includes items known commercially as finish or door 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:
1. Hinges
2. Continuous hinges
3. Key control system
4. Lock cylinders and keys
5. Lock and latch sets
6. Bolts
7. Exit devices
8. Push/Pull units
9. Closers
10. Overhead holders
11. Miscellaneous door control devices
12. Door trim units
13. Protection plates
14. Weatherstripping for exterior doors
15. Sound stripping for interior doors
16. Thresholds

C. Related Sections: The following Sections contain requirements that relate to this Section:
1. Section 01330: Submittals
2. Section 08110: Hollow Metal Doors
3. Section 08210: Wood Doors

D. Products furnished but not installed under this Section to include:
1. Cylinders for locks on entrance doors.
2. Final replacement cores and keys to be installed by Owner.

1.3 REFERENCES:

A. Standards of the following as referenced:
1. American National Standards Institute (ANSI)
2. Door and Hardware Institute (DHI)
3. Factory Mutual (FM)
4. National Fire Protection Association (NFPA)

5. Underwriters' Laboratories, Inc. (UL)
   a. UL 10C - Fire Tests Door Assemblies
6. Warnock Hersey

B. Regulatory standards of the following as referenced:
1. Department of Justice, Office of the Attorney General, *Americans with Disabilities Act*, Public Law 101-336 (ADA).
2. CABO/ANSI A117.1: *Providing Accessibility and Usability for Physically Handicap People*, 1992 edition.

1.4 SYSTEM DESCRIPTION:

A. Refer to applicable “Headings“ for system description for electric and electro-pneumatic hardware products.

1.5 SUBMITTALS:

A. Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements. For items other than those scheduled in the “Headings” of Section 3, provide catalog information for the specified items and for those submitted.

B. Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
1. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into vertical format “hardware sets" indicating complete designations of every item required for each door or opening. Use specification Heading numbers with any variations suffixed a, b, etc. Include the following information:
   a. Type, style, function, size, and finish of each hardware item.
   b. Name and manufacturer of each item.
   c. Fastenings and other pertinent information.
   d. Location of each hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.
   e. Explanation of all abbreviations, symbols, and codes contained in schedule.
   f. Mounting locations for hardware.
   g. Door and frame sizes and materials.
   h. Keying information.
   i. Cross-reference numbers used within schedule deviating from those specified.
      1) Column 1: State specified item and manufacturer.
      2) Column 2: State prior approved substituted item and its manufacturer.
2. Submittal Sequence: Submit final schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work that is critical in the Project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.

3. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

C. Samples of each type of exposed hardware unit in finish indicated and tagged with full description for coordination with schedule. Submit samples prior to submission of final hardware schedule.
   1. Samples will be returned to the supplier. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated in the Work, within limitations of keying coordination requirements.

D. 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.

E. Contract closeout submittals:
   1. Operation and maintenance data: Complete information for installed door hardware.
   2. Warranty: Completed and executed warranty forms.

1.6 QUALITY ASSURANCE:

A. Single Source Responsibility: Obtain each type of hardware (latch and locksets, hinges, closers, 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), or equivalent, who is available to Owner, Architect, and Contractor, at reasonable times during the course of the Work, for consultation.
   1. Require subcontractor and supplier to meet with Owner to finalize keying requirements and to obtain final instructions in writing.
   2. Require supplier to meet with installer prior to beginning of installation of door hardware.

C. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 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. All hardware shall comply with standards UBC 702 (1997) and UL 10C.
   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".

1.7 PRODUCT HANDLING:

A. Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.

B. Packaging of door hardware is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.

C. Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.

D. Deliver individually packaged door hardware items promptly to place of installation (shop or Project site).

E. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

1.8 WARRANTY:

A. Special warranties:
1. Door Closers: Ten year period
2. Exit Devices: Three year period
3. Locksets: Three year period

1.9 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.

