SECTION 08 71 00
DOOR HARDWARE

PART 1 - GENERAL

1.1 CONDITIONS

A. Conditions of the contract (General and Supplementary Conditions) and Division One General Requirements, govern the work of this section.

B. This section includes all material, and related service necessary to furnish all finish hardware indicated on the drawings or specified herein.

C. Furnish UL listed hardware for all labeled and 20 min. openings in conformance with the requirements for the class of opening scheduled. Underwriters' requirements shall have precedence over specification where conflicts exist.

D. All work shall be in accordance with all applicable state and local building codes. Code requirements shall have precedence over this specification where conflicts exist.

1.2 WORK INCLUDED

A. This section includes the following:

1. Furnish door hardware (for hollow metal, wood and aluminum doors) specified herein, listed in the hardware schedule, and/or required by the drawings.
2. Cylinders for Aluminum Doors
3. Thresholds and Weather-stripping (Aluminum frame seals to be provided by aluminum door supplier)
4. Electro-Mechanical Devices
5. Access Control components and or systems specified within this section.

B. Where items of hardware are not definitely or correctly specified and is required for the intended service, such omission, error or other discrepancy should be directed to the Architect prior to the bid date for clarification by addendum. Otherwise furnish such items in the type and quantity established by this specification for the appropriate service intended.

1.3 RELATED WORK IN OTHER SECTIONS

A. This section includes coordination with related work in the following sections:

1. Division 6 Section "Finish Carpentry".
2. Division 6 Section "Cabinet Hardware"
3. Division 8 Section "Hollow Metal Doors and Frames".
4. Division 8 Section "Wood Doors"
5. Division 8 Section "Aluminum Entrances and Storefronts"
6. Division 28 Sections "Electrical".

1.4 REFERENCES

A. Publications of agencies and organizations listed below form a part of this specification section to the extent referenced.

1. DHI - Recommended Locations for Builders' Hardware.
2. NFPA 80 - Standards for Fire Doors and Windows.
3. NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures.
4. UL - Building Material Directory.
5. DHI - Door and Hardware Institute
6. WHI - Warnock Hersey
7. BHMA - Builders Hardware Manufacturers Association
8. ANSI – American National Standards Institute
9. IBC 2018 - International Building Code 2018 Edition (as amended by local building code)

1.5 SUBMITTALS

A. Within ten days after award of contract, submit detailed hardware schedule in quantities as required by Division 1 - General Conditions.

B. Schedule format shall be consistent with recommendations for a vertical format as set forth in the Door & Hardware Institute's (DHI) publication "Sequence and Format for the Hardware Schedule". Hardware sets shall be consolidated to group multiple door openings which share similar hardware requirements. Schedule shall include the following information:

1. Door number, location, size, handing, and rating.
2. Door and frame material, handing.
3. Degree of swing.
4. Manufacturer
5. Product name and catalog number
6. Function, type and style
7. Size and finish of each item
8. Mounting heights
9. Explanation of abbreviations, symbols, etc.
10. Numerical door index, indicating the hardware set/ group number for each door.

C. When universal type door closers are to be provided, the schedule shall indicate the application method to be used for installation at each door: (regular arm, parallel arm, or top jamb).

D. The schedule will be prepared under the direct supervision of a certified Architectural Hardware Consultant (AHC), or certified Door Hardware Consultant (DHC) employed by the hardware distributor. The hardware schedule shall be signed and embossed or stamped with the DHI certification seal of the supervising AHC or DHC. The supervising AHC or DHC shall attend any meetings related to the project when requested by the architect.

E. Check the specified hardware for suitability and adaptability to the details and surrounding conditions.

F. Review drawings from related trades as required to verify compatibility with specified hardware. Indicate unsuitable or in compatible items, and proposed substitutions in the hardware schedule.

G. Provide documentation for all hardware to be furnished on labeled fire doors indicating compliance with positive pressure fire testing UL 10C.

H. Furnish manufacturers' catalog data for each item of hardware in quantities as required by Division 1 - General Conditions.

I. Submit a sample of each type of hardware requested by the architect. Samples shall be of the same finish, style, and function as specified herein. Tag each sample with its permanent location so that it may be used in the final work.

J. Furnish with first submittal, a list of required lead times for all hardware items.

K. After final approved schedule is returned, transmit corrected copies for distribution and field use in quantities as required by Division 1 - General Conditions.

L. Furnish approved hardware schedules, template lists, and pertinent templates as requested by related trades.

M. Furnish necessary diagrams, schematics, voltage and amperage requirements for all electro-mechanical devices or systems as required by related trades. Wiring diagrams shall be opening specific and include both a riser diagram and point to point diagram showing all wiring terminations.

N. After receipt of approved hardware schedule, Hardware supplier shall initiate a meeting including the owner’s representative to determine keying requirements. Upon completion of initial key meeting, hardware supplier shall prepare a proposed key schedule with symbols and abbreviations as set forth in the door and hardware institute’s publication “Keying Procedures, Systems, and Nomenclature”. Submit copies of owner approved key schedule for review and field use in quantities as required by Division 1 – General Conditions. Wiring diagrams shall be included in final submittals transmitted for distribution of field use.

1.6 QUALITY ASSURANCE

A. Manufacturers and model numbers listed are to establish a standard of function and quality. Similar items by approved manufacturers that are equal in design, function, and quality, may be considered for prior

approval of the architect, provided the required data and physical samples are submitted for approval as set forth in Division One General Requirements.

B. Where indicated in this specification, products shall be independently certified by ANSI for compliance with relevant ANSI/BHMA standards A156.1 - A156.36 – Standards for Hardware and Specialties. All products shall meet or exceed certification requirements for the respective grade indicated within this specification. Supplier shall provide evidence of certification when requested by the architect.

C. Obtain each type of hardware (hinges, latch & locksets, exit devices, closers, etc.) from a single manufacturer, although several may be indicated as offering products complying with requirements.

D. Electrical drawings and electrical specifications are based on the specific electrified hardware components specified in hardware sets. When electronic hardware components other than those indicated in hardware sets are provided, the supplier shall be responsible for all costs incurred by the design team and their consultants to review and revise electrical drawings and electrical specifications. Supplier shall also be responsible for any additional costs associated with required changes in related equipment, materials, installation, or final hook up to ensure the system will operate and function as indicated in the construction documents, including hardware set operational / functional descriptions.

E. All hardware items shall be manufactured no earlier than 6 months prior to delivery to site.

F. Hardware supplier shall be factory trained and certified by the manufacture to provide and support all computer managed locks and system components.

G. Installation of hardware shall be installed or directly supervised and inspected by a skilled installer certified by the manufacturer of locksets, door closers, and exit devices used on the project, or with not less than 3 years' experience in successful completion of projects similar in size and scope.

H. Provide hardware for all labeled fire doors, which complies with positive pressure fire testing UL 10C.

I. Comply with all applicable provisions of the standards referenced within section 1.4 of this specification.

J. Hardware supplier shall participate when reasonably requested to meet with the contractor and or architect to inspect any claim for incorrect or non-functioning materials; following such inspection, the hardware supplier shall provide a written statement documenting the cause and proposed remedy of any unresolved items.

