PART 1 – GENERAL

1.01 SUMMARY

A. Section includes furnishing and installation of door hardware for doors specified in "Hardware Sets" and required by actual conditions. Including screws, bolts, expansion shields, electrified door hardware, and other devices for proper application of hardware.

B. Where items of hardware are not specified and are required for intended service, such omission, error or other discrepancy to be submitted to Architect fourteen calendar days prior to bid date for clarification by addendum.

C. Products supplied but not installed under this Section:
   1. Hardware for aluminum doors will be furnished under this Section, but installed under Division 08 Openings.

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

E. Related Divisions:
   1. Division 08 Openings

1.02 REFERENCES

A. American National Standards Institute/Builders Hardware Manufacturers Association (ANSI):
   1. ANSI/BHMA A156.1 Butts & Hinges (2006)
   2. ANSI/BHMA A156.2 Bored & Preassembled Locks & Latches (2011)
   3. ANSI/BHMA A156.3 Exit Devices (2014)
   4. ANSI/BHMA A156.4 Door Controls – Closers (2008)
   5. ANSI/BHMA A156.5 Cylinders and Input Devices for Locks (2014)
   6. ANSI/BHMA A156.6 Architectural Door Trim (2010)
   7. ANSI/BHMA A156.7 Template Hinge Dimensions (2009)
   8. ANSI/BHMA A156.8 Door Controls – Overhead Stops and Holders (2010)
   9. ANSI/BHMA A156.16 Auxiliary Hardware (2008)
   10. ANSI/BHMA A156.18 Materials & Finishes (2006)
   11. ANSI/BHMA A156.21 Thresholds (2009)
   12. ANSI/BHMA A156.22 Door Gasketing Systems (2012)
   13. ANSI/BHMA A156.26 Continuous Hinges (2006)
   14. ANSI/BHMA A156.28 Keying Systems (2007)
   15. ANSI/BHMA A156.115 Hardware Preparation in Steel Doors and Steel Frames (2014)

B. International Code Council/American National Standards Institute (ICC/ANSI)/ADA:
   1. ICC/ANSI A117.1 Standards for Accessible and Usable Buildings and Facilities 2009.

C. Underwriters Laboratories, Inc. (UL):
   1. UL 10C Positive Pressure Fire Test of Door Assemblies.
   2. UL 1784 Air Leakage Test of Door Assemblies.
   3. UL/ULC Listed.

D. Door and Hardware Institute (DHI):
   1. DHI Publication – Keying Systems and Nomenclature (1989).
   2. DHI Publication – Abbreviations and Symbols.
   3. DHI Publication – Installation Guide for Doors and Hardware.
   4. DHI Publication – Sequence and Format of Hardware Schedule (1996).

E. National Fire Protection Agency (NFPA):
   1. NFPA 70 National Electrical Code 2014.
   2. NFPA 101 Life Safety Code 2015.

1.03 SUBMITTALS

A. Submit in accordance with Conditions of the Contract and Division 1 Administrative Requirements.

B. Shop Drawings:
   1. Organize hardware schedule organized in vertical format illustrated in DHI Publications Sequence and Formatting for the Hardware Schedule. Include abbreviations and symbols page according to DHI Publications Abbreviations and Symbols. Complete nomenclature of items required for each door opening as indicated.
   2. Coordinate final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of hardware.
   3. Architectural Hardware Consultant (AHC), as certified by DHI, who shall affix seal attesting to completeness and correctness, shall review hardware schedule prior to submittal.

C. Submit manufacturer's catalog sheet on design, grade and function of items listed in hardware schedule. Identify specific hardware item per sheet, provide index, and cover sheet.

D. Coordination: Distribute door hardware templates to related divisions within fourteen days of receiving approved door hardware submittals.

E. Closeout Submittals: Submit to Owner in a three-ring binder or CD if requested.
   1. Warranties.
   2. Maintenance and operating manual.
   3. Maintenance service agreement.
   4. Record documents.
   5. Copy of approved hardware schedule.
   6. Copy of approved keying schedule with bitting list.
   7. Door hardware supplier name, phone number and fax number.

