

SECTION 087100 - DOOR HARDWARE**PART 1 - GENERAL****1.1 RELATED DOCUMENTS:**

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

1.2 SUMMARY:

- A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.
- B. This Section includes the following:
 - 1. Architectural Hinges
 - 2. Continuous Hinges
 - 3. Pivots Sets
 - 4. Key Control System, Cylinders and Cores.
 - 5. Locksets, Latchsets and Deadbolts
 - 6. Panic Devices and Fire Rated Exit Devices
 - 7. Closers and Door Control Devices
 - 8. Automatic Door Operators
 - 9. Overhead Door Stops and Holders
 - 10. Floor and Wall Stops
 - 11. Door Bolts and Coordinators
 - 12. Door Pulls, Push/Pull Plates and Push/Pull Sets
 - 13. Protective Plates
 - 14. Door Seals, Gasketing and Weatherstripping
 - 15. Thresholds
 - 16. Miscellaneous Door Control Devices
 - 17. Electromechanical Hardware
 - 18. Miscellaneous Access Control Components and Security Equipment
- C. Related Sections: The following Sections contain requirements that relate to the following sections.
 - 1. Section 08 1113: Hollow Metal Doors and Frames
 - 2. Section 08 1400: Wood Doors
 - 3. Section 08 3323: Coiling Doors
 - 4. Section 08 4113: Aluminum-Framed Entrances and Storefronts
 - 5. Division 26: Electrical
 - 6. Division 28: Electronic Safety and Security
- D. Products furnished but not installed under this Section to include:
 - 1. Cylinders for locks on entrance doors.
 - 2. Final replacement cores and keys to be installed by Owner.

1.3 REFERENCES:

- A. UL - Underwriters Laboratories
 - 1. UL 10B - Fire Test of Door Assemblies
 - 2. UL 10C - Positive Pressure Test of Fire Door Assemblies
 - 3. UL 1784 - Air Leakage Tests of Door Assemblies
 - 4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

1.4 SUBMITTALS:

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.

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

C. Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into vertical format "hardware sets" indicating complete designations of every item required for each door or opening. Use specification heading numbers with any variations suffixed a, b, etc. Include the following information:
 - a. Type, style, function, size, and finish of each hardware item.
 - b. Name and manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of each hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.
 - e. Explanation of all abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for hardware.
 - g. Door and frame sizes and materials.
 - h. Keying information.
 - i. Cross-reference numbers used within schedule deviating from those specified.
 - j. Column 1: State specified item and manufacturer.
 - k. Column 2: State prior approved substituted item and its manufacturer.
2. Furnish complete wiring diagrams, riser diagrams, elevation drawings and operational descriptions of electrical components and systems, listed by opening in the hardware submittals. Elevation drawings shall identify locations of the system components with respect to their placement in the door opening. Operational descriptions shall fully detail how each electrical component will function within the

- opening, including all conditions of ingress and egress. Provide a copy with each hardware schedule submitted for approval. Supply a copy with delivery of hardware to the jobsite and another copy to the Owner at the time of project completion.
3. Submittal Sequence: Submit final schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work that is critical in the Project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.
 4. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.
- D. Provide samples if requested of each type of exposed hardware unit in finish indicated and tagged with full description for coordination with schedule. Submit samples prior to submission of final hardware schedule.
1. Samples will be returned to the supplier. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated in the Work, within limitations of keying coordination requirements.
- E. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- F. Contract closeout submittals:
1. Operation and maintenance data: Complete information for installed door hardware.
 2. Warranty: Completed and executed warranty forms.
- 1.5 QUALITY ASSURANCE:
- A. Single Source Responsibility: Obtain each type of hardware (latch and locksets, hinges, closers, etc.) from a single manufacturer.
1. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an experienced Architectural Hardware Consultant (AHC) who is available for consultation to Owner, Architect, and Contractor, at reasonable times during the Work.
- B. Coordination Meetings:
1. Contractor to set up and attend the following:
 - a. Lock distributor to meet with the Owner to finalize lock functions and keying requirements and to obtain final instructions in writing.
 - b. Lock distributor and lock, closer and exit device manufacturer to meet with the installer prior to beginning of installation of door hardware. Instruct installer on proper installation of specified products.
 2. General Contractor to set up and attend the following:
 3. Meet with the Owner, General Contractor, Supplier, electrical and security contractors to coordinate all electrical hardware items. Supplier to provide riser diagrams, elevation drawings, wiring diagrams and operational descriptions as required by the General and sub-contractors.
- C. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 requirements of authorities having jurisdiction.
1. Provide only items of door hardware that are listed and tested by UL or Warnock Hersey for given type/size opening and degree of label. Provide proper latching hardware, door closers, approved-bearing hinges and seals whether listed in the Hardware Schedule or not. All hardware to comply with State and local codes and UL 10C.

2. Where emergency exit devices are required on fire-rated doors, (with supplementary marking on doors' UL labels indicating "Fire Door to be equipped with Fire Exit Hardware") provide UL label on exit devices indicating "Fire Exit Hardware".
- D. All hardware is to comply with Federal and State Handicap laws.
- E. Substitutions: Request for substitutions of items of hardware other than those listed as "acceptable and approved" shall be made to the architect in writing no later than fourteen (14) days prior to bid opening. Approval of substitutions will only be given in writing or by Addenda. Requests for substitutions shall be accompanied by samples and/or detailed information for each manufacturer of each product showing design, functions, material thickness and any other pertinent information needed to compare your product with that specified. Lack of this information will result in a refusal.
- F. Pre-Installation Coordination:
 1. 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.
 2. 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.
 3. 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.
 4. All attendees shall be prepared to distribute installation manuals, hardware schedules, templates, and physical hardware samples.