1.7 DELIVERY, STORAGE AND HANDLING

A. Hardware supplier shall deliver hardware to the job site unless otherwise specified.

B. All hardware shall be delivered in manufacturers' original cartons and shall be clearly marked with set and door number.

C. Coordinate with contractor prior to hardware delivery and recommend secure storage and protection against loss and damage at job site.

D. Contractor shall receive all hardware and provide secure and proper protection of all hardware items to avoid delays caused by lost or damaged hardware. Contractor shall report shortages to the Architect and hardware supplier immediately after receipt of material at the job site.

E. Coordinate with related trades under the direction of the contractor for delivery of hardware items necessary for factory installation.

1.8 PRE-INSTALLATION MEETING

A. Schedule a hardware pre-installation meeting on site to review and discuss the installation of continuous hinges, locksets, door closers, exit devices, overhead stops, and electromechanical door hardware.

B. Meeting attendees shall be notified 7 days in advance and shall include: Architect, Contractor, Door Hardware Installers (including low voltage hardware), Manufacturers representatives for above hardware items, and any other effected subcontractors or suppliers.

C. All attendees shall be prepared to distribute installation manuals, hardware schedules, templates, and physical hardware samples.

1.9 WARRANTY

A. All hardware items shall be warranted against defects in material and workmanship as set forth in Division One General Requirements.

B. Repair, replace, or otherwise correct deficient materials and workmanship without additional cost to owner.

PART 2 - PRODUCTS

2.1 FASTENERS

A. All exposed fasteners shall be Phillips head or as otherwise specified and shall match the finish of the adjacent hardware. All fasteners ex-posed to the weather shall be non-ferrous or stainless steel. Furnish correct fasteners to accommodate surrounding conditions.

B. Coordinate required reinforcements for doors and frames. Seek approval of the architect prior to furnishing through-bolts. Furnish through-bolts as required for materials not readily reinforced.

2.2 BUTT HINGES

A. Acceptable manufacturers and respective catalog numbers:

	Ives	Stanley	Hager	McKinney
1. Standard Weight, Plain Bearing	5PB1	F179	****	T2714
2. Standard Weight, Ball Bearing	5BB1	BB179	BB1279	TB2714
3. Standard Weight, Ball Bearing, Non-Ferrous	5BB1	FBB191	BB1191	TB2314
4. Heavy Weight, Ball Bearing	5BB1HW	FBB168	BB1168	T4B3786
5. Heavy Weight, Ball Bearing, Non-Ferrous	5BB1HW	FBB199	BB1199	T4B3386

B. Hinges shall be independently certified by ANSI for compliance with ANSI A156.1 (2006). Hinges shall meet or exceed the following ANSI grade requirements as indicated below:

1. Standard Weight, Plain Bearing Hinges: Grade 3
2. Standard Weight, 2 Ball Bearing Hinges: Grade 2
3. Heavy Weight, 4 Ball Bearing Hinges: Grade 1

C. Unless otherwise specified, furnish the following hinge quantities for each door leaf.

1. 3 hinges for doors up to 90 inches.
2. 1 additional hinge for every 30 inches on doors over 90 inches.
3. 4 hinges for Dutch door applications.

D. Unless otherwise specified, top and bottom hinges shall be located as specified in division 8 Section "Hollow Metal Doors and Frames". Intermediate hinges shall be located equidistant from others.

E. Unless otherwise specified, furnish hinge weight and type as follows:

1. Standard weight: plain bearing hinge 5PB1 or ball bearing hinge 5BB1 for interior openings through 36 inches wide without a door closer.
2. Standard weight: ball bearing hinge 5BB1 for interior opening over 36 through 40 inches wide without a door closer, and for interior openings through 40 inches wide with a door closer.
3. Heavyweight: 4 ball bearing hinge 5BB1HW for interior openings over 40 inches wide, and for all vestibule doors.
4. Heavyweight: 4 ball bearing hinge 5BB1HWss for exterior openings unless otherwise listed in groups.
5. Heavyweight: 4 ball bearing hinge 5BB1HWSS 5” for all exterior doors or 4 ball bearing hinge 5BBHW 5” for interior doors, that have an automatic operator.

F. Unless otherwise specified, furnish hinges for exterior doors, fabricated from brass, bronze, or stainless steel. Unless otherwise specified, hinges for interior doors may be fabricated from steel.

G. Unless otherwise specified, furnish hinges in the following sizes:

1. 5" x 5" 2-1/4" thick doors
2. 4-1/2" x 4-1/2" 1-3/4" thick doors
3. 3-1/2" x 3-1/2" 1-3/8" thick doors

H. Furnish hinges with width to accommodate trim and allow for 180-degree swing.

I. Unless otherwise specified, furnish hinges with flat button tips with non-rising pins at interior doors, non-removable loose pins (NRP) at exterior, and out-swinging lockable interior doors.

J. Unless otherwise specified, furnish all hinges to template standards.

2.3 PIVOTS

A. Acceptable manufacturers and respective catalog numbers:

	Ives	Rixson
1. Center Hung Pivot Set (std. duty)	7255	128

B. Obtain pivots from a single manufacturer, although several may be indicated as offering products complying with requirements.

C. Unless otherwise specified, furnish the following pivot quantities for each door leaf.

1. Bottom Pivot: one each pivot per leaf.
2. Top Pivot: one each pivot per leaf.
3. Intermediate Pivots: Doors over 60" require the use of one intermediate pivot. Every additional 30" of door height warrants another intermediate pivot.
4. Pocket Pivots: Doors over 80" require the use of four pocket pivots. Every additional 30" of door height warrants another pocket pivot.

D. Unless otherwise specified, intermediate pivots and pocket pivots shall be located equidistant from others.

E. Unless otherwise specified, furnish pivots for exterior doors, fabricated from brass, bronze, or stainless steel. Pivots for fire doors shall be ferrous and match the finish of adjacent hardware.

F. Bottom pivots provided for exterior doors shall incorporate fully sealed bearings, cap seals, and corrosion resistant plating on bottom pin.

G. Provide extended length spindles as required to accommodate sill details.

H. Furnish pivots with offset to accommodate trim and allow for 180-degree swing. Provide 1-1/2” offset when required by adjacent construction. Coordinate with related trades as required to ensure adjacent construction will not interfere with full range of door movement.

2.4 POWER TRANSFERS

A. Acceptable manufacturers and respective catalog numbers:

	Von Duprin	ASSA
1. Concealed Two Wire	EPT-2	CEPT-10
2. Concealed Ten Wire	EPT-10	CEPT-10

B. Door cords shall be armored cable with screw on caps.

C. Concealed power transfers shall be concealed in the door and frame when the door is closed.

D. Concealed power transfers shall have a steel tube to protect wires from being cut.

E. Concealed power transfers with spring tubes shall be rejected.

F. Concealed power transfers shall be supplied with a mud box to house all terminations.

2.5 FLUSH BOLTS AND DUST PROOF STRIKES

A. Acceptable manufacturers and respective catalog numbers:

	Ives	Door Controls	Hager
1. Dust Proof Strike	DP2	80	280X
2. Auto Flush Bolt (Metal Door)	FB31P	842	292D
3. Auto Flush Bolt (Wood Door)	FB41P	942	291D
4. Constant Latching Bolt (Metal Door)	FB51P	845	293D
5. Constant Latching Bolt (Wood Door)	FB61P	945	294D
6. Manual Flush Bolt	FB458	780	282D

B. Unless otherwise specified, provide 12" rods for manual flush bolts for door 7'6" or less, 24" top rods for doors over 7'6" to 8'6".