1.04 QUALITY ASSURANCE

A. Listed and Labeled electrified door hardware as defined in NFPA 70, Article 100, by a testing agency acceptable to authority having jurisdiction.

B. Hardware supplier shall employ an Architectural Hardware Consultant (AHC) as certified by DHI and a member of the seal program who shall be available at reasonable times during course of work for Project hardware consultation.

C. Door hardware conforming to ICC/ANSI A117.1: Handles, pulls, latches, locks and operating devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.

D. Door hardware certified to ANSI/BHMA standards as noted, participate and be listed in BHMA Certified Products Directory.

E. Substitution request: Include the reason for requesting the substitution, clear catalog copy highlighting the proposed product and options, compliance statement, technical data, product warranty and lead time, to show how the proposed can meet or exceed established level of design, function, and quality. Approval of request is at the discretion of the owner, architect, and their designated consultants.

F. Pre-installation Meeting: Comply with requirements in Division 1 Section "Project Meetings".
   1. Convene meeting seven days before installation. Participants required to attend:
      Contractor, installer, material supplier, and manufacturer representatives.
   2. Include in-conference decisions regarding proper installation methods and procedures for receiving and handling hardware.
   3. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.

J. Within fourteen days of receipt of approved door hardware submittals contact Owner with representative from hardware supplier to establish a keying conference. Verify keyway, visual key identification, number of master keys and keys per lock. Provide keying system per Owner's instructions.

K. Installer Qualifications: Specialized in performing installation of this Section and have five years minimum documented experience.

L. Hardware listed in 3.07 - Hardware Schedule is intended to establish type and grade.

1.05 DELIVERY, STORAGE AND HANDLING

A. Provide clean, dry and secure room for hardware delivered to Project but not yet installed.

B. Furnish hardware with each unit marked and numbered in accordance with approved finish hardware schedule. Include door and item number for each type of hardware.

C. Pack each item complete with necessary parts and fasteners in manufacturer's original packaging.

D. Deliver permanent keys and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to Owner shall be established at "Keying Conference."

E. Waste Management and Disposal: Separate waste materials for reuse or recycling in accordance with Division 1.

1.06 WARRANTY

A. General Warranty: Owner may have under provisions of the Contract Documents and be an addition and run concurrent with other warranties made by Contractor under requirements of the Contract documents.

B. Special Warranty: Warranties specified in this article shall not deprive Owner of other rights.
   1. Ten years for manual door closers.
   2. Five years for bored locks.
   3. Five years for exit devices.

C. Replace or repair defective products during warranty period in accordance with manufacturer's warranty at no cost to Owner. There is no warranty against defects due to improper installation, abuse and failure to exercise normal maintenance.

D. Maintenance Tool and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, removal and replacement of door hardware.

PART 2 – PRODUCTS

2.01 HINGES

A. Hinges of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Products to be certified and listed by the following:
   1. Butts and Hinges: ANSI/BHMA A156.1.
   2. Template Hinge Dimensions: ANSI/BHMA A156.7.

C. Butt Hinges:
   1. Hinge weight and size unless otherwise indicated in hardware sets:
      a. Doors up to 36" wide and up to 1-3/4" thick provide hinges with a minimum thickness of .134" and a minimum of 4-1/2" in height.
      b. Doors from 36" wide up to 42" wide and up to 1-3/4" thick provide hinges with a minimum thickness of .145" and a minimum of 4-1/2" in height.

c. For doors from 42” wide up to 48” wide and up to 1-3/4” thick provide hinges with a minimum thickness of .180” and a minimum of 5” in height.
d. Doors greater than 1-3/4” thick provide hinges with a minimum thickness of .180” and a minimum of 5” in height.
e. Width of hinge is to be minimum required to clear surrounding trim.

2. Base material unless otherwise indicated in hardware sets:
   a. Exterior Doors: 304 Stainless Steel, Brass or Bronze material.
   b. Interior Doors: Steel material.
   c. Stainless Steel ball bearing hinges to have stainless steel ball bearings. Steel ball bearings are unacceptable.

