SECTION 08710

DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Provide hardware for hollow metal and wood doors.
2. Provide cylinders for doors fabricated with hardware.

B. Related Work in Other Sections:

1. Section 06410: Cabinet Hardware.
2. Section 08410: Aluminum entrance door hardware.
3. Review other sections for doors fabricated with hardware.

1.02 REFERENCES

A. American National Standards Institute (ANSI)

1. ANSI A115 and A115-W: Door and Frame Preparation Standards.
2. ANSI/BHMA A156.1 through A156.20: Standards for various hardware items as sponsored and published by Builders Hardware Manufacturers Association (BHMA).

B. National Fire Protection Association (NFPA) - NFPA 80, Fire Doors and Windows.

C. California Code of Regulations (CCR), Title 24 - California Building Code, Title 24, Part 2, Chapter 31 and 33.

D. Americans with Disability Act Accessibility Guidelines (ADA-AG).

E. Standards and Codes: Finish hardware must comply with applicable fire, safety regulation, building and accessibility codes and, in addition, with Underwriters' Laboratories, Inc. (UL) requirements for rated openings. Hardware must be UL approved.

1.03 SUBMITTAL

A. Submit under provisions of Section 01300.

B. Shop Drawings: Indicate locations and mounting heights of hardware. Supply templates to door and frame manufacturers for proper and accurate sizing and locations of cutouts for hardware.

C. Product Data: Submit catalog cuts for each type of hardware.

1. Keying schedule: Coordinate directly with Owner's representative.

D. Samples. Submit physical samples of types and finish of hardware substituted if requested by Architect. Both the specified items and item submitted for substitution. Only written approvals and written acceptance will be allowed. Verbal approvals will not be permitted on substitutions.

E. Closeout Submittal: Record actual locations of installed cylinders and master key codes on Project Record Documents.

1.04 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain each type of hardware (latchsets, locksets, hinges, pivots, closers, trim) from a single manufacturer.

B. Fire Rated Doors: Comply with requirements of NFPA 80 and applicable codes for fire rated door hardware; provide hardware bearing Underwriters' Laboratory (L) labels.

1. Doors indicated in fire rated partitions and walls should be positive latching and self-closing, with smoke gaskets.

C. Access for Persons with Disabilities: Comply with California Code of Regulations, Title 24, and Americans with Disabilities Act Accessibility Guidelines (ADA-AG).

D. Supplier: Recognized builders' hardware supplier with minimum five years successful experience in scheduling and furnishing hardware.

E. Pre-Installation Conference: Convene not less than one week prior to commencing work of this section; include persons involved with installation of doors, frames, and hardware.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver hardware in manufacturer's original packages, marked for intended opening and use.

B. Pack complete with necessary screws, bolts, keys, instructions, and installation template, if necessary, for spotting mortising tools.

C. Upon delivery, furnish complete list of hardware for checking, clearly marked to correspond with marking on each package.

1. Review list for completeness and accuracy.

PART 2 - PRODUCTS

2.01 GENERAL CONDITIONS AND REQUIREMENTS

A. The contractor shall install finish hardware as required. The hardware shall be fitted prior to the painting and then removed and painting completed before final installation of the hardware. The Contractor shall be responsible for arranging his work and securing delivery of all hardware so that all work shall progress without delay or interruption.

B. Upon delivery of the finish hardware to the job site, the Contractor shall be responsible for all materials. The hardware shall be protected from damage at all times, prior to and after its installation.

C. Finish hardware must be neatly and properly installed in accordance with the best practices as prescribed by the manufacturer and as approved by the Architect. All hardware must be thoroughly cleaned prior to turning the building over to the owner. No extra cost will be allowed because of changes or corrections necessary to facilitate the proper installation of any hardware. The Contractor shall be responsible for the proper fabrication of all work or material to receive the hardware. Contractor shall be responsible for proper hand and fit of all hardware.

D. While the hardware schedule is intended to cover all doors, and other movable parts of the building, and establish type and standard of quality, it shall be the specific duty and responsibility of finish hardware supplier to examine Plans and Specifications and furnish 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.

E. Fastenings: Finish hardware shall be furnished with all necessary screws, bolts, or other fastenings of suitable size, and type to anchor hardware in position for heavy use and long life, and shall harmonize with hardware as to material and finish. These fastenings shall be furnished where necessary with expansion shields, sex bolts, toggle bolts, or other approved anchors according to material to which it is applied and as recommended by manufacturer. All hardware fastened to concrete shall be furnished with machine screws and metal anchors.