C. Unless otherwise specified, provide doors over 8'6" with automatic top bolts.

D. Provide automatic flush bolts where required to maintain fire door listing and or egress requirements on pairs of doors.

E. All flush-bolt applications shall be UL listed to be installed with top flush-bolt only. Provide auxiliary fire bolt as required for fire rated openings where less bottom bolt has been specified.

F. Provide all bottom flush bolts with non-locking dust proof strikes.

2.6 EXIT DEVICES

A. Acceptable manufacturers and respective catalog numbers:

		Von Duprin	Sargent	Detex
1.	Wide Stile, Push Pad	98 / 99 Series	GL-43-80 Series	Advantex (Wide Stile)
2.	Wide Stile, Electric Latch Retraction	QEL 98 / 99 Series	43-56-80 Series	Advante-ER x (Wide Stile)
3.	Lever Trim	996 Series	740 ET	“D/DM” Trim
4.	Pull Trim	990 Series	800 MAL	“C” Trim

A. Exit devices shall be independently certified by ANSI for compliance with ANSI A156.3, Grade 1 (2008).

B. Obtain exit devices from a single manufacturer, although several may be indicated as offering products complying with requirements.

C. All exit devices shall be equipped with a sound-dampening feature to reduce touch pad return noise.

D. Quiet Electric Latch Retraction shall be accomplished using a motor driven assembly, and shall incorporate the following features:

1. Motor shall retract both the push pad assembly and latchbolt.
2. Automatic calibration of latch throw and pull.
3. Built-in time delay.
4. On-board installation and troubleshooting diagnostics built into power supply and device.
5. Retry mode if device does not pull on the first try.

E. All exit devices shall be provided with flush end caps to reduce potential damage from impact.

F. All exit devices shall be provided with dead-locking latch bolts to ensure security.

G. All exit devices shall be U.L. listed for accident hazard. Exit device for use on fire doors shall also be U.L. listed for fire exit hardware.

H. Provide optional strikes, special length rods, and adapter plates to accommodate door and frame conditions. Provide narrow style series devices in lieu of wide stile series devices where optional strikes will not accommodate door and frame conditions.

I. Coordinate with related trades to ensure adequate clearance and reinforcement is provided in doors and frames. Provide thru bolts as required.

J. Refer to hardware groups for exit device applications utilizing the option of: "less bottom rod and floor strike" (LBR)

K. All exit devices shall be provided with optional trim designs to match other lever and pull designs used on the project.

L. Unless specific exit device dogging options are noted within hardware sets, provide dogging options as follows:

1. Fire Rated devices: Dogging not permitted.
2. Non-Rated Exit Only functions not equipped with outside trim or pull: Less Dogging.
3. Non-Rated Classroom functions: Less Dogging.
4. Non-Rated devices utilizing electric latch retraction or electrified outside trim: Less Dogging.

5. All Other Non-Rated devices: Cylinder Dogging utilizing interchangeable core cylinders. Cylinder keyway shall match locksets furnished on this project.

M. Provide glass bead kits as required to accommodate door conditions. Screws shall not be visible through full glass doors.

N. Where specified, provide compatible keyed mullions with cylinder for pairs of doors.

O. Provide reinforced crossbars for all traditional style exit devices applied to doors over 36" wide.

2.7 LOCKS AND LATCHES

A. Acceptable manufacturers and respective catalog numbers:

	Best	No Substitution
1. Grade 1 Cylindrical	9K Series	

B. Bored locks shall be independently certified by ANSI for compliance with ANSI A156.2 (2011).

C. Unless otherwise specified, all locks and latches to have:

1. 2-3/4" Backset
2. 1/2" minimum throw latchbolt
3. 1" throw deadbolt
4. ANSI A115.2 strikes

D. Provide guarded latch bolts for all locksets, and latch bolts with throw to maintain fire rating of both single and paired door assemblies.

E. Provide strike with lip length adequate to clear surrounding trim.

F. Provide wrought boxes for strikes at inactive doors, wood frames, and metal frames without integral mortar covers.

2.8 PULLS, PUSH BARS, PUSH/PULL PLATES

A. Acceptable manufacturers and respective catalog numbers:

	Burns	Hager	Ives
1. Straight Pull (1" dia., 10" CTC)	26C	4J	8103-0
2. Straight Pull (3/4” dia., 8” CTC)	25B	3G	8102-8
3. Offset Door Pull (1" dia., 10" CTC)	39C	12J	8190-0
4. Offset Pull (1” dia., 18” CTC Pull)	39G	23Q	8190-18
5. Pull / Push-Bar (1" dia., 10" CTC Pull)	422 x 26C	153	9103-0
6. Offset Pull / Push-Bar (1" dia., 10" CTC Pull)	422 x 39C	159	9190-0
7. Offset Pull / Push-Bar (1” dia., 18” CTC Pull)	422 x 39G	161	9190-18
8. Push Plate (.050 4"X 16")	54	30S 4 x 16	8200 4 x 16
9. Push Plate (.050 6"X 16")	56	30S 6 x 16	8200 6" X 16"
10. Pull Plate (1" dia., 10" CTC - .050" X 4" X 16")	5426C	34J 4 x 16	8303-0 4" X 16"

A. Adjust dimensions of push plates to accommodate stile and rail dimensions, lite and louver cutouts, and adjacent hardware. Where required by adjacent hardware, push plates shall be factory drilled for cylinders or other mortised hardware. All push plates shall be beveled 4 sides and counter sunk.

B. Where possible, provide back-to-back, and concealed mounting for pulls and push bars. Push bar length shall be 3" less door width, or center of stile to center of stile for stile & rail or full glass doors.

2.9 COORDINATORS

A. Acceptable manufacturers and respective catalog numbers:

	Ives	Door Controls	Hager
1. Bar Coordinator	COR x FL	600 x Filler	297D x 297F
2. Mounting Bracket	MB Series	AB, C Series	297 Series

B. Provide coordinators at all pairs of doors having automatic flush bolts and closers on the inactive leaf, and for pairs of doors having vertical rod/mortise exit device combinations with overlapping astragals.

C. Provide appropriate filler bars, closer mounting brackets, carry bars, and special top latch preparations as required by adjacent hardware.

2.10 CLOSERS

A. Acceptable manufacturers and respective catalog numbers:

	LCN	Sargent	Norton
1.	4011 /4111 EDA	281 / 281P10	R7500 / PR7500

B. Door closers shall be independently certified by ANSI for compliance with ANSI A156.4, Grade 1 (2013).

C. Obtain door closers from a single manufacturer, although several may be indicated as offering products complying with requirements.