B. Parts kits: Furnish manufacturers' standard parts kits for locksets, exit devices, and door closers.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS:
(* Denotes manufacturer referenced in the Hardware Headings)

A. Butt Hinges:
1. Acceptable manufacturers:
a. Hager
b. Ives
c. PBB*
2. Characteristics:
a. Templates: Provide only template-produced units.
b. Screws: Provide Phillips flat-head screws complying with the following requirements:

1) For metal doors and frames install machine screws into drilled and tapped holes.
2) For wood doors and frames install threaded-to-the-head wood screws.
3) For fire-rated wood doors install #12 x 1-1/4 inch, threaded-to-the-head steel wood screws.
4) Finish screw heads to match surface of hinges or pivots.

c. Hinge pins: Except as otherwise indicated, provide hinge pins as follows:
1) Out-Swing Exterior Doors: Non-removable pins.
2) Out-Swing Corridor Doors with Locks: Non-removable pins.
3) Interior Doors: Non-rising pins.
4) Tips: Flat button and matching plug. Finished to match leafs.

d. Size: Size hinges in accordance with specified manufacturer's published recommendations.

e. Quantity: Furnish one pair of hinges for all doors up to 5'0" high. Furnish one hinge for each additional 2-1/2 feet or fraction thereof.

f. Hinges to be full mortised ball bearing hinges.

B. Continuous Hinges:
1. Acceptable manufacturers:
a. Markar
b. PBB
c. Select Products*
2. Characteristics:
a. Continuous gear hinges to be manufactured of extruded 6063-T6 aluminum alloy with anodized finish, or factory painted finish as scheduled.
b. All hinges are to be manufactured to template. Uncut hinges shall be non-handed and shall be a pinless assembly of three interlocking extrusions applied to the full height of the door and frame without mortising.
c. Vertical door loads shall be carried on chemically lubricated polyacetal thrust bearings. The door and frame leaves shall be continually geared together for the entire hinge length and secured with a full cover channel. Hinge to operate to a full 180°.
d. Hinges to be milled then anodized and assembled in matching pairs. Fasteners supplied shall be 410 stainless steel, plated and hardened.
e. Provide UL listed continuous hinges at fire doors. Continuous hinges at fire doors (suffix -FR) shall meet the required ratings without the use of auxiliary fused pins or studs.

C. Cylinders:
1. Acceptable manufacturers:
a. Best* TO MATCH EXISTING
b. PDQ
c. Schlage
2. Characteristics:
a. Review the keying system with the Owner and provide the type required, integrated with Owner's existing Best patented system.

b. Furnish final cores and keys for installation by Owner.
c. Equip locksets with Best small format, 7-pin, interchangeable core (SFIC) compatible with Owners existing system. Furnish temporary inserts for the construction period and remove when directed.
d. Metals: Construct lock cylinder parts from brass or bronze, stainless steel, or nickel silver.
e. Comply with Owner's instructions for master keying and, except as otherwise indicated, provide individual change key for each lock that is not designated to be keyed alike with a group of related locks.
    1) Permanently inscribe each key with number of lock that identifies cylinder manufacturer's key symbol, and notation, “DO NOT DUPLICATE."
f. Key Material: Provide keys of nickel silver only.
g. Key Quantity: Furnish 3 change keys for each lock, 5 master keys for each master system, 5 grandmaster keys for each grandmaster system, and 2 construction master keys.
    1) Furnish one extra blank for each lock.
    2) Deliver keys to Owner.

D. Locksets, Latchsets, Deadbolts:
1. Acceptable manufacturers:
    a. Best 40H*
    b. PDQ MR series
    c. Schlage L9000 series
    d.
2. Heavy Duty Mortise Locks and Latches: as scheduled.
    a. All locksets shall be full mortised with lever handles.
    b. Thumbturns: Accessible design not requiring pinching or twisting motion to operate.
    c. Deadbolts: Stainless steel, 1” throw.
    d. Lever Trim: accessible design, independent operation, minimum 2" clearance from lever mid-point to door face.
    e. Latch: solid 3/4” throw and stainless steel antifriction.
    f. Strikes: 16 gauge curved stainless steel, bronze or brass with 1" deep box construction, lips of sufficient length to clear trim and protect clothing.
    g. Lock Series and Design: 40H series, 14H lever or Schlage equivalent.
    h. Certifications:
        1) ANSI A156.13, Series 1000, Operational Grade 1.
        2) UL listed for A label single doors up to 4 ft x 8 ft.