1.6 PRODUCT HANDLING:

- A. Tag each item or package separately with identification related to final hardware schedule and include basic installation instructions with each item or package.
- B. Packaging of door hardware is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.
- C. Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.
- D. Deliver individually packaged door hardware items promptly to place of installation (shop or Project site).
- E. Provide secure lock up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

1.7 WARRANTY:

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.
 1. Warranty does not cover damage or faulty operation due to improper installation, improper use, or abuse.
 2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.
- B. Warranties:
 1. Locksets: 10 Year Period
 2. Electromechanical Locksets: 3 Year Period
 3. Exit Devices: 10 Year Period

4. Electromechanical Exit devices: 3 Year Period
5. Surface Closers: 25 Year Period
6. Power Supplies: 3 Year Period
7. Weather Stripping/Gasketing: 5 Year Period
8. Overhead Stops: 10 Year Period

1.8 MAINTENANCE:

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions that are packed in hardware items for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.
- B. Parts kits: Furnish manufacturers' standard parts kits for locksets, exit devices, and door closers.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

- A. Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of finish hardware are indicated in the hardware schedule at the end of this Section.

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

A. Hinges:

1. Acceptable manufacturers:

- a. Ives*
- b. Stanley
- c. McKinney

2. Characteristics:

- a. Provide hinges conforming to ANSI/BHMA A156.1.
- b. Provide five knuckle, ball bearing hinges.
- c. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - 1) Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - 2) Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
- d. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - 1) Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - 2) Interior: Heavy weight, steel, 5 inches (127 mm) high
- e. 2 inches or thicker doors:
 - 1) Exterior: Heavy weight, bronze, or stainless steel, 5 inches (127 mm) high
 - 2) Interior: Heavy weight, steel, 5 inches (127 mm) high
- f. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
- g. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
- h. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
- i. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - 1) Steel Hinges: Steel pins
 - 2) Non-Ferrous Hinges: Stainless steel pins
 - 3) Out-Swinging Exterior Doors: Non-removable pins
 - 4) Out-Swinging Interior Lockable Doors: Non-removable pins

5) Interior Non-lockable Doors: Non-rising pins

- j. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

B. Geared Continuous Hinges:

- 1. Acceptable manufacturers:
 - a. Ives*
 - b. Select Products
 - c. Markar
- 2. Characteristics:
 - a. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.26, Grade 1.
 - b. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum.
 - c. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
 - d. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
 - e. On fire-rated doors, provide aluminum geared continuous hinges classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
 - f. Provide aluminum geared continuous hinges with electrified option scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware.
 - g. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.

C. Power Transfer:

- 1. Acceptable manufacturers:
 - a. Von Duprin EPT-10
- 2. Requirements:
 - a. Provide power transfer with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware.
 - b. Locate electric power transfer per manufacturer's template and UL requirements, unless interference with operation of door or other hardware items.
 - c. All hardwired, door mounted, electrified hardware to receive EPT-10 power transfer, unless scheduled authorized.

D. Power Supplies:

- 1. Acceptable manufacturers:
 - a. Von Duprin PS902 series.
- 2. Requirements:
 - a. Provide one power supply at each door scheduled to receive electric security hardware.
 - b. Verify with electrical drawings that service is run to each door where power supplies are scheduled. Prior to electrical rough-in, notify Architect of accessed controlled locations with no line voltage power.
- 3. Optional Provisions:

- a. Coordinate with Owner's Security Integrator to determine if low voltage power is available and can be provided by the Security Integrator's equipment to operate the specified electric security hardware.
 - b. Where low voltage power can be provided by the security integrator in the proper voltage and current draw, the specified power supply may be omitted at those openings.
 - c. Provide letter from Owner or Owner's Security Integrator stating availability and compatibility of their equipment to provide the necessary power for the operation of the specified hardware. Include specific locations and power to be supplied at each location.
- E. Cylinders and Keying:
 1. Acceptable manufacturers:
 - a. Match existing keying system per owner direction.
 2. Characteristics:
 - a. Existing System: Grandmaster key the locks to the Owner's existing system, with a new master key for the Project.
 - b. Review the keying system with the Owner and provide the type required (master, grandmaster or great-grandmaster), either new or integrated into Owner's existing system.
 - c. Metals: Construct lock cylinder parts from brass or bronze, stainless steel, or nickel silver.
 - d. Comply with Owner's instructions for master keying and, except as otherwise indicated, provide individual change key for each lock that is not designated to be keyed alike with a group of related locks.
 - e. Permanently inscribe each key with number of locks that identifies cylinder manufacturer's key symbol, and notation, "DO NOT DUPLICATE".
 - f. Key Material: Provide keys of nickel silver only.
 - g. Furnish the following Key Quantities:
 - 1) Three (3) change keys for each lock.
 - 2) Five (5) master keys for each master system.
 - 3) Five (5) grandmaster keys for each grandmaster system.
 - 4) Ten (10) construction master keys.
 - 5) Two (2) construction Control Keys.
 - 6) One (1) extra blank for each lock.
 - h. Furnish construction master keys to General Contractor.
 - 1) Deliver keys to Owner.
- F. Grade One Cylindrical Locks and Latches:
 1. Acceptable manufacturers:
 - a. Schlage ND Series*
 - b. Falcon T Series
 - c. Corbin CL3300 Series
 2. Required Features:
 - a. Chassis: Cylindrical design, corrosion-resistant plated cold-rolled steel.
 - b. Locking Spindle: Stainless steel, interlocking design.
 - c. Latch Retractors: Forged steel. Balance of inner parts: Corrosion-resistant plated steel, or stainless steel.
 - d. Lever Trim: Accessible design, independent operation, spring-cage supported, minimum 2" clearance from lever mid-point to door face.
 - e. All lock functions: 7-year warranty, Vandlgard function outside lever is disengaged when in the locked mode.