D. Provide extra heavy-duty arm (EDA / HD) when closer is to be installed using parallel arm mounting.

E. Hardware supplier shall coordinate with related trades to ensure aluminum frame profiles will accommodate specified door closers.

F. Closers shall use high strength cast iron cylinders, forged main arms, and one-piece forged steel pistons.

G. Closers shall utilize a stable fluid withstanding temperature range of +120deg F to -30deg F 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 UL10C.

H. Unless otherwise specified, all door closers shall have full covers and separate adjusting valves for sweeps, latch, and backcheck.

I. Provide closers for all labeled doors. Provide closer series and type consistent with other closers for similar doors specified elsewhere on the project.

J. Provide closers with adjustable spring power. Size closers to ensure exterior and fire rated doors will consistently close and latch doors under existing conditions. Size all other door closers to allow for reduced opening force not to exceed 5 lbs.

K. Install closers on the room side of corridor doors, stair side of stairways and interior side of exterior doors.

L. Closers shall be furnished complete with all mounting brackets and cover plates as required by door and frame conditions, and by adjacent hardware.

M. Door closers shall be provided with a powder coat finish to provide superior protection against the effects of weathering. Powder coat finish shall successfully pass a 100 hour salt spray test.

2.11 LOW ENERGY ELECTRO-MECHANICAL AUTOMATIC OPERATORS

A. Acceptable manufacturers and respective catalog numbers:

		LCN
1.	Electro-Mechanical Operator	9500 Sr. Swing

B. Low energy operators shall be independently certified by ANSI for compliance with ANSI A156.19 (2002).

C. Where low kinetic energy, as defined by ANSI/BHMA Standard A156.19, power operators are indicated for doors required to be accessible to the disabled, provide electrically powered operators complying with the ADA for opening force and time to close standards.

D. Operator operation shall consist of Push button, push plate, switch-activated, manual or manual/electric power assisted Push 'N' Go opening with power boost closing and holding as specified in hardware sets.

E. Operators shall comply with ANSI A156.19, UL 325, and the American with Disabilities Act.

F. In event of power failure, make door operate manually with controlled spring close as though equipped with a #3 manual door closer, without damage to operator components.

G. Provide adjustment by microprocessor control for:

1. Opening speed.
2. Backcheck.
3. Hold-open, from 5 to 30 seconds.
4. Closing speed.
5. Opening force.
6. Acceleration during opening and recycling, for soft start.
7. Door will safely stop and reverse if an object is encountered in the opening or closing cycle.

H. Operator equipment shall be completely electromechanical and include the following features:

1. Close and center door against stop after each cycle, and hold against drafts, winds and stack pressure.
2. Manual opening force: 14 lb-force (62 N) maximum.
3. Closing force: 6 lb-force (26.6 N).
4. Factory-set door hold-open voltage.
5. Control box and motor/gear box shall be contained in protective housing; utilize precision-machined gears and bearing seats, all-weather lubricant, and shall be mounted on vibration isolators.
6. Gears shall be manufactured by operator manufacturer specifically for operators.
7. Motor shall consist of a DC permanent magnet motor with shielded ball bearings. Motor shall stop when door stops or is fully open and when breakaway is operated.
8. Door operating arm shall be fabricated from forged steel and attached at natural pivot point of door. Do not use slide block in top of door.
9. Exposed arms shall be factory-polished and finished to match operator enclosure.
10. Control circuits for actuators and safeties shall be low-voltage, NEC Class II.
11. Power operators will require 115 VAC power supply.

I. Enclosure shall consist of a extruded aluminum header concealing all operating parts except arms and manual control switches.

J. Wall mounted actuators shall consist of a 4-1/2 inch diameter stainless steel touch plate with a blue filled handicapped symbol. Switches shall be weather resistant and mount on a single gang electrical box furnished by Division 16.

K. Power Operators shall be warranted by the manufacture to be free from defects in material and workmanship for a period of two years.

2.12 KICK PLATES AND MOP PLATES

A. Furnish protective plates as specified in hardware groups.

B. Where specified, provide 10" kick plates, 34" armor plates, and 4" mop plates. Unless otherwise specified, metal protective plates shall be .050" thick; plastic plates shall be 1/8" thick.

C. Protective plates shall be 2" less door width, or 1" less door width at pairs. All protective plates shall be beveled 4 sides and counter sunk.

D. Protection plates over 16" shall not be provided for labeled doors unless specifically approved by door manufacturers listing. When protection plates over 16” are provided for labeled doors, the plate shall be labeled.

E. Where specified, provide surface mounted door edges. Edges shall butt to protective plates. Provide edges with cutouts as required adjacent hardware.

F. Adjust dimensions of protection plates to accommodate stile and rail dimensions, lite and louver cutouts, and adjacent hardware. Where required by adjacent hardware, protection plates shall be factory drilled for cylinders or other mortised hardware.

2.13 OVERHEAD STOPS

A. Acceptable manufacturers and respective catalog numbers:

	Glynn-Johnson	Rixson	Sargent
1. Heavy Duty Surface Mount	GJ900 Series	9 Series	590
2. Heavy Duty Concealed Mount	GJ100 Series	1 Series	690

B. Unless otherwise specified, furnish GJ900 series overhead stop for hollow metal or 1-3/4" solid core doors equipped with regular arm surface type closers that swing more than 140 degrees before striking a wall, for hollow metal or 1-3/4" solid core doors that open against equipment, casework, sidelights, or other objects that would make wall bumpers inappropriate, and as specified in hardware groups.

C. Furnish sex bolt attachments for wood and mineral core doors unless doors are supplied with proper reinforcing blocks.

D. Provide special stop only ("SE" suffix) overhead stops when used in conjunction with electronic hold open closers.

E. Do not provide holder function for labeled doors.

2.14 WALL STOPS AND HOLDERS

A. Acceptable manufacturers and respective catalog numbers:

	Ives	Hager	Burns
1. Wrought Convex Wall Stop	WS406CVX	232W	570
2. Wrought Concave Wall Stop	WS406CCV	236W	575
3. Automatic Wall Holder	WS40	326W	533

B. Furnish a stop or holder for all doors. Furnish floor stops or hinge pin stops only where specifically specified.

C. Provide concave style wall stop at all adjacent integral push button locks; provide convex style wall stop at all other locations.