E. Exit Devices:
1. Acceptable manufacturers:
    a. PDQ
    b. Sargent
    c. Von Duprin CD98/35 series*Characteristics:
    d. Exit devices shall be "UL" listed for life safety. All exit devices for fire rated openings shall have “UL" labels for “Fire Exit Hardware."
    e. All exit devices mounted on labeled wood doors shall be mounted on the door per the door manufacturer’s requirements.

f. All trim shall be thru-bolted to the lock stile case.
g. All exit devices shall be made of brass, bronze, stainless steel, or aluminum material, powder coated, anodized, or plated to the standard architectural finishes to match the balance of the door hardware.
h. Provide glass bead conversion kits to shim exit devices on doors with raised glass heads.
i. All exit devices shall be one manufacturer. No deviation will be considered.
j. All exit devices shall be non-handed. Touchpad shall extend a minimum of 1/2 of the door width and shall extend to the height of the cross rail housing for a "no pinch" operation. Plastic touchpads are not acceptable. All latchbolts to be the deadlocking type. Latchbolts shall have a self-lubricating coating to reduce wear. Plated or plastic coated latchbolts are not acceptable. Plastic linkage and "dogging" components are not acceptable.\
k. Rim devices must be keyed with a removable mullion.
l. Surface vertical rod devices shall be UL labeled for fire door applications without the use of bottom rod assemblies. Where bottom rods are required for security applications, the devices shall be UL labeled for fire doors applications with rod and latch guards by the device manufacturer.

F. Closers and Door Control Devices:
1. Acceptable manufacturers:
a. LCN 4040 series
b. PDQ 7100 series
c. Sargent 250 series
2. Characteristics:
a. Door closers shall have fully hydraulic, full rack and pinion action with a high strength cast iron cylinder and through bolted to door.
b. All closers shall utilize a stable fluid withstanding 120 degree F to -30 F range without seasonal adjustment of closer speed to properly close the door. Closers for fire-rated doors shall be provided with temperature stabilizing fluid that complies with standards UBC 7-2 (1997) and UL 10C.
c. Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed and back check.
d. Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped provide adjustable units complying with ADA and ANSI A-117.1 provisions for door opening force.
e. Closers must be through bolted on hollow metal and wood doors.
f. Concealed closers and floor closers are not acceptable.
g. Closers to be installed to allow door swing as shown on plans. Doors swinging into exit corridors shall provide for corridor clear width as required by code. Where possible, mount closers inside rooms.

G. Power Operators:

1. Acceptable manufacturers:
   a. Horton
   b. LCN
   c. SDC
2. Characteristics:
   a. Unit to be non-handed to be mounted in either in-swinging or out-swinging installations.
   b. Unit to be factory assembled, adjusted and tested.
   c. Operating equipment will utilize a d.c. motor and helical gears for quiet operation.
   d. Equipment shall only meet the requirements of the American National Standard for ANSI/BHMA A156.19-2002 Standard for Low Energy Power Operated Doors.
   e. System to be capable of operating between -40°F and 140°F.
   f. Door closing shall be by spring force and monitored by the microprocessor control, capable of providing limited power assist to insure the door closes.
   g. The operator housing shall be 5" (127mm) deep by 4-1/2" (114mm) high, by the width of the door panels (s) plus 3" (76mm). Mounting plate shall provide cable access at both ends.
   h. Full length pairs to be supplied with extended housing and manual closer on non-ADA door leaf.
   i. Door activating and holding controls shall be by actuators or motion sensors, unless the “Push to start” application is being employed. The actuators may be hard wired or wireless rf as required. Specified actuators are BEA jamb mount and wall mount.
   j. Equipment designed to handle swing doors with weights up to 250 lbs (113kg).
   k. Opening speed to fully open shall be adjusted as required in ANSI/BHMA A156.19-2002 low energy doors. Field adjustable to remain open for not less than 5 seconds for low energy doors.
   l. Field adjustable to close from 90° to 10° as required in ANSI/BHMA A156.19-2002 low energy doors, depending on final door weight. Doors shall close from 10° to fully closed in not less than 1.5 seconds. The force required to prevent a stopped door from opening in the last 10° of opening, or at any point in closing shall not exceed 40 lbs (133N) applied 1" (25mm) from the latch edge of the door.
   m. In the event of a power failure, doors shall open with manual pressure not to exceed 30 lbs (133N) at a point 1" (25mm) from the latch edge of the door.
   n. Microprocessor controls shall be field adjustable to comply with ANSI/BHMA A156.19-2002 Standard for Low Energy Power Operated Doors; on board programmer included.
   o. Field adjustments for the door opening speed, door opening force, door closing speed, and door closing force shall be standard within the unit and adjust independently from all other external requirements.
   p. Unit will provide the ability to determine the diagnostic evaluation of problematic issues through a digitized display panel. The display will provide confirmation that the door is performing properly and also provide error codes when it is not. The panel shall provide systematic

information such as counters for usage determination, and provide the installing contractor's telephone number in the event of service requirements.