F. Electrical and Mechanical: Make provisions and coordinate requirements for mechanical and electrical devices in connection with hardware.

2.02 PRODUCTS

A. Acceptable Manufacturers

1. Provide items in Hardware Schedule complete to function as intended. Every attempt should be made to match existing hardware. Items specified are for function and bidding.

2. Acceptable manufacturers are established by reference in the Hardware Types List with reference to catalog numbers and designations.

3. Substitutions: Systems by listed alternate manufacturers are considered acceptable substitutions. Use the groups specified in the case that architect does not supply written acceptance prior to bid.

4. All bids will be based on manufacturers' items specified for locks, closers and panic devices. Client is seeking bidders' best price on these items. After acceptance of original bid based on items specified, other manufacturers may be presented for cost saving purposes only.

2.03 HARDWARE TYPES LIST

A. Catalog Numbers used in this specification are those of the following manufacturers:

1.	Hinges:	Hager
2.	Locks & Cylinders:	Schlage (Owner has final decision)
3.	Exit Devices:	Von Duprin

4.	Closers:	LCN
5.	Trim:	Glynn Johnson, Stanley, Rockwood, Trimco, Builders Brass
6.	Floor/Wall Stops:	Glynn Johnson/Ives/ABH
7.	Overhead Holders/Flush Bolts:	Glynn Johnson/Ives/ABH/Trimco
8.	Floor Closers/Pivots:	Rixson, LCN, Dor-o-Matic
9.	Thresholds/Weather Stripping:	Pemko or By Door Manufacturer
10.	Silencers	Glynn Johnson
11.	Special Items:	Sentrol (Door Contacts) Rutherford (Electric Strikes, etc.) Stanley (Tracksets) LCN (Concealed Power Assist Operator)

B. Acceptable Alternate Manufacturers: Items produced by following manufacturers, equal to those specified in materials, weight, size, function, design and finish will not require submittal of physical sample or request for substitution but will be considered only after acceptance of final bid, and for cost saving purposes only. Even items listed below, if not acceptable to the owner/architect for any reason, will not be approved and the items originally specified will be the items used.

1.	Hinges:	Stanley
2.	Locks & Cylinders:	
3.	Exit Devices:	
4.	Closers:	Norton 7500
5.	Trim:	
6.	Floor/Wall Stops:	Ives
7.	Overhead Holders:	
8.	Floor Closers/Pivots:	
9.	Thresholds/Weather Stripping:	Reese, Zero, National Guard
10.	Silencers:	Ives
11.	Special Items:	

C. Hardware Items

1. Review drawings for hardware group locations and door types; where not fully covered in Hardware Schedule, comply with general requirements.

2. Hinges and Butts: Comply with following unless otherwise indicated.

a. Doors 1-3/4" thick and up to 41" wide: 4-1/2" heavy weight.

b. Doors 1-3/4" thick and up to 48" wide: 4-1/2" extra heavy weight.

c. Doors 2" thick or over 48" wide: 5" extra heavy weight or oilite bearing.

d. Provide widths sufficient to clear trim projections when door swings 180 degrees.

e. Provide 3 hinges to 90" high, 1 hinge for each 18" above 90" high for each door leaf, unless otherwise indicated.

f. Provide ball bearing or oilite hinges at doors with closers.

g. All exterior hinges to have NRP (non-removable pin).

3. Locksets and Latchsets: Provide of metal matching specified finish; interior parts of steel and zinc-dichromatic plating, to resist rusting and corrosion; do not supply plastic, die-cast or aluminum mechanisms.

a. Type: ND series

b. Lock Design: Sparta

c. Backset: 2 3/4

d. Strikes: Furnish standard strikes with extended lips where required to protect trim from being marred by latch bolt; verify type of cutouts provided in metal frames.

4. Keying: Schlage keyway to meet existing standard.

a. Hardware manufacturers shall provide for grand master, master key, keyed alike or keyed different keying as directed by Owner/Architect.

b. Provide construction keying or construction cylinders for doors requiring locking during construction; construction inserts or cylinders shall be removed just prior to owner occupancy.

c. Furnish (10) master keys per master key group, (5) construction keys, (1) extractor keys, (1) emergency keys, (100) blank keys), and (2) change keys per cylinder. Stamp all keys "DO NOT DUPLICATE".

d. Tag all keys with location and schedule heading number and submit keys for final use to owner.

e. Hardware manufacturers shall key and register lock cylinders and shall keep complete and accurate records for future expansion and reference purposes.

f. Key control box shall be provided to Owner to hold keys plus 20% expansion.

g. All existing doors should be re-keyed to new master key system.