D. Where wall stops are not applicable, furnish overhead stops.

E. Do not provide holder function for labeled doors.

2.15 MAGNETIC HOLD OPENS

A. Acceptable manufacturers and respective catalog numbers:

	LCN	ABH	Edwards
1. Wall Holder	SEM 7800	2000	1500

B. Magnetic hold opens shall be independently certified by ANSI for compliance with ANSI A156.15, Grade 1 (2006).

C. Magnetic holder's housing and armature shall be constructed of a die cast zinc material.

D. Provide types as listed in groups.

E. Where wall conditions do not permit the armature to reach the magnet, provide extensions.

F. Provide proper voltage and power consumption as required by Division 16.

G. Coordinate electrical requirements and mounting locations with other trades.

2.16 WEATHERSTRIP, GASKETING

A. Acceptable manufacturers and respective catalog numbers:

	Zero	Pemko	NGP	Reese
1. Weatherstrip	429	2891_PK	700NA	755
2. Adhesive Gasket	188	S88	5050	797
3. Meeting Edge Seals	8193	18041	9605	959
4. Adhesive Edge Seal	188S	S771	5060	****
5. Automatic Door Bottom (HD Concealed) (When Sealing Against A Solid Surface)	360	434_RL	423N	430
6. Automatic Door Bottom (HD Concealed) (When Sealing Against Carpet)	360	434_NBL	683	943
7. Sweep (Brush)	8192	18061_NB	B606	964
8. Sweep (Neoprene)	39	315_N	200N	323

B. Weatherstrip and gasketing shall be independently certified by ANSI for compliance with ANSI A156.22 (2005).

C. Where specified in the hardware groups, furnish the above products unless otherwise detailed in groups.

D. Provide weatherstripping all exterior doors and where specified.

E. Provide intumescent and other required edge sealing systems as required by individual fire door listings to comply with positive pressure standards UL 10C.

F. Provide Zero 188 smoke gaskets at all fire rated doors and smoke and draft control assemblies.

G. Provide gasketing for all meeting edges on pairs of fire doors. Gasketing shall be compatible with astragal design provided by door supplier as required for specific fire door listings.

2.17 ELECTRIC STRIKES

A. Acceptable manufacturers and respective catalog numbers:

	Von Duprin	Hes
1. Type 1	6200 Series	1006 Series
1. Type 1	6300 Series	9500 Series
2. Type 2	5100 Series	5000 Series

B. Provide electric strikes compatible with the type of locks shown at each opening where specified.

C. Electric strikes shall be UL listed as Burglary-Resistant Electric Door Strikes and where required shall be UL listed as Electric Strike for Fire Doors.

D. Provide transformers and rectifiers for each strike as required. Verify voltage with electrical contractor.

2.18 POWER SUPPLIES

A. Provide quantities and types as specified in hardware sets. Shared power supplies will not be accepted without prior approval from the owner.

B. All power supplies shall have the following features:

1. 12/24 VDC Output, field selectable.
2. Class 2 Rated power limited output.
3. Universal 120-240 VAC input.
4. Low voltage DC regulated and filtered.
5. Polarized connector for distribution boards.
6. Fused primary input.
7. AC input and DC output monitoring circuit w/LED indicators.
8. Cover mounted AC Input indication.
9. Tested and certified to meet UL294.
10. NEMA 1 enclosure.
11. Hinged cover w/lock down screws.
12. High voltage protective cover.

C. All power supplies shall incorporate fused distribution boards.

D. All electro-mechanical systems requiring fail safe circuits shall be capable of interfacing with the fire alarm system to cut power to appropriate system components. Unless already provided in another system component, all power supplies utilized in fail safe circuits shall include an integral relay which when connected to the N/C fire alarm contact will cut power to all openings connected to the individual power supply. Power supply, unless otherwise specified, will automatically reset itself when fire alarm relay returns to normal state following a fire alarm.

2.19 FINISHES AND BASE MATERIALS

A. Unless otherwise indicated in the hardware groups or herein, hardware finishes shall be applied over base metals as specified in the following finish schedule:

HARDWARE ITEM	BHMA FINISH AND BASE MATERIAL
1. Butt Hinges: Exterior, or Non-Ferrous	630 (US32D - Satin Stainless Steel)

2.	Butt Hinges: Interior	652 (US26D - Satin Chromium)
3.	Flush Bolts	626 (US26D - Satin Chromium)
4.	Exit Devices	626 (US26D - Satin Chromium)
5.	Locks and Latches	626 (US26D - Satin Chromium)
6.	Pulls and Push Plates/Bars	630 (US32D - Satin Stainless Steel)
7.	Coordinators	600 (Prime painted or mill alum.)
8.	Closers	689 (Powder Coat Aluminum)
9.	Protective Plates	630 (US32D - Satin Stainless Steel)
10.	Overhead Stops	630 (US32D - Satin Stainless Steel)
11.	Wall Stops and Holders	630 (US32D - Satin Stainless Steel)
12.	Thresholds	628 (Mill Aluminum)
13.	Weather-strip, Sweeps Drip Caps (wood and hollow metal doors)	Aluminum Anodized
14.	Weather-strip, Sweeps Drip Caps (aluminum doors)	Match finish of aluminum doors.
15.	Magnetic Holders	Sprayed Aluminum
16.	Miscellaneous	626 (US26D - Satin Chromium)

2.20 KEYING

A. Provide all cylinders in keyways as required to accommodate owners existing Best key system.

B. Provide interchangeable cores for all locks and cylinders where required by Owner.

C. All locks under this section shall be keyed as directed by the owner to an existing Master Key System.

D. Furnish a total of 2 keys per cylinder. Actual cut keys to be determined by owner.

E. Master keys, control keys, and change keys shall be delivered by registered mail to the owner. Construction keys shall be delivered to the contractor.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to installation of hardware, installer shall examine door frame installation to ensure frames have been set square and plumb. Installer shall examine doors, door frames, and adjacent wall, floor, and ceiling for conditions, which would adversely affect proper operation and function of door assemblies. Do not proceed with hardware installation until such deficiencies have been corrected.

3.2 INSTALLATION

A. Before hardware installation, general contractor/construction manager shall coordinate a hardware installation seminar with a 1 week notice to all parties involved. The seminar is to be conducted on the installation of hardware, specifically of locksets, closers, exit devices, continuous hinges and overhead stops. Manufacturer's representative of the above products to present seminar. Seminar to be held at the job site and attended by installers of hardware (including low voltage hardware) for aluminum, hollow metal and wood doors. Training to include use of installation manuals, hardware schedule, templates and physical products samples.

B. Install all hardware in accordance with the approved hardware schedule and manufacturer’s instructions for installation and adjustment.

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

D. Provide blocking or reinforcement for all hardware mounted to drywall construction, including wall mounted door stops and holders.

E. Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accord with industry standards.

F. Drill appropriate size pilot holes for all hardware attached to wood doors and frames.

G. Shim doors as required to maintain proper operating clearance between door and frame.

H. Unless otherwise specified, locate all hardware in accordance with the recommended locations for builders hardware for standard doors and frames as published by the Door and Hardware Institute.

I. Use only fasteners supplied by or approved by the manufacturer for each respective item of hardware.

J. Mortise and cut to close tolerance and conceal evidence of cutting in the finished work.

K. Conceal push and pull bar fasteners where possible. Do not install through bolts through push plates.

L. Install hardware on UL labeled openings in accordance with manufacturer's requirements to maintain the label.

M. Apply self-adhesive gasketing on frame stop at head & latch side and on rabbet of frame at hinge side.

N. Install hardware in accordance with supplemental "S" label instructions on all fire rated openings.

O. Install wall stops to contact lever handles or pulls. Do not mount wall stops on casework, or equipment.

P. Where necessary, adjust doors and hardware as required to eliminate binding between strike and latchbolt. Doors should not rattle.