q. Doors must be equipped with a sign(s) visible from either side, instructing the user as to the operation and function of the door: AUTOMATIC PUSH SWITCH TO OPEN.

r. Installation of the automatic door operators shall be done by a trained installer skilled in the installation of automatic door operators and equipment. Factory training provided by the operator manufacturer is recommended. All low voltage switch hookups are the responsibility of the operator installer, as well as temporary wiring hookup to plug into wall outlet for test of system. Final hookup of 115VAC power will be handled by and coordinated with the general contractor's electrical contractor.

s. Upon completion of work, installer is to apply a sticker to the operator header case which illustrates the installer's name, address and phone number.

H. Overhead Door Holders:

1. Acceptable manufacturers:
   a. ABH*
   b. Glynn Johnson
   c. Rixson Firemark
2. Characteristics:
   a. Provide heavy duty door holders (concealed and surface mounted) of stainless steel.
   b. Concealed holders to be installed with the jamb bracket mortised flush with the bottom of the jamb. The arm and channel to be mortised into the door.
   c. Surface holders to be installed with the jamb bracket mounted on the stop.

I. Floor Stops and Wall Bumpers:

1. Acceptable manufacturers:
   a. Burns*
   b. Rockwood
   c. Trimco
2. Characteristics: Refer to Hardware Headings.

J. Door Bolts/Coordinators:

1. Acceptable manufacturers:
   a. Burns*
   b. Rockwood
   c. Trimco
2. Characteristics:
   a. Flush bolts to be forged brass 6-3/4" x 1", with 1/2" diameter bolts. Plunger to be supplied with milled surface one side that fits into a matching guide.

b. Automatic flush bolts to be UL listed as top and bottom bolts on a pair of classified fire doors. Bolt construction to be of rugged steel and brass components.
c. Self latching flush bolts to be UL listed as top and bottom bolts on a pair of classified fire doors. Bolt construction to be of rugged steel and brass components.
d. Automatic flush bolts and self-latching flush bolts shall be UL listed for fire door application without bottom bolts (LBB).
e. Coordinator to be soffit mounted non-handed fully automatic UL listed coordinating device for sequential closing of paired doors with or without astragals.
f. Provide filler pieced to close the header. Provide brackets as required for mounting of soffit applied hardware.

K. Protective Plates:
1. Acceptable manufacturers:
a. Burns*
b. Rockwood
c. Trimco
2. Characteristics:
a. Provide manufacturers standard exposed fasteners for door trim units consisting of either machine screws or self-tapping screws.
b. Materials:
1) Metal Plates: Stainless Steel, .050 inch (U.S. 18 gage).
c. Fabricate protection plates not more than 2 inches less than door width on hinge side and not more than 1 inch less than door width on pull side.
d. Heights:
1) Kick plates to be 10 inches in height.
2) Mop plates to be 4 inches in height.
3) Armor plates to be 36 inches in height. Armor plates on fire doors to comply with NFPA 80.

L. Thresholds:
1. Acceptable manufacturers:
a. National Guard Products, Inc.*
b. Reese Industries
c. Zero Weatherstripping Co., Inc.
2. Types: Indicated in Hardware Headings.

M. Door Seals/Gasketing:
1. Acceptable manufacturers:
a. National Guard Products, Inc.*
b. Reese Industries
c. Zero Weatherstripping Co., Inc.
2. Types: Indicated in Hardware Headings.

N. Silencers:
   1. Acceptable manufacturers:
      a. Burns*
      b. Hager
      c. Rockwood
   2. Three for each single doors; four for pairs of doors.

O. Security Equipment:
   1. Acceptable manufacturers:
      a. Dynalock
      b. Security Door Controls*
      c. Von Duprin
   2. Characteristics:
      a. Provide items as found in Hardware Headings.
   3. Coordinate security equipment with Electrical.

2.2 MATERIALS AND FABRICATION:

A. Manufacturer's Name Plate: Do not use manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise acceptable to Architect.
   1. Manufacturer's identification will be permitted on rim of lock cylinders only.

B. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI/BHMA A156 series standards for each type of hardware item and with ANSI/BHMA A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.

C. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
   1. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
   2. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including “prepared for paint" surfaces to receive painted finish.
   3. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners.

4. Do not use thru-bolts or sex bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of adequately fastening the hardware, or otherwise found in Headings. Coordinate with wood doors and metal doors and frames where thru-bolts are used as a means of reinforcing the work, provide sleeves for each thru-bolt or use sex screw fasteners.

2.3 HARDWARE FINISHES:

A. Match items to the manufacturer's standard color and texture finish for the latch and lock sets (or push-pull units if no latch of lock sets).

B. Provide finishes that match those established by ANSI or, if none established, match the Architect's sample.

C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.

D. Provide protective lacquer coating on all exposed hardware finishes of brass, bronze, and aluminum, except as otherwise indicated. The suffix "-NL" is used with standard finish designations to indicate "no lacquer."

E. The designations used to indicate hardware finishes are those listed in ANSI/BHMA A156.18, "Materials and Finishes," including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.
1. Hinges (Exterior): 630 (US32D) Satin Stainless Steel
2. Hinges (Interior wood doors): 652 (US26D) Satin Chrome Plated Steel
3. Hinges (Interior metal doors): 600 (USP)
4. Continuous Hinges: 628 (US28) Clear Anodized Aluminum
5. Flush Bolts: 626 (US26D) Satin Chrome Plated Brass/Bronze
6. Locks: 626 (US26D) Satin Chrome Plated Brass/Bronze
7. Exit Devices: 630 (US32D) touchpad, Balance to match adjacent hardware
8. Door Closers: Powder coat to match adjacent hardware
9. Protective Plates: 630 (US32D) Satin Stainless Steel
10. Door Stops: 626 (US26D) Satin Chrome Plated Brass/Bronze
11. Overhead Holders: 630 (US32D) Satin Stainless Steel
12. Thresholds/Weatherstripping: 627/628 (US27/US28) Aluminum

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.
1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.

2. "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute.
3. NWWDA Industry Standard I.S.1.7, "Hardware Locations for Wood Flush Doors."

B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.

C. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

D. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

E. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section “Joint Sealers”.

F. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

3.2 ADJUSTING, CLEANING, AND DEMONSTRATING:

A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.
1. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy 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 function properly with final operation of heating and ventilating equipment.

B. Clean adjacent surfaces soiled by hardware installation.

C. Door Hardware Supplier's Field Service
1. Inspect door hardware items for correct installation and adjustment after complete installation of door hardware.
2. Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.
3. File written report of this inspection to Architect.

D. Prior to project completion, representatives of the lock, exit device and overhead closer manufacturers shall inspect and adjust all units and certify that all units are installed in accordance with the manufacturer’s instructions, and are regulated properly and functioning correctly. A written report shall be provided to the Architect as to the inspection and shall include appropriate certificates.

3.3 HARDWARE SCHEDULE:

HEADING #A1

DOORS #: 100A

EACH PAIR TO HAVE:

2	CONTINUOUS HINGES	SL11HD
1	EXIT DEVICE	3547NL-OP
1	EXIT DEVICE	3547EO
1	CYLINDER	TO MATCH EXISTING BEST SYSTEM
2	DOOR PULLS	VP4252 x 9 MTG.
2	CLOSERS	7101 x DSHO x PLATES/BRACKETS AS REQ.
1	THRESHOLD	425E
1	SET DOOR SEALS	BY FRAME MANUFACTURER
2	DOOR BOTTOM SEALS	BY DOOR MANUFACTURER
1	ASTRAGAL SET	BY DOOR MANUFACTURER

NOTE: FINISH TO MATCH DOOR/FRAME.

HEADING #A2

DOORS #: 101A

EACH PAIR TO HAVE:

2	CONTINUOUS HINGES	SL11HD
2	PUSH/PULL SETS	VP4242 x VP4252 x 5/9 MTG.
2	CLOSERS	7101 x DSHO x PLATES/BRACKETS AS REQ.

NOTE: FINISH TO MATCH DOOR/FRAME.