3. Quantity of hinges per door unless otherwise stated in hardware sets:
   a. Doors 60” up to 90” in height provide 3 hinges.
   b. Doors 90” up to 120” in height provide 4 hinges.
   c. Doors over 120” in height add 1 additional hinge per each additional 30” in height.

4. Hinge design and options unless otherwise indicated in hardware sets:
   a. Hinges are to be of a square corner five-knuckle design, flat button tips and have ball bearings unless otherwise indicated in hardware sets.
   b. Out-swinging exterior and out-swinging access controlled doors shall have Non-Removable Pins (NRP) to prevent removal of pin while door is in closed position.
   c. When full width of opening is required, use hinges that are designed to swing door completely from opening when door is opened to 95 degrees.
   d. Provide mortar boxes for frames that require any electrically modified hinges if not an integral part of frame.
   e. When shims are necessary to correct frame or door irregularities, provide metal shims only.

5. Acceptable Manufacturers:

	Standard Weight	Heavy Weight
a. Hager:	BB1279/BB1191	BB1168/BB1199
b. Bommer:		
c. McKinney:		

2.02 CONTINUOUS HINGES

A. Continuous hinges of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Products to be certified and listed by the following: Continuous Hinges: ANSI/BHMA A156.26 Grade 1.

C. Continuous Geared Hinges:
   1. Determine model number by door and frame application, door thickness, frequency of use, and fire rating requirements according to manufacturer’s recommendations.
      a. Length of hinge shall be 1” less door height unless otherwise stated in hardware sets.

D. Material and Design:
   1. Base material: Anodized aluminum manufactured from 6063-T6 material, unexposed working metal surfaces shall be coated with TFE dry lubricant.
   2. Bearings:
      a. Vertical loads shall be carried on Lubriloy RL bearings for non-fire rated doors.
      b. Continuous hinges shall have a minimum spacing between bearings of 2-9/16”. Typical door from 80” to 84” in height to have a minimum of 32 bearings.
   3. Options:
      a. Removable Electric Through-Wire (RETW) shall have appropriate number of wires to transfer power through door frame to door for proper connection of finish hardware. Provide RETW in a form that can be removed for connection, servicing without removing entire hinge from door and frame, and certified to handle an amperage rating of 3.5AMPS/continuous duty with 16.0AMPS/intermittent duty.
      b. Hinges to have Rounded Back Cover Channel (RBCC).

c. When full width of opening is required, use hinges that are designed to swing door completely from opening when door is opened to 95 degrees.
d. Fire rated hinges shall carry UL certification, up to and including 90-minute applications for wood doors and up to 3-hour applications for metal doors.

E. Acceptable Manufacturers:

	Heavy Duty
1. Hager:	780-224HD/780-112HD
2. Bommer:	
3. Zero:	

2.03 LOCKS AND LATCHES

A. Locks and latches of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Product to be certified and listed by following:
1. ANSI/BHMA A156.2 Series 4000 Certified to Grade 1.
2. ANSI/BHMA A250.13 Certified for a minimum design load of 1150 lbf (100 psf) for single out-swinging doors measuring 36” in width and 84” in height and a minimum design load of 1150lbf (70psf) for out-swinging single doors measuring 48” in width and 84” in height.
3. ICC/ANSI A117.1.

C. Lock and latch function numbers and descriptions of manufacturer’s series as listed in hardware sets.

D. Material and Design:
1. Lock and Latch chassis to be zinc dichromate for corrosion resistance.
2. Keyed functions to be of a freewheeling design to help resist against vandalism.
3. Non-handed, field reversible.
4. Thru-bolt mounting with no exposed screws.
5. Levers, zinc cast and plated to match finish designation in hardware sets.
6. Roses, wrought Brass or Stainless Steel material.

E. Latch and Strike:
1. Stainless Steel latch bolt with minimum of 1/2” throw and deadlocking for keyed and exterior functions. Provide 3/4” latchbolt for pairs of fire-rated doors where required by door manufacture. Standard backset to be 2-3/4” and adjustable faceplate to accommodate a square edge door or a standard 1/8” beveled edge door.
2. Strike is to fit a standard ANSI A115 prep measuring 1-1/4” x 4-7/8” with proper lip length to protect surrounding trim.