Q. Overhead stops used in conjunction with electrified hold open closers shall be templated and installed to coincide with engagement of closer hold open position.

R. Install door closers on corridor side of lobby doors, room side of corridor doors, and stair side of stairways.

S. Adjust spring power of door closers to the minimum force required to ensure exterior and fire rated doors will consistently close and latch doors under existing conditions. Adjust all other door closers to ensure opening force does not to exceed 5 lbs.

T. Adjust "sweep", "latch", & "back check" valves on all door closers to properly control door throughout the opening and closing cycle. Adjust total closing speed as required to comply with all applicable state and local building codes.

U. Install "hardware compatible" (bar stock) type weatherstripping continuously for an uninterrupted seal. Adjust templating for parallel arm door closers, exit devices, etc., as required to accommodate weatherstripping.

V. Unless otherwise specified or detailed, install thresholds with the bevel in vertical alignment with the outside door face. Notch and closely fit thresholds to frame profile. Set thresholds in full bed of sealant.

W. Compress sweep during installation as recommended by sweep manufacturer to facilitate a water-resistant seal.

X. Deliver to the owner 1 complete set of installation and adjustment instructions, and tools as furnished with the hardware.

3.3 FIELD QUALITY CONTROL

A. After installation has been completed, the hardware supplier and manufacturers representative for locksets, door closers, exit devices, and overhead stops shall check the project and verify compliance with installation instructions, adjustment of all hardware items, and proper application according to the approved hardware schedule. Hardware supplier shall submit a list of all hardware that has not been installed correctly.

B. After installation has been completed, the hardware supplier and manufacturers representative shall meet with the owner to explain the functions, uses, adjustment, and maintenance of each item of hardware. Hardware supplier shall provide the owner with a copy of all wiring diagrams. Wiring diagrams shall be opening specific and include both a riser diagram and point to point diagram showing all wiring terminations.

3.4 ADJUSTMENT AND CLEANING

A. At final completion, and when H.V.A.C. equipment is in operation, installer shall make final adjustments to and verify proper operation of all door closers and other items of hardware. Lubricate moving parts with type lubrication recommended by the manufacturer.

B. All hardware shall be left clean and in good operation. Hardware found to be disfigured, defective, or inoperative shall be repaired or replaced.

3.5 HARDWARE SCHEDULE

A. The following schedule of hardware groups are intended to describe opening function. The hardware supplier is cautioned to refer to the preamble of this specification for a complete description of all materials and services to be furnished under this section.

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HW SET: 01

	EA	HARDWARE	BY DOOR SUPPLIER	

HW SET: 02

	EA	HINGES	AS SPECIFIED	IVE
1	EA	PASSAGE SET	F75 GRADE 1	BES
1	EA	WALL STOP	L22201	IVE
1	EA	SMOKE SEAL	R0E154	ZER
1	EA	DOOR BOTTOM	369	ZER

FUNCTION: (F75) PASSAGE LATCH
BOTH LEVERS ALWAYS UNLOCKED.

HW SET: 03

	EA	HINGES	AS SPECIFIED	IVE
1	EA	PASSAGE SET	F75 GRADE 1	BES
1	EA	OH STOP	C52541	GLY

FUNCTION: (F75) PASSAGE LATCH
BOTH LEVERS ALWAYS UNLOCKED.

HW SET: 04

1	EA	PIVOT SET	C07131	IVE
1	EA	PASSAGE SET	F75 GRADE 1	BES
1	EA	RESCUE STOP	A1882	HAG
1	EA	OH STOP	C51541	GLY
1	EA	WALL STOP	L22201	IVE
2	EA	DOOR SEAL	R0A030	REE

FUNCTION: (F75) PASSAGE LATCH
BOTH LEVERS ALWAYS UNLOCKED.
MOUNT JAMB ON HINGE EDGE ON PUSH SIDE OF DOOR.
MOUNT JAMB ON LATCH EDGE ON PULL SIDE OF DOOR.

HW SET: 05

1	EA	PIVOT SET	C07131	IVE
1	EA	PASSAGE SET	F75 GRADE 1	BES
1	EA	RESCUE STOP	A1882	HAG
1	EA	WALL STOP	L22201	IVE
2	EA	DOOR SEAL	R0A030	REE

FUNCTION: (F75) PASSAGE LATCH
BOTH LEVERS ALWAYS UNLOCKED.
MOUNT JAMB ON HINGE EDGE ON PUSH SIDE OF DOOR.
MOUNT JAMB ON LATCH EDGE ON PULL SIDE OF DOOR.

HW SET: 06

	EA	HINGES	AS SPECIFIED	IVE
1	EA	PRIVACY LOCK	F76	BES
1	EA	WALL STOP	L22201	IVE

FUNCTION: (F76) BATH/BEDROOM PRIVACY LOCK
PUSH-BUTTON LOCKING. CAN BE OPENED FROM OUTSIDE WITH SMALL SCREWDRIVER. TURNING INSIDE LEVER OR CLOSING DOOR RELEASES BUTTON.

HW SET: 07

	EA	HINGES	AS SPECIFIED	IVE
1	EA	ENTRY LOCK	F109 GRADE 1	BES
1	EA	WALL STOP	L22201	IVE

FUNCTION: (F109) ENTRANCE LOCK
TURN/PUSH-BUTTON LOCKING; PUSHING AND TURNING BUTTON LOCKS OUTSIDE LEVER, REQUIRING USE OF KEY UNTIL BUTTON IS MANUALLY UNLOCKED. PUSH-BUTTON LOCKING; PUSHING BUTTON LOCKS OUTSIDE LEVER UNTIL UNLOCKED BY KEY OR BY TURNING INSIDE LEVER.

HW SET: 08

	EA	HINGES	AS SPECIFIED	IVE
1	EA	CLASSROOM LOCK	F84 GRADE 1	BES
1	EA	WALL STOP	L22201	IVE

FUNCTION: (F84) CLASSROOM LOCK
OUTSIDE LEVER LOCKED AND UNLOCKED BY KEY. INSIDE LEVER ALWAYS UNLOCKED.

HW SET: 09

	EA	HINGES	AS SPECIFIED	MCK
1	EA	STOREROOM LOCK	F86 GRADE 1	BES
1	EA	WALL STOP	L22201	IVE

FUNCTION: (F86) STOREROOM LOCK
OUTSIDE LEVER FIXED. ENTRANCE BY KEY ONLY. INSIDE LEVER ALWAYS UNLOCKED.

HW SET: 09.1

	EA	HINGES	AS SPECIFIED MATCH EXISTING SIZE AND WEIGHT	MCK
1	EA	STOREROOM LOCK	F86 GRADE 1	BES
1	EA	WALL STOP	L22201	IVE

FUNCTION: (F86) STOREROOM LOCK
OUTSIDE LEVER FIXED. ENTRANCE BY KEY ONLY. INSIDE LEVER ALWAYS UNLOCKED.