- f. Rosettes: Minimum 3-7/16" diameter for coverage of ANSI/DHI A115.18, 1994 door preparation, through-bolt lugs on both spring cages to fully engage this pattern.
 - g. Springs: Full compression type.
 - h. Electric operation: Manufacturer-installed continuous duty solenoid.
 - i. Strikes: 16 gage curved steel, bronze, or brass with 1" deep box construction, lips of sufficient length to clear trim and protect clothing.
 - j. Scheduled Lock Series Design:
 - 1) Lever Design RHODES.
 - k. Certifications:
 - 1) ANSI A156.2, 1994, Series 4000, Grade 1. Tested to exceed 3,000,000 cycles.
 - 2) UL listed for A label single doors up to 4 ft x 8 ft.
- G. Grade 2 Cylindrical Locks and Latches:
- 1. Acceptable manufacturers:
 - a. Schlage ALX-Series*
 - b. Falcon W Series
 - c. Corbin Russwin CL3800 Series
 - 2. Required Features:
 - a. Chassis: Cylindrical design, corrosion-resistant plated cold-rolled steel.
 - b. Locking Spindle: Stainless steel, interlocking design.
 - c. Latch Retractors: Forged steel. Balance of inner parts: Corrosion-resistant plated steel or stainless steel.
 - d. Lever Trim: Accessible design, independent operation, spring-cage supported, minimum 2" clearance from lever mid-point to face of door.
 - e. Rosettes: Minimum 3-7/16" diameter for coverage of ANSI/DHI A115.18, 1994 door preparation, through-bolt lugs on both spring cages to fully engage this pattern.
 - f. Springs: Full compression type.
 - g. Strikes: 16 gage curved steel, bronze, or brass with 1" deep box construction, lips of sufficient length to clear trim and protect clothing.
 - h. Scheduled Lock Series Design:
 - 1) Lever Design RHODES.
 - i. Certifications:
 - 1) ANSI A156.2, 1994, Series 4000, Grade 2
 - 2) UL listed for A label single doors up to 4 ft x 8 ft.
- H. Exit Devices:
- 1. Acceptable manufacturers:
 - a. Von Duprin 78 Series*
 - b. Sargent 8000 Series
 - c. Precision Apex 2100
 - 2. Characteristics:
 - a. Exit devices to be UL Listed for life safety. Exit devices for fire rated openings to have "UL" labels for "Fire Exit Hardware."
 - b. Exit devices mounted on labeled wood doors to be mounted on the door per the door manufacturer's requirements.
 - c. All trim to be thru bolted to the lock stile case.
 - d. Lever trim to be solid case material with a break-away feature to limit damage to the unit from vandalism. Lever design to match locksets.

- e. All exit devices to be made of brass, bronze, stainless steel, or aluminum material, powder coated, anodized, or plated to the standard architectural finishes to match the balance of the door hardware.
 - f. Provide glass bead kits (GBK) to shim exit devices on doors with raised glass beads, as required.
 - g. All exit devices to be one manufacturer. No deviation will be considered.
 - h. All series exit devices to incorporate a fluid damper, which decelerates the touchpad on its return stroke and eliminates noise associated with exit device operation. All exit devices to be non-handed. Touchpad to extend a minimum of 1/2 of the door width and to extend to the height of the cross-rail housing for a “no pinch” operation. Plastic touchpads are not acceptable. All latchbolts to be the deadlocking type. Latchbolts to have a self-lubricating coating to reduce wear. Plated or plastic coated latchbolts are not acceptable. Plastic linkage and “dogging” components are not acceptable.
 - i. Surface vertical rod devices to be UL labeled for fire door applications without the use of bottom rod assemblies. Where bottom rods are required for security applications, the devices to be UL labeled for fire doors applications with rod and latch guards by the device manufacturer.
 - j. Exit devices to include impact resistant, flush mounted end cap design to avoid damage due to carts and other heavy objects passing through an opening. End cap to be of heavy-duty metal alloy construction and provide horizontal adjustment to provide alignment with device cover plate. When exit device end cap is installed, no raised edges will protrude.
- I. Surface Closers:
- 1. Acceptable manufacturers:
 - a. LCN Closers 4050A Series*
 - b. Falcon SC70 Series
 - c. Norton 7500 Series
 - 2. Characteristics:
 - a. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certifies closers. Stamp units with date of manufacture code.
 - b. Provide door closers with fully hydraulic, full rack and pinion action with cast aluminum cylinder.
 - c. Body: 1-1/2-inch (38 mm) diameter with 11/16-inch (17 mm) diameter heat-treated pinion journal and full complement bearings.
 - d. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and all weather requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
 - e. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
 - f. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and back check.
 - g. Pressure Relief Valve (PRV) Technology: Not permitted.
 - h. Provide stick on templates, special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.
- J. Surface Closers:
- 1. Acceptable manufacturers:
 - a. LCN Closers 1450 Series*
 - b. Falcon SC80 Series
 - c. Norton 8501 Series