5. Closers: Door closer shall be surface mounted. Doors with closers must be operable by a single effort not exceeding 5.0 lbs. for interior doors, 8.5 lbs. for exterior doors and 15 lbs. for labeled smoke and fire barrier doors. Closer arms shall allow for 180° mounting where required by door conditions. Supply drop plates at narrow top rail doors. Closers shall be sized by manufacturer's recommendation and accessibility and code standards. All closers to be adjusted by closer manufacturer's representative.

6. Sex Bolts: Sex bolts and grommet nuts shall be avoided on door faces in highly visible areas, unless no alternative is possible, as directed and approved, and shall not be used for solid wood core doors.

   a. Lacquered Doors: Provide fire-rated hardware capable of being mounted on mineral core doors without sex bolts.

7. Door Stops: See Door Schedules for reference.

8. Threshold: Furnish thresholds as detailed or specified. See Door Schedules for reference.

9. Kickplates: Height x 1 1/2" less door width x .050.

10. Mop Plates (Pull Side Kickplates): Height x ½" less door width x .050.

11. Armor Plates: Height x 1 1/2" less door width x .050.

12. Silencers: Furnish hollow metal door frames with door silencers; three at single doors and four at pairs. Glynn Johnson GJ64 or Ives 20.

13. Push Plates: Furnish push plates mounted with screws.

14. Pulls: Pulls shall be provided with bolts to secure them from opposite door face and shall have plates unless otherwise noted.

D. Finishes

1. Provide following finishes unless otherwise indicated.

2. Typical: 626 Brushed Chrome for locks, exit devices; 630 Stainless Steel for pulls, kickplates, push plates. (All hardware to match)

3. Other items: Provide manufacturers standard finishes to match locks on same door, and maintain acceptable finish considering anticipated use.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify Site Conditions.

B. Verify doors and frames are ready to receive work and dimensions are in conformance with Contract Documents.

C. Verify electric power is available to power operated devices and is of correct characteristics for items requiring power.

3.02 INSTALLATION

A. Install finish hardware specified under this section; coordinate with manufacturer of doors and frames.

B. Fit hardware prior to painting, then removed for painting of doors and frames before final installation of hardware.

C. Install hardware in accordance with manufacturer's instructions.

D. No extra cost will be allowed because of changes or corrections necessary to facilitate installation of hardware.

3.03 MOUNTING POSITIONS

A. Heights are centerline heights from finished floor.

B. Comply with recommendations of Builders Hardware Manufacturers Association, subject to approval, for height of items not indicated; height is to center unless otherwise noted. Must be within ADA requirements.

1.	Locks and latches:	36" to center of lever.
2.	Door Pulls:	44" to center of grip.
3.	Push Plate:	44"; coordinate with pull location.
4.	Push-Pull Bar:	44" to center of bar.
5.	Top Hinge:	To jamb manufacturer's standard, but not greater than 10" from head of frame to centerline of hinge.
6.	Bottom Hinge:	To jamb manufacturer's standard, but not greater than 12 1/2" from floor to center of hinge.
7.	Intermediate Hinges:	Equally spaced between top and bottom hinges and from each other.
8.	Hinge Mortise on Door Leaf:	1/2" to 5/16" from stop side of door.
9.	Deadbolt:	Not more than 48" from floor to operating lever.
10.	Other items:	Comply with recommendations of Builders Hardware Manufacturers Association (BHMA), subject to approval, for heights of items not indicated.

3.04 ADJUSTMENT

A. Prior to acceptance or occupancy, make final check and adjustment of all hardware items. 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.

B. Instruct Owner's Representative in proper adjustment and maintenance of hardware and hardware finishes during the final adjustment of hardware.

3.05 HARDWARE SCHEDULE

A. The Hardware Schedule established a type and standard of quality.

B. Examine drawings and specifications and furnish proper hardware for door openings, whether listed or not.

C. Bring omissions to attention of Architect prior to bid opening for instructions; otherwise, list will be considered complete; no extras will be allowed.

DOOR HARDWARE

The Owner is seeking best bid on items specified. Any questions or concerns regarding the items or equals specified must be brought to the attention of the Owner's Representative before bid submittal. Owner will make all final decisions regarding the products to be used. If, after bid acceptance, Contractor presents hardware items that are not named equals, there may be a charge to the Contractor for evaluation of those products.

All electrical requirements to be coordinated by General Contractor and Electrical Contractor to ensure that all hardware can function as intended.