HEADING #A3

DOORS #: 101B, 101D

EACH PAIR TO HAVE:

2	CONTINUOUS HINGES	SL11HD x ATW8
1	EXIT DEVICE	QEL3547L-F x REX
1	EXIT DEVICE	3547L-F x REX
2	CYLINDERS	TO MATCH EXISTING BEST SYSTEM
1	ACCESS CONTROL READER	BY SECURITY SYSTEM PROVIDER
1	POWER SUPPLY	PS900 SERIES
2	CLOSERS	7101 x DS x PLATES/BRACKETS AS REQ.
1	SET DOOR SEALS	BY FRAME MANUFACTURER
2	DOOR BOTTOM SEALS	BY DOOR MANUFACTURER
1	ASTRAGAL SET	BY DOOR MANUFACTURER

NOTE: FINISH TO MATCH DOOR/FRAME. COORIDNATE SECURITY HARDWARE WITH SECURITY AND ELECTRICAL SYSTEMS.

HEADING #A4

DOORS #: 101C

EACH DOOR TO HAVE:

1	CONTINUOUS HINGE	SL11HD
1	LOCKSET	AR4910 x 4568
1	CYLINDER	TO MATCH EXISTING BEST SYSTEM
1	ELECTRIC STRIKE	55ABC
1	ACCESS CONTROL READER	BY SECURITY SYSTEM PROVIDER
1	POWER SUPPLY	602RF SERIES
1	CLOSER	7101 x DS x PLATES/BRACKETS AS REQ.
1	SET DOOR SEALS	BY FRAME MANUFACTURER
1	DOOR BOTTOM SEALS	BY DOOR MANUFACTURER

NOTE: FINISH TO MATCH DOOR/FRAME. COORIDNATE SECURITY HARDWARE WITH SECURITY AND ELECTRICAL SYSTEMS.

HEADING #A5

DOORS #: 102, 143F, 144

EACH DOOR TO HAVE:

1	CONTINUOUS HINGE	SL11HD
1	EXIT DEVICE	3547NL-OP
1	CYLINDER	TO MATCH EXISTING BEST SYSTEM
1	DOOR PULL	VP4252 x 9 MTG.
1	CLOSER	7101 x DSHO x PLATES/BRACKETS AS REQ.
1	THRESHOLD	425E
1	SET DOOR SEALS	BY FRAME MANUFACTURER
1	DOOR BOTTOM SEALS	BY DOOR MANUFACTURER

NOTE: FINISH TO MATCH DOOR/FRAME.

HEADING #A6

DOORS #: 143A

EACH DOOR TO HAVE:

1	CONTINUOUS HINGE	SL11HD
1	LOCKSET	AR4910 x 4568
1	CYLINDER	TO MATCH EXISTING BEST SYSTEM
1	CLOSER	7101 x DSHO x PLATES/BRACKETS AS REQ.
1	SET DOOR SEALS	BY FRAME MANUFACTURER
1	DOOR BOTTOM SEALS	BY DOOR MANUFACTURER

NOTE: FINISH TO MATCH DOOR/FRAME.

HEADING #A7

DOORS #: 143C

EACH DOOR TO HAVE:

1	CONTINUOUS HINGE	SL11HD
1	LOCKSET	AR4910 x 4568
1	CYLINDER	TO MATCH EXISTING BEST SYSTEM
1	ELECTRIC STRIKE	55ABC
1	ACCESS CONTROL READER	BY SECURITY SYSTEM PROVIDER
1	POWER SUPPLY	602RF SERIES
1	CLOSER	7101 x DSHO x PLATES/BRACKETS AS REQ.
1	SET DOOR SEALS	BY FRAME MANUFACTURER
1	DOOR BOTTOM SEALS	BY DOOR MANUFACTURER

NOTE: FINISH TO MATCH DOOR/FRAME. COORIDNATE SECURITY HARDWARE WITH SECURITY AND ELECTRICAL SYSTEMS.

HEADING #1

DOORS #: 105, 140

EACH DOOR TO HAVE:

3	HINGES	4B81
1	LOCKSET	45H7D
1	ELECTRIC STRIKE	55ABC
1	ACCESS CONTROL READER	BY SECURITY SYSTEM PROVIDER
1	POWER SUPPLY	602RF
1	CLOSER	7101 x RA
1	KICK PLATE	KP50 x B4E
1	DOOR STOP	565/522 (AS REQ.)

NOTE: COORDINATE SECURITY HARDWARE WITH SECURITY AND ELECTRICAL SYSTEMS. EXISTING DOOR TO REMAIN. COORDINATE NEW HARDWARE WITH EXISTING DOOR PREPS.