2. Characteristics:
 - a. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory.
 - b. Provide door closers with fully hydraulic, full rack and pinion action with cast aluminum cylinder.
 - c. Closer Body: 1-1/4-inch (32 mm) diameter, with 5/8 inch (16 mm) diameter heat-treated pinion journal and full complement bearings.
 - d. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
 - e. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
 - f. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and back check.
 - g. Pressure Relief Valve (PRV) Technology: not permitted.
 - h. Provide stick on and special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.
- K. Overhead Door Stop/Holders:
 1. Acceptable manufacturers:
 - a. Glynn Johnson*
 - b. Rixson Firemark
 2. Characteristics:
 - a. Provide heavy duty concealed door holders of stainless steel.
 - b. Provide heavy duty surface mounted door holders of stainless steel.
 - c. Concealed holders to be installed with the jamb bracket mortised flush with the bottom of the jamb. The arm and channel to be mortised into the door.
 - d. Surface holders to be installed with the jamb bracket mounted on the stop.
- L. Floor Stops and Wall Bumpers:
 1. Acceptable manufacturers:
 - a. Ives*
 - b. Trimco
 - c. Rockwood Manufacturing
 2. Characteristics: Refer to Hardware Headings.
- M. Door Bolts/Coordinators:
 1. Acceptable manufacturers:
 - a. Ives*
 - b. Trimco
 - c. Rockwood Manufacturing
 2. Characteristics:
 - a. Flush bolts to be forged brass 6-3/4" x 1", with 1/2" diameter bolts. Plunger to be supplied with milled surface one side that fits into a matching guide.
 - b. Automatic flush bolts to be UL listed as top and bottom bolts on a pair of classified fire doors. Bolt construction to be of rugged steel and brass components.
 - c. Self-latching flush bolts to be UL listed as top and bottom bolts on a pair of classified fire doors. Bolt construction to be of rugged steel and brass components.

- d. Automatic flush bolts and self-latching flush bolts to be UL listed for fire door application without bottom bolts (LBB).
 - e. Furnish dust proof bottom strikes.
 - f. Coordinator to be soffit mounted non-handed fully automatic UL listed coordinating device for sequential closing of paired doors with or without astragals.
 - g. Provide filler piece to close the header. Provide brackets as required for mounting of soffit applied hardware.
- N. Push Plates:
- 1. Acceptable manufacturers:
 - a. Ives*
 - b. Trimco
 - c. Rockwood Manufacturing
 - 2. Characteristics:
 - a. Exposed Fasteners: Provide manufacturers standard exposed fasteners.
 - b. Material to be forged stainless steel, per the Hardware Headings.
 - c. Provide plates sized as shown in Hardware Headings.
- O. Door Pulls & Pull Plates:
- 1. Acceptable manufacturers:
 - a. Ives*
 - b. Trimco
 - c. Rockwood Manufacturing
 - 2. Characteristics:
 - a. Provide concealed thru-bolted trim on back-to-back mounted pulls, but not for single units.
 - b. Material to be forged stainless steel.
 - c. Provide units sized as shown in Hardware Headings.
- P. Push Pull Sets:
- 1. Acceptable manufacturers:
 - a. Ives*
 - b. Trimco
 - c. Rockwood Manufacturing
 - 2. Characteristics:
 - a. Provide mounting systems as shown in hardware sets.
 - b. Material to be tubular stainless steel.
 - c. Provide Push/Pull sets sized as shown in Hardware Headings.
- Q. Protective Plates:
- 1. Acceptable manufacturers:
 - a. Ives*
 - b. Trimco
 - c. Rockwood Manufacturing
 - 2. Characteristics:
 - a. Provide manufacturers standard exposed fasteners for door trim units consisting of either machine screws or self-tapping screws.
 - b. Materials:
 - c. Metal Plates: Stainless Steel, .050 inch (U.S. 18 gage).

- d. Fabricate protection plates not more than 2 inches less than door width on push side and not more than 1 inch less than door width on pull side.
 - e. Sizes:
 - 1) Refer to hardware headings for specific sizes.
 - 2) Kick plates to be 8 inches in height.
 - 3) Mop plates to be 6 inches in height.
- R. Thresholds:
- 1. Acceptable manufacturers:
 - a. Zero Weatherstripping Co., Inc.*
 - b. Pemko
 - c. Reese Industries
 - 2. Types: Indicated in Hardware Headings.
- S. Door Seals/Gasketing:
- 1. Acceptable manufacturers:
 - a. Zero Weatherstripping Co., Inc.*
 - b. Pemko
 - c. Reese Industries
 - 2. Types: Indicated in Hardware Headings.
- T. Silencers:
- 1. Acceptable manufacturers:
 - a. Ives*
 - b. Hager
 - c. Rockwood Manufacturing
 - 2. Provide three for each single door; two for each pair of doors.
- U. Key Cabinet and System:
- 1. Acceptable manufacturers:
 - a. Telkee, Inc. (AS REQUIRED)
 - 2. Provide a key control system including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150 percent of the number of locks required for the project.
 - 3. Provide complete cross index system set up by key control distributor, and place keys on markers and hooks in the cabinet as determined by the final key schedule.
 - 4. Provide hinged-panel type cabinet for wall mounting.
 - 5. Provide multiple-drawer type cabinet.
- V. Knox Box:
- 1. Acceptable manufacturers:
 - a. Knox Box 3200 Series. (AS REQUIRED)
 - 2. Characteristics:
 - a. Provide one surface mount Knox Box 3200 Series.

- b. Provide unit compatible with the local Fire Department Knox key system.
- c. General contractor shall install in location provided by architect.