Hinge quantity will vary with size of door; follow manufacturer's recommendations. Hinges on all Exterior Doors to be of nonferrous material and have non-removable pins.

All doors to have proper seals to meet positive pressure requirements; this is the responsibility of the Door Manufacturer.

Lock design is ND series Sparta by Schlage with Schlage keyways to match standard. Use 626 finish on locks, exit devices, etc. but use 630 Stainless Steel finish on all pulls, kickplates, and push plates. Provide temporary construction cylinders. All Exit Devices to have removable core cylinders.

Card Readers are to be selected by Security and are the responsibility of the General Contractor. They must interface with camera system (Rapid Eye) and all relevant electronic components.

All Exterior Doors to have Door Contacts 1078W by Sentrol. All Exterior seals for weather and water are the responsibility of the Door Manufacturer and the General Contractor. The specified thresholds in the Door Groups are recommended guidelines; as changes may occur during the submittal process, the Door Manufacturer and the General Contractor must do the final check on these items. Provide rain drip and seal on all Exterior Doors. See Detail, but provide minimum of 158A with 290 Stop by Pemko; Door & Frame Manufacturer are responsible for ensuring water tight sealing on all four sides of door openings.

It is the responsibility of the Door Supplier and the General Contractor to ensure that all Exterior Doors are weather sealed and meet all accessibility codes.

Where closers are used, the Hardware Supplier is to supply all brackets and drop plates to meet the specific use and function of the door.

Any Automatic Doors should be guaranteed installed one year and are the responsibility of the Door Supplier who should coordinate the provision of all hardware components that are necessary to operate these doors.

Door Pulls or Push Plates used on any doors should match in design if they are visible at the same time. Kickplates are on the Door Schedule, as noted by Architect. Any change in one lever in the project must be assumed potentially to require changes in other levers, thus any change must have advance approval of the Architect. All Pulls must meet current ADA requirements. All Kickplates and Mop Plates with heights are noted on the Door Schedule supplied by the Architect.

In some cases, existing hardware will be re-used. If so, General Contractor must ensure that re-used hardware is clean, in good working order, and meets all current applicable codes.

Regarding Gate Hardware, it is the responsibility of the Gate Manufacturer(s) and the General Contractor to ensure that all hardware meets the standard of hardware specified in the Door Groups below and is appropriate for exterior use.

IMPORTANT - PLEASE NOTE: The Hardware Consultant is available to the General Contractor to assist in reviewing hardware submittals from suppliers to ensure that all items are in the bid and that the supplier has not omitted or substituted items because of changes or product information was ambiguous, or in order to submit a more competitive bid.

Group #1 — **Pair of Doors w. Automatic Power Assist Door Operators**

*	Pair Hinges	BB1191S.S.	Hager
2	Exit Devices	EL3347NL-OP (to be elec. Dogged)	Von Duprin
3	Cylinders	to match system	
2	Power Transfer Hinges	EPT-10	Von Duprin
1	Power Booster	871	Von Duprin
2	Concealed Auto. Closers	2610 pneumatic w. 4 buttons,	LCN
		Air compressor and all items necessary for proper installation and operation	
1	Key Switch	960N - to operate w. O/S button	Rutherford
2	Pulls	as detailed	Rockwood
2	Door Stops	290AS	Pemko
1	Threshold	158A	Pemko
*	Seal	S88D	Pemko

Group #2 — **Single Door w. Automatic Power Assist Door Operator**

*	Pair Hinges	BB1191	Hager
1	Exit Device	EL9975NL-OP (able to be elec. Dogged)	Von Duprin
1	Cylinder	to match system	
1	Power Transfer Hinge	EPT-10	Von Duprin
1	Power Booster	871	Von Duprin
1	Concealed Auto. Closer	2610 pneumatic w. 4 buttons,	LCN
		Air compressor and all items necessary for proper installation and operation	
1	Key Switch	960N - to operate w. O/S button	Rutherford
1	Pull	as detailed (to match Front Door)	Rockwood
1	Door Stop	290AS	Pemko
1	Threshold	158A	Pemko
*	Seal	S88D	Pemko

Group #3 — **Pair Doors w. Exit Devices; Push/Pull When Dogged**

*	Pair Hinges	BB1191S.S.	Hager
2	Exit Devices	CD3347NL-OP	Von Duprin
4	Cylinders	to match system	
2	Closers	2030 series w. H.O. & Stop	LCN
2	Pulls	as detailed (to match Front Door)	Rockwood
2	Door Stops	290AS	Pemko
1	Threshold	158A	Pemko
*	Seal	S88D	Pemko