HEADING #2

DOORS #: 110, 111, 241, 242

EACH DOOR TO HAVE:

3	HINGES	4B81
1	PRIVACY SET-IND	45H0VIS
1	CLOSER	7101 x PA (@ 110, 111)
1	CLOSER	7101 x RA (@ 241, 242)
1	KICK PLATE	KP50 x B4E
1	DOOR STOP	565/522 (AS REQ.)
1	SET DOOR SEALS	5050
1	COAT HOOK	604

HEADING #3

DOORS #: 112, 115, 239, 240, 243, 244, 245, 247, 248, 251, 252, 253, 254, 255, 256, 257, 258

EACH DOOR TO HAVE:

3	HINGES	BB81
1	LOCKSET-OFFICE	45H7AT
1	DOOR STOP	565/522 (AS REQ.)
1	SET DOOR SEALS	5050
1	COAT HOOK	604

NOTE: COORDINATE NEW HARDWARE WITH EXISTING DOOR PREPS @ 112 IF DOOR IS RETAINED.

HEADING #4

DOORS #: 127

EACH DOOR TO HAVE:

3	HINGES	4B81
1	EXIT DEVICE	98L-F
1	CYLINDER	TO MATCH EXISTING BEST SYSTEM
1	CLOSER	7101 x PA
1	KICK PLATE	KP50 x B4E
1	DOOR STOP	565/522 (AS REQ.)
1	SET DOOR SEALS	5075

HEADING #5

DOORS #: 139, 237, 238

EACH DOOR TO HAVE:

3		HINGES	BB81
1		PASSAGE SET	45H0N
	1	DOOR STOP	565/522 (AS REQ.)
	1	SET DOOR SEALS	5050

HEADING #6

DOORS #: 141

EACH DOOR TO HAVE:

3		HINGES	4B51 x NRP
1		LOCKSET-STOREROOM	45H7D
1		CYLINDER	TO MATCH NEW SYSTEM
1		CLOSER	7101 x DSHO
1		KICK PLATE	KP50 x B4E
	1	THRESHOLD	425E
	1	SET DOOR SEALS	169U
	1	DOOR BOTTOM SEAL	200N
	1	DRIP CAP	17
	1	LATCHGUARD	620

HEADING #7

DOORS #: 142

EACH PAIR TO HAVE:

6		HINGES	4B81
1		SET FLUSHBOLTS	591 x 545 (INACTIVE)
1		LOCKSET	45H7R (ACTIVE)
2		KICK PLATES	KP50 x B4E
	2	DOOR STOPS	565/522 (AS REQ.)

HEADING #8

DOORS #: 143B

EACH PAIR TO HAVE:

6	HINGES	4B81
2	EXIT DEVICES	98L
2	CYLINDERS	TO MATCH EXISTING BEST SYSTEM
2	CLOSERS	7101 x DSHO
2	KICK PLATES	KP50 x B4E
1	SET DOOR SEALS	5050
1	DOOR EDGE SEAL	5070

HEADING #9

DOORS #: 143D

EACH DOOR TO HAVE:

3	HINGES	4B81
1	LOCKSET	45H7D
1	ELECTRIC STRIKE	55ABC
1	ACCESS CONTROL READER	BY SECURITY SYSTEM PROVIDER
1	POWER SUPPLY	602RF
1	CLOSER	7101 x RA
1	KICK PLATE	KP50 x B4E
1	DOOR STOP	565/522 (AS REQ.)
1	SET DOOR SEALS	5075

NOTE: COORDINATE SECURITY HARDWARE WITH SECURITY AND ELECTRICAL SYSTEMS.

HEADING #10

DOORS #: 145, 146

EACH DOOR TO HAVE:

1	CONTINUOUS HINGES	SL24HD
1	PUSH/PULL SET	74L x 5426C x 12 MTG.
1	CLOSER	7101 x DSHO
1	KICK PLATE	KP50 x B4E

HEADING #11

DOORS #: 249

EACH DOOR TO HAVE:

3	HINGES	BB81
1	LOCKSET-CLASSROOM	45H7R
1	CLOSER	7101 x RA
1	KICK PLATE	KP50 x B4E
1	DOOR STOP	565/522 (AS REQ.)
1	SET DOOR SEALS	5075

HEADING #12

DOORS #: 250, 259

EACH DOOR TO HAVE:

3	HINGES	BB81
1	LOCKSET-CLASSROOM	45H7R
1	DOOR STOP	565/522 (AS REQ.)

END OF SECTION