F. Options:
1. Provide knurled levers on entry side of doors that are potentially dangerous to visually impaired persons.

G. Acceptable Manufacturers:
1. Hager: 3400 Series.
2. Schlage:
3. Best:

2.04 DEADBOLT FOR ALUMINUM STILE DOORS

A. Deadbolts for aluminum doors of one manufacturer as listed for continuity of design and consideration of warranty. Pairs of doors shall incorporate a threshold and header bolt. Turning key 360 degrees will retract or throw deadbolt for single doors and retract or throw threshold and header bolt for pairs of doors.

B. Standards: Auxiliary Locks and Associated Products: ANSI/BHMA Certified A156.5 Grade 1.

C. Material and Design:
1. Lock chassis: Zinc dichromate for corrosion resistance.

2. Armored faceplate 1” x 6” and to match aluminum door edge.

D. Latches and Strike:
1. Dead bolt 1-3/8” throw, eight ply laminated stainless steel. Center ply alumina-ceramic core to defeat hacksaw attach.

E. Acceptable Manufacturers:
1. Adams Rite: MS1850S Series

2.05 EXIT DEVICES

A. Exit Devices of one manufacturer as listed for continuity of design and consideration of warranty. Touch pad type, finish to match balance of door hardware.

B. Standards: Manufacturer to be certified and or listed by the following:
1. BHMA Certified ANSI A156.3 Grade 1.
2. UL 305Listed for Panic Hardware.

C. Material and Design:
1. Touch pad shall extend a minimum of one half of door width. Freewheeling lever design shall match design of lock levers. Exit device to mount flush with door.
2. Latchbolts:
   a. Rim device – 3/4” throw, Pullman type with automatic dead-latching, stainless steel
   b. Surface vertical rod device – Top 1/2” throw, Pullman type with automatic dead-latching, stainless steel. Bottom 1/2” throw, Pullman type, held retracted during door swing, stainless steel.
3. Fasteners: Wood screws, machine screws, and thru-bolts.

D. Lock and Latch Functions: Function numbers and descriptions of manufacturer’s series and lever styles indicated in door hardware sets.

E. Acceptable Manufacturers:
1. Hager: 4500 Series
2. Von Duprin:
3. Sargent:

2.06 CYLINDERS AND KEYING

A. Cylinders of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Manufacturer shall meet the following:
1. Auxiliary Locks: ANSI/BHMA A156.5
2. DHI Handbook “Keying systems and nomenclature” (1989)

C. Cylinders:
1. Manufacturer’s standard tumbler type, supported by the Hager H1 keyway.
2. Furnish with cams/tailpieces as required for locking device that is being furnished for project.

D. Keying:
1. Copy of Owners approved keying schedule submitted to Owner and Architect with documentation of which keying conference was held and Owner’s sign-off.
2. Provide a bitting list to Owner of combinations as established, and expand to twenty-five percent for future use or as directed by Owner.
3. Keys to be shipped to Owner’s representative, individually tag per keying conference.
4. Provide visual key control identification on keys.

E. Acceptable manufacturers:
1. Hager:

2. Schlage:
3. Sargent:

2.07 PUSH/PULL PLATES AND BARS

A. Push/Pull plates and bars of one manufacturer as listed for continuity of design and consideration of warranty.

B. Standards: Manufacturer to be certified by the following:
1. Architectural Door Trim: ANSI/BHMA A156.6.
2. Americans with Disabilities Act Accessibility Guidelines (ADAAG).

C. Push plates: .050" thick, square corner and beveled edges with counter sunk screw holes. Width and height as stated in hardware sets.

D. Acceptable Manufacturers:
1. Hager: 30S
2. Rockwood:
3. Trimco:

E. Pull plates: .050" thick, square corner and beveled edges. Width and height as stated in hardware sets, 3/4" diameter pull, with clearance of 2-1/2" from face of door.