Group #4 — **Single Aluminum Door w. Concealed Drop Bottom and Surface Closer**

*	Pair Hinges	BB1191	Hager
1	Lockset	ND60PD	Schlage
1	Closer	4110 series w. stop	LCN
1	Drop Bottom	412ARL	Pemko
1	Rain Drip	345A	Pemko
1	Door Stop	290AS	Pemko
1	Threshold	158A	Pemko
*	Seal	S88D	Pemko

Group #4A — **Single Aluminum Door w. concealed Drop Bottom & Concealed Closer**

*	Pair Hinges	BB1191	Hager
1	Lockset	ND60PD	Schlage
1	Closer	2030 w. stop Installed in Aluminum Storefront Frame	LCN
1	Drop Bottom	420AS at Aluminum or H.M Doors	Pemko
1	Rain Drip	345A	Pemko
1	Door Stop	290AS	Pemko
1	Threshold	158A	Pemko
*	Seal	S88D	Pemko

Group #5 — **Large Door w. Concealed Closer w. Stop**

*	Pair Hinges	BB1199	Hager
1	Lockset	ND60PD	Schlage
1	Closer	2030 w. stop Installed in Aluminum Storefront Frame	LCN
1	Door Stop	290AS	Pemko
1	Threshold	158A	Pemko
*	Seal	S-88D	Pemko

Group #6 — **Hollow Metal Door w. Surface Closer, Apartment Function**

*	Pair Hinges	BB1191	Hager
1	Lockset	ND60PD	Schlage
1	Closer	4110 series w. stop	LCN
1	Rain Drip	345A	Pemko
1	Door Stop	290AS	Pemko
1	Threshold	158A	Pemko
*	Seal	S88D	Pemko

Group #7 — **Pair of Exterior Storage Doors, Always Locked, Automatic Flush Bolts, No Closer**

*	Pair Hinges	1191	Hager
1	Lockset	ND80PD	Schlage
1	Door Stop	ADJ-100	Glynn Johnson/ABH
2	Flush Bolts	FB31P	Ives
1	Dustproof Strike	DP2	Ives
2	Rain Drips	345A	Pemko
2	Door Stops	290AS	Pemko
1	Threshold	158A	Pemko
*	Seal	S88D	Pemko
1	Astragal	355AV	Pemko
1	Coordinator	COR w. filler bar	Ives

Group #8 — **Pair of Exterior Storage Doors w. Closer, Always Locked, Floor Stops**

*	Pair Hinges	BB1191	Hager
1	Lockset	ND80PD	Schlage
2	Closers	4110 series	LCN
2	Door Stops	ADJ-100	Glynn Johnson/ABH
2	Flush Bolts	FB31P	Ives
1	Dustproof Strike	DP2	Ives
2	Rain Drips	345A	Pemko
2	Door Stops	1209 w. hook	Trimco
1	Threshold	158A	Pemko
*	Seal	S88D	Pemko
1	Astragal	355AV	Pemko
1	Coordinator	COR w. filler bar	Ives

Group #9 — **Staff Entry, Electric Strike, Card Reader, Apartment Function**

*	Pair Hinges	BB1191	Hager
1	Lockset	ND60PD	Schlage
1	Electric Strike	S-65	Rutherford
1	Closer	4110 series w. H.O. 90^0 w. stop	LCN
1	Rain Drip	345A	Pemko
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko
1	Card Reader	to operate Electric Strike Responsibility of General Contractor	Selected by Owner

Group #10 — **Connecting Door Between Areas, Always Locked on One Side, Card Reader & Electric Strike**

*	Pair Hinges	BB1191	Hager
1	Lockset	ND80PD	Schlage
1	Electric Strike	S-65	Rutherford
1	Closer	4110 w. max stop & H.O. (must not hit lever)	LCN
1	Rain Drip	345A	Pemko
1	Drop Bottom	412ARL	Pemko
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko
1	Card Reader	to operate Electric Strike Responsibility of General Contractor	Selected by Owner

Group #11 — **Apartment Function, Electric Strike, Card Reader, Floor Stop**

*	Pair Hinges	BB1191	Hager
1	Lockset	ND60PD	Schlage
1	Electric Strike	S-65	Rutherford
1	Closer	4010	LCN
1	Door Stop	1209	Trimco
1	Rain Drip	345A	Pemko
1	Drop Bottom	412ARL	Pemko
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Group #12 — **Cat Door, Classroom Function, Wall Stop, No Closer**