2.3 MATERIALS AND FABRICATION

- A. Manufacturer's Name Plate: Do not use manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire rated labels and as otherwise acceptable to Architect.
 - 1. Manufacturer's identification will be permitted on rim of lock cylinders only.
- B. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI/BHMA A156 series standards for each type of hardware item and with ANSI/BHMA A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.
- C. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
 - 1. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
 - 2. Furnish screws for installation with each hardware item. Provide Phillips flat head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
 - 3. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners.
 - 4. Do not use thru-bolts or sex bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of adequately fastening the hardware, or otherwise found in Headings. Coordinate with wood doors and metal doors and frames. Where thru-bolts are used, provide sleeves for each thru-bolt as a means of reinforcing the work, or use sex screw fasteners.

2.4 Hardware Finishes:

- A. Match items to the manufacturer's standard color and texture finish for the latch and lock sets (or push-pull units if no latch or lock sets).
- B. Provide finishes that match those established by ANSI or, if none established, match the Architect's sample.
- C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.
- D. Provide protective lacquer coating on all exposed hardware finishes of brass, bronze, and aluminum, except as otherwise indicated. The suffix "-NL" is used with standard finish designations to indicate "no lacquer."
- E. The designations used to indicate hardware finishes are those listed in ANSI/BHMA A156.18, "Materials and Finishes," including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.
- F. All hardware to be 622 (US19/US315), 631 (F-BLK) Flat/Matte Black Finish, with the following exceptions:
 - 1. Exterior Hinges: 622 (Brass Substrate)
 - 2. Interior Hinges: 631 (Steel Substrate)
 - 3. Push Plates: BLK Matte Black (Stainless Steel Substrate)
 - 4. Pull Plates: BLK Matte Black (Stainless Steel Substrate)
 - 5. Protective Plates: BLK Matte Black (Stainless Steel Substrate)
 - 6. Hinges at rated openings to be of steel substrate, 631 finish.

7. Balance of hardware to be manufacturer's standard Flat/Matte Black Finish

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.
 1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.
 2. "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute.
 3. NWWDA Industry Standard I.S.1.7, "Hardware Locations for Wood Flush Doors."
- B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface mounted items until finishes have been completed on the substrates involved.
- C. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- E. Set thresholds for exterior doors in full bed of butyl rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section "Joint Sealers".
- F. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

3.2 ADJUSTING, CLEANING, AND DEMONSTRATING:

- A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.
 1. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to function properly with final operation of heating and ventilating equipment.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Door Hardware Supplier's Field Service:
 1. Inspect door hardware items for correct installation and adjustment after complete installation of door hardware.
 2. Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.
 3. File written report of this inspection to Architect.
- D. HARDWARE SCHEDULE

HARDWARE SET: 01

DOOR NUMBER:

EXTF EXTO EXTW

EACH TO HAVE:

3	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	PANIC HARDWARE	78-NL	VON
1	CYL/CORE	AS REQUIRED	
1	SURFACE CLOSER	4050A SCUSH	LCN
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	GASKETING	8144FSBK PSA	ZER
1	DOOR SWEEP	8198BK	ZER
1	THRESHOLD	65BK-223	ZER

HARDWARE SET: 02

DOOR NUMBER:

EXTG

EACH TO HAVE:

6	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	REMOVABLE MULLION	4954 STAB	VON
1	PANIC HARDWARE	78-DT	VON
1	PANIC HARDWARE	78-NL	VON
1	CYL/CORE	AS REQUIRED	
2	SURFACE CLOSER	4050A SCUSH	LCN
2	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	MULLION SEAL	139N	ZER
2	MEETING STILE	328AA-S (PAIR)	ZER
1	GASKETING	8144FSBK PSA	ZER
2	DOOR SWEEP	8198BK	ZER
1	THRESHOLD	65BK-223	ZER

HARDWARE SET: 03

DOOR NUMBER:

EXTH

EACH TO HAVE:

3	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	STOREROOM LOCK	ND80	SCH
1	CYL/CORE	AS REQUIRED	
1	OH STOP	100S	GLY
1	GASKETING	8144FSBK PSA	ZER
1	DOOR SWEEP	8198BK	ZER
1	THRESHOLD	65BK-223	ZER

HARDWARE SET: 04

DOOR NUMBER:

E101I E101J

EACH TO HAVE:

6	HINGE	5BB1 4.5 X 4.5 NRP	IVE
2	SURFACE BOLT	SB360 12" T	IVE
1	STOREROOM LOCK	ND80	SCH
1	CYL/CORE	AS REQUIRED	
2	OH STOP	100S	GLY

HARDWARE SET: 05

DOOR NUMBER:

W103A W105A

EACH TO HAVE:

3	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	PANIC HARDWARE	78-L	VON
1	CYL/CORE	AS REQUIRED	
1	SURFACE CLOSER	4050A EDA	LCN
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CVX	IVE
1	GASKETING	8144FSBK PSA	ZER
1	AUTO WD DOOR BOTTOM	369AA	ZER

HARDWARE SET: 06

DOOR NUMBER:

W104A W104B

EACH TO HAVE:

4	HINGE	5BB1 4.5 X 4.5 NRP	IVE
1	PANIC HARDWARE	78-L-NL	VON
1	CYL/CORE	AS REQUIRED	
1	WALL STOP	WS406/407CVX	IVE

TEMPLATE CLOSER FOR 180/MAX DEGREE SWING AS WALL CONDITION ALLOWS.