F. Acceptable Manufacturers:
1. Hager: H34J
2. Rockwood:
3. Trimco:

G. Push Pull Bar Sets: 1" round bar stock with 2 ½" clearances from face of door. Offset 3", 90-degree standard. Center to center size should be door width less 1 stile width.

H. Acceptable Manufacturers:
1. Hager: H154D
2. Rockwood:
3. Trimco:

2.08 CLOSERS

A. Closers of one manufacturer as listed for continuity of design and consideration of warranty. Unless otherwise indicated on hardware schedule, comply with manufacturer's recommendations for size of closer, depending on width of door, frequency of use, atmospheric pressure, ADAAG requirements, and fire rating.

B. Standards: Manufacturer to be certified and or listed by the following:
1. BHMA Certified ANSI A156.4 Grade 1.
2. ADA Compliant ANSI A117.1.

C. Material and Design:
1. Provide cast iron non-handed bodies with full plastic covers.
2. Closers shall have separate staked adjustable valve screws for latch speed, sweep speed, and backcheck.
3. Provide Tri-Pack arms and brackets for regular arm, top jamb, and parallel arm mounting.
4. One-piece seamless steel spring tube sealed in hydraulic fluid.
5. Double heat-treated steel tempered springs.
6. Precision-machined heat-treated steel piston.
7. Triple heat-treated steel spindle.
8. Full rack and pinion operation.

D. Mounting:

1. Out-swing doors use surface parallel arm mount closers except where noted on hardware schedule.
2. In-swing doors use surface regular arm mount closers except where noted on hardware schedule.
3. Provide brackets and shoe supports for aluminum doors and frames to mount fifth screw.
4. Furnish drop plates where top rail conditions on door do not allow for mounting of closer and where backside of closer is exposed through glass.

E. Size closers in compliance with requirements for accessibility (ADAAG). Comply with following maximum opening force requirements.
1. Interior hinged openings: 5.0 lbs.
2. Fire-rated and exterior openings use minimum opening force allowable by authority having jurisdiction.

F. Fasteners: Provide self-reaming, self-tapping wood and machine screws, and sex nuts and bolts for each closer.

G. Acceptable manufacturers:
1. Hager: 5100 Series
2. LCN:
3. Sargent:

2.09 PROTECTIVE TRIM

A. Protective trim of one manufacturer as listed for continuity of design and consideration of warranty.

B. Size of protection plate: Single doors, size two inches less door width (LDW) on push side of door, and one inch less on pull side of door. For pairs of doors, size one inch less door width (LDW) on push side of door, and ½ inch on pull side of door.
1. Kick Plates 10” high or sized to door bottom rail height.
2. Armor Plates 36” high.

C. Standards: Manufacturer shall meet requirements for:
1. Architectural Door Trim: ANSI/BHMA A156.6.

D. Material and Design:
1. 0.050” gage stainless steel.
2. Corners square, polishing lines or dominant direction of surface pattern shall run across door width of plate.
3. Bevel top, bottom and sides uniformly leaving no sharp edges.
4. Countersink holes for screws. Screw holes shall be spaced equidistant eight inches CTC, along a centerline not over 1/2” in from edge around plate. End screws maximum of 0.53” from corners.

E. Acceptable Manufacturers:
1. Hager: 190S
2. Trimco:
3. Burns:

2.10 STOPS AND HOLDERS

A. Stops and holders of one manufacturer as listed for continuity of design and consideration of warranty.

B. Wall Stops: Provide door stops wherever necessary to prevent door or hardware from striking an adjacent partition or obstruction. Provide wall stops when possible. Door stops and holders mounted in concrete floor or masonry walls have stainless steel machine screws and lead expansion shields.

C. Standards: Manufacturer shall meet requirements for:
1. Auxiliary Hardware: ANSI/BHMA A156.16.

D. Acceptable Manufacturers:

	Convex	Concave
1. Hager:	232W	236W

2. Rockwood:
3. Burns:

E. Overhead Stops and Holders: Provide overhead stops and holders for doors that open against equipment, casework sidelights and other objects that would make wall stops/holders and floor stops/holders inappropriate. Provide sex bolt attachments for mineral core wood door applications.