*	Pair Hinges	1191	Hager
1	Lockset	ND70PD	Schlage
1	Door Stop	WB50X	Ives
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Group #13 — **Classroom Function, Steel Hinges, Wall Stop, No Closer**

*	Pair Hinges	1279	Hager
1	Lockset	ND70PD	Schlage
1	Door Stop	WB50X wall	Ives
1	Threshold	151A	Pemko
*	Seal	GJ64	Glynn Johnson/Ives

Group #14 — **Wood Door, Concealed Drop Bottom, Classroom Function**

*	Pair Hinges	1279	Hager
1	Lockset	ND70PD	Schlage
1	Door Stop	WB50X	Ives
1	Drop Bottom	411APKL	Pemko
1	Threshold	151A	Pemko
*	Seal	S88D	Pemko

Group #15 — **Bathroom Not-Rated, Push/Pull, Wall Stop**

*	Pair Hinges	BB1279	Hager
1	Closer	4010 series	LCN
1	Door Stop	WB50X	Ives
1	Pull	70C	Rockwood
1	Push	70C x 111	Rockwood
1	Threshold	Marble – as detailed	
*	Seal	S88D	Pemko

Group #16 — **Always Locked O/S, Concealed Drop Bottom, No Closer**

*	Pair Hinges	1279	Hager
1	Lockset	ND80PD	Schlage
1	Door Stop	WB50X	Ives
1	Drop Bottom	412ARL	Pemko
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Group #17 — **Always Locked on One Side w. Stop & H.O. in Closer, Concealed Drop Bottom**

*	Pair Hinges	BB1191	Hager
1	Lockset	ND80PD	Schlage
1	Closer	4110 series w. stop & H.O.	LCN
1	Rain Drip	345A	Pemko
1	Drop Bottom	420AS	Pemko
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Group #18 — **Passage Function w. Closer, No Threshold**

*	Pair Hinges	BB1191	Hager
1	Latchset	ND10S	Schlage
1	Closer	4110 series	LCN
1	Door Stop	WB447 – mount at upper style of door Must be high off the floor	Ives
1	Rain drip	345A	Pemko
*	Seal	S88D	Pemko

Group #19 — **Apartment Function, Concealed Drop Bottom, Rain Drip & Threshold**

*	Pair Hinges	BB1191	Hager
1	Lockset	ND60PD	Schlage
1	Closer	4010 series	LCN
1	Door Stop	WB447 – mount at upper style of door Must be high off the floor	Ives
1	Rain Drip	345A	Pemko
1	Drop Bottom	420AS	Pemko
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Group #20 — **Apartment Function w. Stop & H.O. in Closer, Concealed Drop Bottom**

*	Pair Hinges	BB1279	Hager
1	Lockset	ND60PD	Schlage
1	Closer	4110 series PA cush 'n stop & H.O.	LCN
1	Rain Drip	345A	Pemko
1	Drop Bottom	420AS	Pemko
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Group #21 — **Always Locked O/S; I/S Able to be Locked or Unlocked, Concealed Drop Bottom for Metal Door**

*	Pair Hinges	BB1191	Hager
1	Lockset	ND80/70PD special	Schlage
1	Closer	4110 series PA cush 'n stop	LCN
1	Rain Drip	345A (push side)	Pemko
1	Drop Bottom	420AS	Pemko
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Group #21A — **Always Locked O/S; I/S Able to be Locked or Unlocked, Concealed Drop Bottom for Wood Door**

*	Pair Hinges	BB1191	Hager
1	Lockset	ND80/70PD special	Schlage
1	Closer	4110 series PA cush 'n stop	LCN
1	Rain Drip	345A (push side)	Pemko
1	Drop Bottom	412ARL	Pemko
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Group #22 — **Apartment Function, Metal Door w. Surface Closer, Concealed Drop Bottom**

*	Pair Hinges	BB1191	Hager
1	Lockset	ND60PD	Schlage
1	Closer	4010 series	LCN
1	Door Stop	WB447 – mount at upper style of door Must be high off the floor	Ives
1	Drop Bottom	420AS	Pemko
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Group #23 — **Classroom Function, Concealed Drop Bottom for Wood Door, No Closer**

*	Pair Hinges	1191	Hager
1	Lockset	ND70PD	Schlage
1	Door Stop	WB447 – mount at upper style of door Must be high off the floor	Ives
1	Rain Drip	345A	Pemko
1	Drop Bottom	412ARL	Pemko
*	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Comment: At Door #336, omit Rain Drip. Add Door Stop FS13 by Ives on floor.