HW SET: 09.2

	EA	HINGES	AS SPECIFIED	MCK
1	EA	STOREROOM LOCK	F86 GRADE 1	BES
1	EA	WALL STOP	L22201	IVE

FUNCTION: (F86) STOREROOM LOCK
OUTSIDE LEVER FIXED. ENTRANCE BY KEY ONLY. INSIDE LEVER ALWAYS UNLOCKED.
VERIFY EXISTING PREPS TO ACCOMMODATE NEW HARDWARE.

HW SET: 10

	EA	HINGES	AS SPECIFIED	MCK
1	EA	STOREROOM LOCK	F86 GRADE 1	BES
1	EA	OH STOP	C52541	GLY

FUNCTION: (F86) STOREROOM LOCK
OUTSIDE LEVER FIXED. ENTRANCE BY KEY ONLY. INSIDE LEVER ALWAYS UNLOCKED.

HW SET: 10.1

	EA	HINGES	AS SPECIFIED	MCK
1	EA	STOREROOM LOCK	F86 GRADE 1	BES
1	EA	OH STOP	C52541	GLY

FUNCTION: (F86) STOREROOM LOCK
OUTSIDE LEVER FIXED. ENTRANCE BY KEY ONLY. INSIDE LEVER ALWAYS UNLOCKED.
VERIFY EXISTING PREPS TO ACCOMMODATE NEW HARDWARE.

HW SET: 11

	EA	HINGES	AS SPECIFIED	IVE
1	EA	CONST LATCHING BOLT	TYPE 27	IVE
1	EA	PASSAGE SET	F75 GRADE 1	BES
1	EA	OH STOP	C52541	GLY
1	EA	WALL STOP	L22201	IVE
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER
1	EA	MEETING EDGE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER

FUNCTION: (F75) PASSAGE LATCH
BOTH LEVERS ALWAYS UNLOCKED.

HW SET: 12

	EA	HINGES	AS SPECIFIED	IVE
1	EA	CONST LATCHING BOLT	TYPE 27	IVE
1	EA	PASSAGE SET	F75 GRADE 1	BES
2	EA	OH STOP	C52541	GLY
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER
1	EA	MEETING EDGE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER

FUNCTION: (F75) PASSAGE LATCH
BOTH LEVERS ALWAYS UNLOCKED.

HW SET: 13

	EA	HINGES	AS SPECIFIED	IVE
2	EA	MANUAL FLUSH BOLT	L04251	IVE
1	EA	DUST PROOF STRIKE	L14011	IVE
1	EA	STOREROOM LOCK	F86 GRADE 1	BES
2	EA	OH STOP	C52541	GLY

FUNCTION: (F86) STOREROOM LOCK
OUTSIDE LEVER FIXED. ENTRANCE BY KEY ONLY. INSIDE LEVER ALWAYS UNLOCKED.
VERIFY EXISTING PREPS TO ACCOMMODATE NEW HARDWARE.

HW SET: 14

	EA	HINGES	AS SPECIFIED	MCK
1	EA	PASSAGE SET	F75 GRADE 1	BES
1	EA	SURFACE CLOSER	C02011	LCN
1	EA	KICKPLATE	J102 .050 10" X 2" LDW	IVE
1	EA	WALL STOP	L22201	IVE
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER

FUNCTION: (F75) PASSAGE LATCH
BOTH LEVERS ALWAYS UNLOCKED.

HW SET: 15

	EA	HINGES	AS SPECIFIED	MCK
1	EA	PASSAGE SET	F75 GRADE 1	BES
1	EA	OH STOP	C52541	GLY
1	EA	SURFACE CLOSER	C02011	LCN
1	EA	KICKPLATE	J102 .050 10" X 2" LDW	IVE
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER

FUNCTION: (F75) PASSAGE LATCH
BOTH LEVERS ALWAYS UNLOCKED.

HW SET: 16

	EA	HINGES	AS SPECIFIED	IVE
1	EA	ENTRY LOCK	F109 GRADE 1	BES
1	EA	SURFACE CLOSER	C02011	LCN
1	EA	KICKPLATE	J102 .050 10" X 2" LDW	IVE
1	EA	WALL STOP	L22201	IVE
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER

FUNCTION: (F109) ENTRANCE LOCK
TURN/PUSH-BUTTON LOCKING; PUSHING AND TURNING BUTTON LOCKS OUTSIDE LEVER, REQUIRING USE OF KEY UNTIL BUTTON IS MANUALLY UNLOCKED. PUSH-BUTTON LOCKING; PUSHING BUTTON LOCKS OUTSIDE LEVER UNTIL UNLOCKED BY KEY OR BY TURNING INSIDE LEVER.

HW SET: 17

	EA	HINGES	AS SPECIFIED	IVE
1	EA	CLASSROOM LOCK	F84 GRADE 1	BES
1	EA	SURFACE CLOSER	C02011	LCN
1	EA	KICKPLATE	J102 .050 10" X 2" LDW	IVE
1	EA	WALL STOP	L22201	IVE
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER

FUNCTION: (F84) CLASSROOM LOCK
OUTSIDE LEVER LOCKED AND UNLOCKED BY KEY. INSIDE LEVER ALWAYS UNLOCKED.

HW SET: 19

	EA	HINGES	AS SPECIFIED	IVE
1	EA	STOREROOM LOCK	F86 GRADE 1	BES
1	EA	SURFACE CLOSER	C02011	LCN
1	EA	KICKPLATE	J102 .050 10" X 2" LDW	IVE
1	EA	WALL STOP	L22201	IVE
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER

FUNCTION: (F86) STOREROOM LOCK
OUTSIDE LEVER FIXED. ENTRANCE BY KEY ONLY. INSIDE LEVER ALWAYS UNLOCKED.

HW SET: 20

	EA	HINGES	AS SPECIFIED	IVE
1	EA	PANIC HARDWARE	TYEP 1D (03)	VON
1	EA	PERMANENT CORE	AS REQUIRED	BES
1	EA	SURFACE CLOSER	C02011	LCN
1	EA	KICKPLATE	J102 .050 10" X 2" LDW	IVE
1	EA	WALL STOP	L22201	IVE
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER

FUNCTION: ANSI 03 (L-NL) LATCHBOLT RETRACTED INSIDE BY EXIT DEVICE PUSH PAD AND OUTSIDE BY KEY IN CYLINDER. DOOR LOCKS WHEN KEY IS REMOVED AND DOOR IS CLOSED.
VERIFY EXISTING PREPS TO ACCOMMODATE NEW HARDWARE.