F. Standards: Manufacturer shall be certified by the following:
1. Overhead Stops and Holders: ANSI/BHMA A156.8 Grade 1.

G. Acceptable Manufacturers:

	Heavy Duty Surface	Heavy Duty Concealed
1. Hager:	7000 SRF Series	7000 CON Series
2. Glynn Johnson:		
3. Sargent:		

2.11 THRESHOLDS

A. Thresholds of one manufacturer as listed for continuity of design and consideration of warranty.

B. Set thresholds for exterior and acoustical openings in full bed of sealant with lead expansion shields and stainless steel machine screws complying with requirements specified in Division 7 Section "Joint Sealants". Notched in field to fit frame by hardware installer. Refer to Drawings for special details.

C. Standards: Manufacturer to be certified by the following:
1. Thresholds: ANSI/BHMA A156.21.
2. Americans with Disabilities Act Accessibility Guidelines (ADAAG).

D. Acceptable Manufacturers:
1. Hager: 403S/520S
2. K.N. Crowder:
3. Reese:

2.12 DOOR GASKETING AND WEATHERSTRIP

A. Door gasketing and weatherstrip of one manufacturer as listed for continuity of design and consideration of warranty.

B. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing where indicated on hardware schedule. Provide non-corrosive fasteners for exterior applications.
1. Perimeter gasketing: Apply to head and jamb, forming seal between door and frame.
2. Meeting stile gasketing: Fasten to meeting stiles, forming seal when doors are in closed position.
3. Door bottoms: Apply to bottom of door, forming seal with threshold or floor when door is in closed position.
4. Drip Guard: Apply to exterior face of frame header. Lip length to extend 4" beyond width of door.

C. Standards: Manufacturer shall meet requirements for:
1. Door Gasketing and Edge Seal Systems: ANSI/BHMA A156.22.
2. BHMA certified for door sweeps, automatic door bottoms, and adhesive applied gasketing.

D. Acceptable Manufacturers:

1. Perimeter Gasketing:

	Stop Applied
a. Hager:	881S
b. K.N. Crowder:	
c. Reese:	

2. Door Bottom Sweeps:
   a. Hager: 750S/770SV
   b. K.N. Crowder:
   c. Reese:

3. Overhead Drip Guard
   a. Hager: 810S
   b. K.N. Crowder:
   c. Reese:

2.13 SILENCERS

A. Where smoke, light, or weather seal are not required, provide three silencers per single door frame, two per double door frame and four per Dutch door frame.

B. Standards: Manufacturer shall meet requirements for:
   1. Auxiliary Hardware: ANSI/BHMA A156.16

C. Acceptable Manufacturers:

	Hollow Metal Frame
1. Hager:	307D
2. Rockwood:	
3. Trimco:	

2.14 KEY CABINET

A. Provide key cabinet, surface mounted to wall.

B. Key control system:
   1. Include two sets of key tags, hooks, labels, and envelopes.
   2. Contain system in metal cabinet with baked enamel finish.
   3. Capacity shall be able to hold actual quantities of keys, plus 50 percent.
   4. Provide tools, instruction sheets and accessories required to complete installation.

C. Acceptable Manufacturers:
   1. Lund Equipment
   2. Telkee Incorporated
   3. Key Control

2.15 FINISHES

A. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if within range of approved samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within range of approved samples.

B. Comply with base material and finish requirements indicated by ANSI/BHMA A156.18 designations in hardware schedule.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Install hardware per manufacturer's instructions and in compliance with:
   1. ICC/ANSI A117.1
   2. ANSI/BHMA A156.115 Hardware Preparation in Steel Doors and Steel Frames
   3. DHI Publication – Installation Guide for Doors and Hardware
   4. Local building code.
   5. Approved shop drawings.
   6. Approved finish hardware schedule.

B. Do not install surface mounted items until finishes have been completed on substrates involved. Set unit level, plumb and true to line location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

3.03 FIELD QUALITY CONTROL

A. Material supplier to schedule final walk through to inspect hardware installation ten (10) business days before final acceptance of Owner. Material supplier shall provide a written report detailing discrepancies of each opening to General Contractor within seven (7) calendar days of walk through.