Group #23A — **Large Door, Classroom Function, Concealed Drop Bottom for Wood Door, No Closer**

*	Pair Hinges	1199	Hager
1	Lockset	ND70PD	Schlage
1	Door Stop	WB447 – mount at upper style of door Must be high off the floor	Ives
1	Rain Drip	345A	Pemko
1	Drop Bottom	412ARL	Pemko
*	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Comment: At Door #336, omit Rain Drip. Add Door Stop FS13 by Ives on floor.

Group #24 — **Passage Function w. Surface Door Stop & Concealed Drop Bottom**

*	Pair Hinges	1191	Hager
1	Latchset	ND10S	Schlage
1	Door Stop	ADJ-100	Glynn Johnson/Ives
1	Drop Bottom	420AS	Pemko
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Group #25 — **Sliding Door in Pocket w. Cup Pulls**

1	Trackset	PD-250 w. all necessary components for proper installation and operation	Stanley
2	Pulls	1111C	Trimco
1	Threshold	151A	Pemko

Group #26 — **Dutch Door, Dead Bolt to Hold Leaves Together, Office Function**

*	Pair Hinges	1279	Hager
1	Lockset	ND50PD	Schlage
1	Dead Bolt	BC180 to hold two leaves together	Schlage
1	Door Stop	FS13	Glynn Johnson/Ives
1	Door Stop	WB50X	Ives
1	Closer	4010 series w. H.O.	LCN
1	Threshold	236A	Pemko
*	Seal	S88D	Pemko

Group #27 — **Pair of Doors, Storeroom Function, Always Locked O/S**

*	Pair Hinges	1279	Hager
1	Lockset	ND80PD	Schlage
2	Door Stops	WS407CVX	Ives
2	Closers	ADJ-100	Glynn Johnson/ABH
2	Flush Bolts	FB31P	Ives
1	Dustproof Strike	DP2	Ives
1	Threshold	151A	Pemko
*	Seal	S88D	Pemko
1	Astragal	355AS	Pemko
1	Coordinator	COR w. filler bar	Ives

Group #28 — **Office Function, No Closer**

*	Pair Hinges	1279	Hager
1	Lockset	ND50PD	Schlage
1	Door Stop	FS13	Ives
*	Seal	S88D	Pemko

Comment: At Door 111, add Threshold 151A by Pemko.

Group #29 — **Single Door, Passage Function w. Closer**

*	Pair Hinges	BB1191	Hager
1	Latchset	ND10S	Schlage
1	Closer	4010 series	Pemko
1	Door Stop	WB447 – mount at upper style of door Must be high off the floor	Ives
1	Rain Drip	345A	Pemko
1	Drop Bottom	420AS	Pemko
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Group #30 — **Storeroom Function, Always Locked, No Closer, No Sound Seals**

*	Pair Hinges	1279	Hager
1	Lockset	ND80PD	Schlage
1	Door Stop	FS13	Ives
3	Silencers	GJ64	Glynn Johnson

Group #31 — **Large Door, Storeroom Function for Equipment, No Closer**

*	Pair Hinges	1199	Hager

1	Lockset	ND80PD	Schlage
1	Door Stop	FS13	Ives
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Group #32 — **Rated Door, Classroom Function, Stop in Surface Closer, Concealed Drop Bottom**

*	Pair Hinges	BB1279	Hager
1	Lockset	ND70PD	Schlage
1	Closer	4110 series w. stop.	LCN
1	Drop Bottom	412ARL	Pemko
1	Threshold	2005AT	Pemko
*	Seal	S88D	Pemko

Group #33 — **Apartment Function, Electric Strike, Card Reader**

*	Pair Hinges	BB1279	Hager
1	Lockset	ND60PD	Schlage
1	Electric Strike	S-65	Rutherford
1	Door Stop	FS13	Ives
1	Closer	4010 series	LCN
1	Threshold	151A	Pemko
*	Seal	S88D	Pemko
1	Card Reader	to operate Electric Strike Responsibility of General Contractor	Selected by Owner

Group #34 — **Passage Function, No Closer**

*	Pair Hinges	1279	Hager
1	Latchset	ND10S	Schlage
1	Door Stop	FS13	Ives
1	Threshold	151A	Pemko
*	Seal	S88D	Pemko

Group #35 — **Bathroom, Privacy Function, Closer & Wall Stop**

*	Pair Hinges	BB1279	Hager
1	Latchset	ND40S	Schlage
1	Closer	4010 series	LCN
1	Door Stop	WB50X	Ives
1	Threshold	151A (at doors #316 & 317)	Pemko
*	Seal	S88D	Pemko