HARDWARE SET: 07

DOOR NUMBER:

K213A

EACH TO HAVE:

3	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	FIRE EXIT HARDWARE	78-L-F	VON
1	CYL/CORE	AS REQUIRED	
1	SURFACE CLOSER	4050A EDA	LCN
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CVX	IVE
1	GASKETING	8144FSBK PSA	ZER

HARDWARE SET: 08

DOOR NUMBER:

K203B

EACH TO HAVE:

3	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	FIRE EXIT HARDWARE	78-L-NL-F	VON
1	CYL/CORE	AS REQUIRED	
1	SURFACE CLOSER	1450 SCUSH STD	LCN
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	GASKETING	8144FSBK PSA	ZER

HARDWARE SET: 09

DOOR NUMBER:

W201A

EACH TO HAVE:

3	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	ENTRANCE/OFFICE LOCK	ALX50	SCH
1	CYL/CORE	AS REQUIRED	
1	SURFACE CLOSER	1450 EDA STD	LCN
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	GASKETING	8144FSBK PSA	ZER
1	AUTO WD DOOR BOTTOM	369AA	ZER
1	THRESHOLD	564	ZER

HARDWARE SET: 10

DOOR NUMBER:

K103A K201A

EACH TO HAVE:

3	HINGE	5BB1HW 4.5 X 4.5	IVE
1	FIRE EXIT HARDWARE	78-L-BE-F	VON
1	SURFACE CLOSER	4050A RW/PA	LCN
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CVX	IVE
1	GASKETING	8144FSBK PSA	ZER

HARDWARE SET: 11

DOOR NUMBER:

K117A

EACH TO HAVE:

3	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	FIRE EXIT HARDWARE	78-L-F	VON
1	CYL/CORE	AS REQUIRED	
1	SURFACE CLOSER	4050A RW/PA	LCN
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CVX	IVE
1	GASKETING	8144FSBK PSA	ZER

HARDWARE SET: 12

DOOR NUMBER:

W103B

EACH TO HAVE:

3	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	FIRE EXIT HARDWARE	78-L-F	VON
1	CYL/CORE	AS REQUIRED	
1	SURFACE CLOSER	4050A SCUSH	LCN
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	GASKETING	8144FSBK PSA	ZER

HARDWARE SET: 13

DOOR NUMBER:

W101A

EACH TO HAVE:

8	HINGE	5BB1HW 5 X 4.5 NRP	IVE
1	PANIC HARDWARE	7827-EO-LBR-785	VON
1	PANIC HARDWARE	7827-NL-OP-LBR-110MD	VON
1	CYL/CORE	AS REQUIRED	
2	90 DEG OFFSET PULL	8190EZHD 12" O	IVE
2	SURFACE CLOSER	4050A SHCUSH	LCN
2	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	GASKETING	8144FSBK PSA	ZER
1	MEETING STILE	56 X 156AA	ZER
2	AUTO WD DOOR BOTTOM	369AA	ZER

HARDWARE SET: 14

DOOR NUMBER:

W101B W101C

EACH TO HAVE:

8	HINGE	5BB1HW 5 X 4.5 NRP	IVE
2	PANIC HARDWARE	7827-EO-LBR-785	VON
2	90 DEG OFFSET PULL	8190EZHD 12" O	IVE
2	SURFACE CLOSER	4050A SHCUSH	LCN
2	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	GASKETING	8144FSBK PSA	ZER
1	MEETING STILE	56 X 156AA	ZER
2	AUTO WD DOOR BOTTOM	369AA	ZER

HARDWARE SET: 15

DOOR NUMBER:

W114A

EACH TO HAVE:

6	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	PANIC HARDWARE	7827-EO-LBR-785	VON
1	PANIC HARDWARE	7827-L-NL-LBR	VON
1	CYL/CORE	AS REQUIRED	
2	SURFACE CLOSER	4050A EDA	LCN
2	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
2	WALL STOP	WS406/407CVX	IVE
1	GASKETING	8144FSBK PSA	ZER
1	MEETING STILE	56 X 156AA	ZER
2	AUTO WD DOOR BOTTOM	369AA	ZER

TEMPLATE CLOSER FOR 180/MAX DEGREE SWING AS WALL CONDITION ALLOWS.

HARDWARE SET: 16

DOOR NUMBER:

K203A

EACH TO HAVE:

6	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	PANIC HARDWARE	7827-EO-LBR-785	VON
1	PANIC HARDWARE	7827-L-NL-LBR	VON
1	CYL/CORE	AS REQUIRED	
2	SURFACE CLOSER	4050A SCUSH	LCN
2	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	GASKETING	8144FSBK PSA	ZER
1	MEETING STILE	56 X 156AA	ZER
2	AUTO WD DOOR BOTTOM	369AA	ZER

HARDWARE SET: 17

DOOR NUMBER:

C116B

EACH TO HAVE:

6	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	FIRE EXIT HARDWARE	7827-EO-F-LBR-785-499F	VON
1	FIRE EXIT HARDWARE	7827-L-F-LBR-499F	VON
1	CYL/CORE	AS REQUIRED	
2	SURFACE CLOSER	4050A SCUSH	LCN
2	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	GASKETING	8144FSBK PSA	ZER
1	MEETING STILE	56 X 156AA	ZER

TEMPLATE CLOSER FOR 180/MAX DEGREE SWING AS WALL CONDITION ALLOWS.