3.04 ADJUSTMENT, CLEANING AND DEMONSTRATING

A. Adjustment: Adjust and check each opening to ensure proper operation of each item of finish hardware. Replace items that cannot be adjusted to operate freely and smoothly or as intended for application at no cost to Owner.

B. Cleaning: Clean adjacent surfaces soiled by hardware installation. Clean finish hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no cost to Owner.

C. Demonstration: Conduct a training class for building maintenance personnel demonstrating the adjustment, operation of mechanical and electrical hardware. Special tools for finish hardware to be turned over and explained usage at this meeting.

3.05 PROTECTION

A. Leave manufacturer's protective film intact and provide proper protection for all other finish hardware items that do not have protective material from the manufacture until Owner accepts project as complete.

3.06 HARDWARE SET SCHEDULE

A. Guide: Door hardware items have been placed in sets which are intended to be a guide of design, grade, quality, function, operation, performance, exposure, and like characteristics of door hardware, and may not be complete. Provide door hardware required to make each set complete and operational.

B. Hardware schedule does not reflect handing, backset, method of fastening, and like characteristics of door hardware and door operation.

C. Review door hardware sets with door types, frames, sizes and details on drawings. Verify suitability and adaptability of items specified in relation to details and surrounding conditions.

3.07 HARDWARE SCHEDULE

Hardware Sets

SET #1

Doors: 101, 102, 104, 118A, 118B, 121A, 121B

1	Continuous Hinge	780-112HD x LAR x RBCC	CLR	HA
1	Deadlock	MS1850S	628	AD
1	Exit Indicator	4089-00	130	AD
1	Mortise Cylinder	3902 1 1/8"	US26D	HA
1	Thumb Turn Cylinder	3905 1 1/8"	US26D	HA
1	Push/Pull Set	H 159D 32"	US32D	HA
1	Closer	5100 5935	ALM	HA
1	Overhead Stop	7016 SRF	US32D	HA
1	Blade Stop Spacer	5113	ALM	HA
1	Drop Plate	5110	ALM	HA
1	Threshold	403S x LAR	MIL	HA
1	Door Sweep	750S N x LAR	CLR	HA
1	Drip Cap	810S x LAR	MIL	HA

Perimeter gaskets by aluminum door and frame manufacturer.

SET #2

Doors: 103

1	Continuous Hinge	780-112HD x LAR x RBCC	CLR	HA
1	Push/Pull Set	H 159D 32"	US32D	HA
1	Overhead Stop	7016 SRF	US32D	HA
1	Closer	5100 5935	ALM	HA
1	Blade Stop Spacer	5113	ALM	HA
1	Drop Plate	5110	ALM	HA

Perimeter gaskets by aluminum door and frame manufacturer.

SET #3

Doors: 115 (42”wide door)

1	Continuous Hinge	780-111HD 83" ROUND BACK COVER	CLR	HA
1	Exit Device	4501 RIM 36"	US32D	HA
1	Exit Device Trim	45CE WTN	US26D	HA
1	Mortise Cylinder	3902 1 1/8"	US26D	HA
1	Overhead Holder	7017 SRF	US32D	HA
1	Heavy Duty Closer		ALM	HA
1	Protection Plate	190S 36" x 2" LDW	US32D	HA
1	Threshold	520S N x LAR	MIL	HA
1	Set Weatherstrip	881S S x LAR	MIL	HA
1	Door Bottom W/ Rain Drip	770S V x LAR	MIL	HA
1	Drip Cap	810S x LAR	MIL	HA

SET #4

Doors: 121C

1	Continuous Hinge	780-111HD 83" ROUND BACK COVER	CLR	HA
1	Exit Device	4501 RIM 36"	US32D	HA
1	Exit Device Trim	45CE WTN	US26D	HA
1	Mortise Cylinder	3902 1 1/8"	US26D	HA
1	Overhead Stop	7016 SRF	US32D	HA
1	Closer	5100 5935	ALM	HA
1	Protection Plate	190S 10" x 2" LDW	US32D	HA
1	Threshold	520S N x LAR	MIL	HA
1	Set Weatherstrip	881S S x LAR	MIL	HA
1	Door Bottom W/ Rain Drip	770S V x LAR	MIL	HA
1	Drip Cap	810S x LAR	MIL	HA