Group #36 — **Passage Function w. Stop in Closer**

*	Pair Hinges	BB1279	Hager
1	Latchset	ND10S	Schlage
1	Closer	4110 series w. stop	LCN
1	Threshold	151A	Pemko
*	Seal	S88D	Pemko

Group #37 — **Classroom Function w. Stop in Closer**

*	Pair Hinges	BB1279	Hager
1	Lockset	ND70PD	Schlage

1	Closer	4110 series w. stop	LCN
*	Seal	S88D	Pemko

Group #38 **Glass Doors (Wilson Partition Doors), Dead Bolt and Surface Bolts, Both Doors Have Pulls**

*	Pair Hinges	1279	Hager
1	Dead Bolt	L460P	Schlage
2	Roller Catches	RL35	Ives
2	Pulls	111 12" c. to c.	Rockwood
2	Surface Bolts	SB453TB	Glynn Johnson

Group #39 **Door by Manufacturer**

Responsibility of General Contractor.

Group #40 **Schedule of Gate Hardware to be Supplied by Architect**

END OF SECTION

SECTION 08730

AUTOMATIC DOOR OPERATORS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section describes the requirements for furnishing and installing automatic door operators at exterior storefront entry doors where scheduled.

B. Related Sections:

1. Aluminum entrance doors are specified in Section 08412.

2. Door hardware is specified in Section 08710.

1.02 SUBMITTALS

A. Product Data: Furnish manufacturer's product data and standard details including fabrication, finishing, hardware, operators, accessories, and other components of the work. Include rough-in diagrams, wiring diagrams, parts lists, and maintenance instructions.

B. Shop Drawings: Furnish shop drawings for fabrication and installation. Show anchors, joint system, expansion provisions, hardware, and other components not shown in manufacturer's product data.

C. Templates and Diagrams: Furnish templates, diagrams, and other data to fabricators and installers of related work for coordination of operators with doors, frames, hardware, electrical, and other work.

1.03 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Provide operators produced by a firm with not less than 5-years experience in the fabrication of automatic door operation equipment.

B. Installer's Qualifications: An authorized representative of the door manufacturer.

C. Automatic door operators shall comply with ANSI A156.10 and UL 325.

D. Barrier free door operators shall comply with ANSI A156.19, Low-Energy Automatic Door Standard.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS

A. Horton Automatics "4000 Series – Low Energy" or equal by Besam, Inc., Republic Industries, Inc., Gyro Tech, Inc., Stanley Magic-Door Div. of Stanley Works or approved equal.

2.02 AUTOMATIC DOOR OPERATOR FOR BARRIER FREE DOORS

A. Operator: Low-energy, self-contained, electromechanical design. The operator shall be powered open with a DC motor with closing by spring force. The motor shall be off when the door is in the closing mode. The door shall be manually operated with power on or off without damage to the operator.

1. Operator shall permit manual opening of door and automatic operation when actuated with pushbutton switch.

2. The operator shall include the following variable adjustments in compliance with ANSI A156.19:

a. Opening Speed: 3- to 5-seconds.

b. Closing Speed: 3- to 5-seconds.

c. Time Delay Before Closing: 2- to 30-seconds.

3. Opening and closing force, measured 2-inches out from the lock stile of the door, shall not exceed 15-pounds of force to stop the door when operating in either direction.

4. Operator shall be mounted and concealed in an extruded aluminum cover running full width of door. Finish aluminum with a clear anodized finish.

5. Operator shall interface with electric security system where required.

B. Control Switches: Round stainless steel engraved handicap design, marked "Push to Open", one for each side of opening. Locate where indicated.

C. Electrical Requirements: 120-VAC, 1-phase, 60-Hz to operator; low voltage wires from push-plate switches to operator.

D. Door operator adjustment shall not require a computer to re-program a computer chip.

E. Safety Functions:

1. Provide passive infrared sensor on swing side of doors to prevent door operation while a person or object is in the path of door in accordance with ANSI 156.10.

2. Provide adjustable time delay that gives “open” command to door operator to hold door open for 12-seconds or less.

3. Automatic swing doors shall be used by trained traffic only; guardrails on swing side are not required.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install automatic door operating equipment by factory-trained installers in accordance with manufacturer's instructions and reviewed shop drawings.

B. Adjust operators to achieve smooth and quiet operation.

3.02 CLEANING AND PROTECTION

A. Clean exposed operating components as recommended by manufacturer.

B. Protect automatic door operating equipment from damage and deterioration during construction.

END OF SECTION