HARDWARE SET: 18

DOOR NUMBER:

W114B

EACH TO HAVE:

6	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
2	PUSH/PULL BAR	9103EZHD-12"-NO	IVE
1	SURFACE CLOSER	4050A EDA	LCN
1	SURFACE CLOSER	4050A SCUSH	LCN
2	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CVX	IVE
1	GASKETING	8144FSBK PSA	ZER
1	MEETING STILE	56 X 156AA	ZER

TEMPLATE CLOSER FOR 180/MAX DEGREE SWING AS WALL CONDITION ALLOWS.

HARDWARE SET: 19

DOOR NUMBER:

C104A C106A C106B K273A

EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	CLASSROOM LOCK	ALX70	SCH
1	CYL/CORE	AS REQUIRED	
1	WALL STOP	WS406/407CVX	IVE

HARDWARE SET: 20

DOOR NUMBER:

C107A

EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	CLASSROOM LOCK	ALX70	SCH
1	CYL/CORE	AS REQUIRED	
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CVX	IVE

HARDWARE SET: 21

DOOR NUMBER:

C118A

EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	CLASSROOM LOCK	ALX70	SCH
1	CYL/CORE	AS REQUIRED	
1	SURFACE CLOSER	1450 SCUSH STD	LCN
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	GASKETING	8144FSBK PSA	ZER

HARDWARE SET: 22

DOOR NUMBER:

K104A	K106A	K108A	K110A	K112A	K113A
K114A	K116A	K204A	K205A	K206A	K208A
K209A	K211A	K212A			

EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	ENTRANCE/OFFICE LOCK	ALX50	SCH
1	CYL/CORE	AS REQUIRED	
1	WALL STOP	WS406/407CCV	IVE

HARDWARE SET: 23

DOOR NUMBER:

A102A	A104A	A108A	A110A	A114A	C105A
C105B	K107A	W111A	W115A		

EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	ENTRANCE/OFFICE LOCK	ALX50	SCH
1	CYL/CORE	AS REQUIRED	
1	WALL STOP	WS406/407CCV	IVE

HARDWARE SET: 24

DOOR NUMBER:

C114A

EACH TO HAVE:

4	HINGE	5BB1 4.5 X 4.5	IVE
1	ENTRANCE/OFFICE LOCK	ALX50	SCH
1	CYL/CORE	AS REQUIRED	
1	WALL STOP	WS406/407CCV	IVE

HARDWARE SET: 25

DOOR NUMBER:

W115B

EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	ENTRANCE/OFFICE LOCK	ALX50	SCH
1	CYL/CORE	AS REQUIRED	
1	OH STOP	100S	GLY

HARDWARE SET: 26

DOOR NUMBER:

A101A

EACH TO HAVE:

6	HINGE	5BB1 4.5 X 4.5 NRP	IVE
1	CONST LATCHING BOLT	FB51P	IVE
1	DUST PROOF STRIKE	DP1	IVE
1	ENTRANCE/OFFICE LOCK	ALX50	SCH
1	CYL/CORE	AS REQUIRED	
1	OH STOP	100S	GLY
1	SURFACE CLOSER	1450 CUSH STD	LCN
2	KICK PLATE	8400 8" X 2" LDW B-CS	IVE

HARDWARE SET: 27

DOOR NUMBER:

W203A

W204A

EACH TO HAVE:

3	HINGE	BY OTHERS	
1	PASSAGE SET	ALX10 43-005	SCH
1	FLOOR STOP	FS439	IVE

COORDINATE HARDWARE WITH STC RATED DOOR/FRAME MANUFACTURER/SUPPLIER.
 BALANCE OF HARDWARE BY STC RATED DOOR/FRAME MANUFACTURER/SUPPLIER.
 PROVIDE STC DOOR MANUFACTURER/SUPPLIER APPROVED HINGE AS REQUIRED.

HARDWARE SET: 28

DOOR NUMBER:

W106A

EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	PASSAGE SET	ALX10	SCH
1	CYL/CORE	AS REQUIRED	
1	WALL STOP	WS406/407CVX	IVE

HARDWARE SET: 29

DOOR NUMBER:

C115A

EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	PASSAGE SET	ALX10	SCH
1	CYL/CORE	AS REQUIRED	
1	OH STOP	100S	GLY

HARDWARE SET: 30

DOOR NUMBER:

A202A

EACH TO HAVE:

3	HINGE	5BB1HW 5 X 4.5	IVE
1	PASSAGE SET	ALX10	SCH
1	CYL/CORE	AS REQUIRED	
1	OH STOP	100S	GLY

HARDWARE SET: 31

DOOR NUMBER:

K207A K210A

EACH TO HAVE:

3	HINGE	5BB1HW 4.5 X 4.5	IVE
1	PUSH PLATE	8200 4" X 16"	IVE
1	PULL PLATE	8303 10" 4" X 16"	IVE
1	SURFACE CLOSER	4050A RW/PA	LCN
1	MOP PLATE	8400 6" X 1" LDW B-CS	IVE
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CVX	IVE

HARDWARE SET: 32

DOOR NUMBER:

A115A

EACH TO HAVE:

6	HINGE	5BB1 4.5 X 4.5	IVE
2	DOUBLE DUMMY TRIM	ALX172	SCH
1	ROLLER LATCH	RL32	IVE
2	WALL STOP	WS406/407CVX	IVE

TEMPLATE CLOSER FOR 180/MAX DEGREE SWING AS WALL CONDITION ALLOWS.