SET #5

Doors: 125A

1	Continuous Hinge	780-111HD x LAR x RBCC	CLR	HA
1	Lockset	3470 WTN	US26D	HA
1	Overhead Stop	7016 SRF	US32D	HA
1	Closer	5100 5935	ALM	HA
1	Protection Plate	190S 10" x 2" LDW	US32D	HA
1	Threshold	520S N x LAR	MIL	HA
1	Set Weatherstrip	881S S x LAR	MIL	HA
1	Door Bottom W/ Rain Drip	770S V x LAR	MIL	HA
1	Drip Cap	810S x LAR	MIL	HA

SET #6

Doors: 127

3	Hinge	BB1279 4 1/2 x 4 1/2 NRP	US26D	HA
1	Lockset	3480 WTN	US26D	HA
1	Closer	5100 x HDCS	ALM	HA
1	Protection Plate	190S 10" x 2" LDW	US32D	HA
3	Door Silencer	307D	GREY	HA

SET #7

Doors: 123A, 123B

3	Hinge	BB1279 4 1/2 X 4 1/2	US26D	HA
1	Lockset	3480 WTN	US26D	HA
1	Wall Stop	232W	US32D	HA
3	Door Silencer	307D	GREY	HA

SET #8

Doors: 108, 124

3	Hinge	BB1279 4 1/2 X 4 1/2	US26D	HA
1	Office Lockset	3450 WTN	US26D	HA
1	Wall Stop	236W	US32D	HA
3	Door Silencer	307D	GREY	HA

SET #9

Doors: 126

3	Hinge	BB1279 4 1/2 X 4 1/2	US26D	HA
1	Office Lockset	3450 WTN	US26D	HA
1	Overhead Stop	7016 SRF	US32D	HA
3	Door Silencer	307D	GREY	HA

SET #10

Doors: 125B

3	Hinge	BB1279 4 1/2 x 4 1/2 NRP	US26D	HA
1	Lockset	3470 WTN	US26D	HA
1	Wall Stop	232W	US32D	HA
3	Door Silencer	307D	GREY	HA

SET #11

Doors: 128, 129

3	Hinge	BB1279 4 1/2 X 4 1/2	US26D	HA
1	Privacy Set	3440 WTN	US26D	HA
1	Wall Stop	236W	US32D	HA
3	Door Silencer	307D	GREY	HA

SET #12

Doors: 110

3	Hinge	BB1168 4 1/2 X 4 1/2	US26D	HA
1	Push Plate	30S 8 X 16	US32D	HA
1	Door Pull	H 34J 4 X 16	US32D	HA
1	Closer	5100	ALM	HA
1	Protection Plate	190S 36" x 2" LDW	US32D	HA
3	Door Silencer	307D	GREY	HA

SET #13

Doors: 116, 117

3	Hinge	BB1168 4 1/2 X 4 1/2	US26D	HA
1	Push Plate	30S 8 X 16	US32D	HA
1	Door Pull	H 34J 4 X 16	US32D	HA
1	Closer	5100 x HD	ALM	HA
1	Protection Plate	190S 10" x 2" LDW	US32D	HA
3	Door Silencer	307D	GREY	HA

SET #14

Doors: 118C, 118D, 118E, 118F, 118G

All hardware by overhead door manufacturer/supplier.

Opening List

Opening	Hdw Set	Opening Label	Door Type	Frame Type
101	1			
102	1			
103	2			
104	1			
108	8			
110	12			
115	3			
116	13			
117	13			
124	8			
126	9			
127	6			
128	11			
129	11			
118A	1			
118B	1			
118C	14			
118D	14			
118E	14			
118F	14			
118G	14			
121A	1			
121B	1			
121C	4			
123A	7			
123B	7			
125A	5			
125B	10			