HW SET: 21

6	EA	HINGES	AS SPECIFIED	IVE
2	EA	FIRE EXIT HARDWARE	TYPE 8D (01)	VON
2	EA	SURFACE CLOSER	C02011	LCN
2	EA	KICKPLATE	J102 .050 10" X 1" LDW	IVE
2	EA	FIRE/LIFE WALL MAG	C00011	LCN
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER
2	EA	MEETING EDGE SEALS	R3B434 (NEOPRENE)	ZER

FUNCTION: (01) LATCHBOLT RETRACTED INSIDE BY EXIT DEVICE PUSH PAD. NO EXTERIOR

HW SET: 22

	EA	HINGES	AS SPECIFIED	MCK
2	EA	POWER TRANSFER	EPT10	VON
2	EA	ELEC PANIC HARDWARE	TYPE 8D (08) (E04)	VON
2	EA	PERMANENT CORE	AS REQUIRED	BES
2	EA	SURFACE CLOSER	C02011	LCN
2	EA	KICKPLATE	J102 .050 10" X 1" LDW	IVE
2	EA	FIRE/LIFE WALL MAG	C00011	LCN
1	EA	CARD READER	BY SECURITY SUPPLIER	
1	EA	POWER SUPPLY	PS902 2RS	VON
1	EA	ELEVATION DRAWING		
1	EA	ELEVATION DRAWING		
1	EA	WIRE DIAGRAM	POINT TO POINT	
1	EA	WIRE DIAGRAM	POINT TO POINT	

FUNCTION: ANSI 03 (NL) LATCHBOLT RETRACTED INSIDE BY EXIT DEVICE PUSH PAD AND OUTSIDE BY KEY IN CYLINDER. DOOR LOCKS WHEN KEY IS REMOVED AND DOOR IS CLOSED.
PRESENTATION OF A VALID CREDENTIAL MOMENTARILY RETRACTS LATCHBOLTS.

HW SET: 23

	EA	HINGES	AS SPECIFIED	MCK
2	EA	FIRE EXIT HARDWARE	TYPE 2D (14) LBR	VON
2	EA	SURFACE CLOSER	C02011	LCN
2	EA	KICKPLATE	J102 .050 10" X 1" LDW	IVE
2	EA	FIRE/LIFE WALL MAG	C00011	LCN
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER
1	EA	MEETING EDGE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER

FUNCTION: F14 (BE) LATCHBOLT RETRACTED BY DEPRESSING THE ACTUATION BAR. ENTRANCE BY LEVER, ALWAYS ACTIVE, NO CYLINDER. LESS BOTTOM ROD.

HW SET: 24.1

	EA	HINGES	AS SPECIFIED	MCK
2	EA	POWER TRANSFER	EPT10	VON
2	EA	ELEC PANIC HARDWARE	TYPE 2D (14) (E04) LBR	VON
2	EA	OH STOP	C52541	GLY
1	EA	SURF. AUTO OPERATOR	9553 REG2 W/HOLD OPEN FUNCTIONALITY	LCN
2	EA	ACTUATOR, WALL MOUNT	8310-853	LCN
2	EA	KICKPLATE	J102 .050 10" X 1" LDW	IVE
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER
1	EA	MEETING EDGE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER
1	EA	POWER SUPPLY	PS902 4RL	VON
1	EA	ELEVATION DRAWING		
1	EA	WIRE DIAGRAM	POINT TO POINT	

FUNCTION: F14 (BE) LATCHBOLT RETRACTED BY DEPRESSING THE ACTUATION BAR. ENTRANCE BY LEVER, ALWAYS ACTIVE, NO CYLINDER. LESS BOTTOM ROD.
ACTUATORS ALWAYS ACTIVE TO RETRACT LATCHES THEN OPEN DOOR.

HW SET: 25.1

	EA	HINGES	AS SPECIFIED	IVE
2	EA	PUSH PLATE	J301	IVE
2	EA	PULL PLATE	J401 X J301	IVE
1	EA	SURF. AUTO OPERATOR	9553 REG2 W/HOLD OPEN FUNCTIONALITY	LCN
2	EA	ACTUATOR, WALL MOUNT	8310-853	LCN
2	EA	KICKPLATE	J102 .050 10" X 1" LDW	IVE
2	EA	WALL STOP	L22201	IVE

HW SET: 26

	EA	HINGES	AS SPECIFIED	IVE
1	EA	STOREROOM LOCK	F86 GRADE 1	BES
1	EA	ELECTRIC STRIKE	E09321 (FAIL SECURE)	VON
1	EA	SURFACE CLOSER	C02011	LCN
1	EA	KICKPLATE	J102 .050 10" X 2" LDW	IVE
1	EA	WALL STOP	L22201	IVE
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER
1	EA	CARD READER	BY SECURITY SUPPLIER	
1	EA	POWER SUPPLY	PS902 2RS	VON
1	EA	ELEVATION DRAWING		
1	EA	WIRE DIAGRAM	POINT TO POINT	

FUNCTION: (F86) STOREROOM LOCK
OUTSIDE LEVER FIXED. ENTRANCE BY KEY ONLY. INSIDE LEVER ALWAYS UNLOCKED.
PRESENTATION OF A VALID CREDENTIAL MOMENTARILY ENERGIZES ELECTRIC STRIKE.

HW SET: 27

	EA	HINGES	AS SPECIFIED	IVE
1	EA	STOREROOM LOCK	F86 GRADE 1	BES
1	EA	ELECTRIC STRIKE	E09321 (FAIL SECURE)	VON
1	EA	OH STOP	C52541	GLY
1	EA	SURFACE CLOSER	C02011	LCN
1	EA	KICKPLATE	J102 .050 10" X 2" LDW	IVE
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER
1	EA	CARD READER	BY SECURITY SUPPLIER	
1	EA	POWER SUPPLY	PS902 2RS	VON
1	EA	ELEVATION DRAWING		
1	EA	WIRE DIAGRAM	POINT TO POINT	

FUNCTION: (F86) STOREROOM LOCK
OUTSIDE LEVER FIXED. ENTRANCE BY KEY ONLY. INSIDE LEVER ALWAYS UNLOCKED.
PRESENTATION OF A VALID CREDENTIAL MOMENTARILY ENERGIZES ELECTRIC STRIKE.

HW SET: 28

	EA	HINGES	AS SPECIFIED	IVE
1	EA	CONST LATCHING BOLT	TYPE 27	IVE
1	EA	PASSAGE SET	F75 GRADE 1	BES
1	EA	COORDINATOR X FILLER BAR	TYPE 21A	IVE
1	EA	OH STOP	C52541	GLY
2	EA	SURFACE CLOSER	C02011	LCN
1	EA	WALL STOP	L22201	IVE
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER
1	EA	MEETING EDGE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER

FUNCTION: (F75) PASSAGE LATCH
BOTH LEVERS ALWAYS UNLOCKED.

HW SET: 28.1

	EA	HINGES	AS SPECIFIED	IVE
1	EA	CONST LATCHING BOLT	TYPE 27	IVE
1	EA	PASSAGE SET	F75 GRADE 1	BES
1	EA	COORDINATOR X FILLER BAR	TYPE 21A	IVE
2	EA	OH STOP	C52541	GLY
2	EA	SURFACE CLOSER	C02011	LCN
1	EA	SMOKE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER
1	EA	MEETING EDGE SEAL	R0E154 (AT RATED OR SMOKE CONTROL DRS ONLY)	ZER

FUNCTION: (F75) PASSAGE LATCH
BOTH LEVERS ALWAYS UNLOCKED.