HARDWARE SET: 33

DOOR NUMBER:

A111A	A113A	K105A	K105B	K111A	K111B
K115A	W109A				

EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	PRIVACY LOCK	ALX40	SCH
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CCV	IVE

HARDWARE SET: 34

DOOR NUMBER:

A109A

EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	PRIVACY LOCK	ND40S OS-OCC	SCH
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CCV	IVE

HARDWARE SET: 35

DOOR NUMBER:

C108B	C108C	C108D	C108E	C108F	C108G
C108H	C108I	C112B	C112C	C112D	

EACH TO HAVE:

1	HINGE	3CB1 4.5 X 4.5	IVE
2	SPRING HINGE	3SP1 4.5 X 4.5	IVE
1	PRIVACY LOCK	ALX40	SCH
1	MOP PLATE	8400 6" X 1" LDW B-CS	IVE
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CCV	IVE

ADJUST SPRING HINGES TO CLOSE STALL DOORS JUST SHORT OF LATCHING THE STALL DOOR. PROVIDE WALL STOP WHERE APPLICABLE.

HARDWARE SET: 36

DOOR NUMBER:

A111B

EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	PRIVACY LOCK	ALX40	SCH
1	OH STOP	100S	GLY
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE

HARDWARE SET: 37

DOOR NUMBER:

W107A	W108A	W110A
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EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	PRIVACY LOCK	ND40S OS-OCC	SCH
1	OH STOP	100S	GLY

HARDWARE SET: 38

DOOR NUMBER:

A105A	A203A	C109A	C111A	C117A	K109A
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EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	PRIVACY LOCK	ND40S OS-OCC	SCH
1	SURFACE CLOSER	1450 RW/PA STD	LCN
1	MOP PLATE	8400 6" X 1" LDW B-CS	IVE
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CCV	IVE

HARDWARE SET: 39

DOOR NUMBER:

W116A	W202A
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EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	PRIVACY LOCK	ND40S OS-OCC	SCH
1	SURFACE CLOSER	1450 EDA STD	LCN
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CVX	IVE

HARDWARE SET: 40

DOOR NUMBER:

C110A

EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	STOREROOM LOCK	ALX80	SCH
1	CYL/CORE	AS REQUIRED	
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CVX	IVE

HARDWARE SET: 41

DOOR NUMBER:

W205A

EACH TO HAVE:

6	HINGE	5BB1 4.5 X 4.5	IVE
1	CONST LATCHING BOLT	FB51P	IVE
1	DUST PROOF STRIKE	DP1	IVE
1	STOREROOM LOCK	ALX80	SCH
1	CYL/CORE	AS REQUIRED	
2	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
2	FLOOR STOP	FS441	IVE

TEMPLATE CLOSER FOR 180/MAX DEGREE SWING AS WALL CONDITION ALLOWS.

HARDWARE SET: 42

DOOR NUMBER:

EXTV

EACH TO HAVE:

3	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	FIRE EXIT HARDWARE	78-NL-F-SNB	VON
2	CYL/CORE	AS REQUIRED	
1	ELECTRIC STRIKE	6300 FSE 12/24 VAC/VDC	VON
1	SURFACE CLOSER	4050A SCUSH	LCN
1	RAIN DRIP	142AA (AS REQ'D)	ZER
1	GASKETING	8144FSBK PSA	ZER
1	DOOR SWEEP	8198BK	ZER
1	THRESHOLD	65BK-223	ZER
1	CREDENTIAL READER	BY SECURITY/ACCESS CTRL SYSTEMS	
1	DOOR CONTACT	679-05WD/HM	SCE
1	POWER SUPPLY	PS902 900-2RS 120/240 VAC	VON

COORDINATE HARDWARE WITH FIRE, ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

BALANCE OF EAC COMPONENTS BY ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

OPERATION: CREDENTIAL READER TO UNLOCK HARDWARE AND ALLOW PASSAGE MOMENTARILY. DOOR CONTACT MONITORED REMOTELY VIA SECURITY AND ACCESS CONTROL SYSTEMS. FREE EGRESS AT ALL TIMES.

HARDWARE SET: 43

DOOR NUMBER:

EXTK

EACH TO HAVE:

6	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	POWER TRANSFER	EPT10	VON
1	PANIC HARDWARE	LD-7847-EO	VON
1	ELEC PANIC HARDWARE	QEL-7847-NL 24 VDC	VON
1	CYL/CORE	AS REQUIRED	
2	SURFACE CLOSER	4050A SCUSH	LCN
1	RAIN DRIP	142AA (AS REQ'D)	ZER
2	MEETING STILE	328AA-S (PAIR)	ZER
2	DOOR SWEEP	8198BK	ZER
1	THRESHOLD	65BK-223	ZER
1	CREDENTIAL READER	BY SECURITY/ACCESS CTRL SYSTEMS	
2	DOOR CONTACT	679-05WD/HM	SCE
1	POWER SUPPLY	PS902 900-2RS 120/240 VAC	VON

COORDINATE HARDWARE WITH ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

BALANCE OF EAC COMPONENTS BY ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

OPERATION: CREDENTIAL READER TO UNLOCK HARDWARE AND ALLOW PASSAGE MOMENTARILY. DOOR CONTACT MONITORED REMOTELY VIA SECURITY AND ACCESS CONTROL SYSTEMS. FREE EGRESS AT ALL TIMES.

HARDWARE SET: 44

DOOR NUMBER:

C116A

EACH TO HAVE:

6	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
2	POWER TRANSFER	EPT10	VON
1	ELEC PANIC HARDWARE	QEL-7847-EO 24 VDC	VON
1	ELEC PANIC HARDWARE	QEL-7847-NL-OP-110MD 24 VDC	VON
1	CYL/CORE	AS REQUIRED	
2	90 DEG OFFSET PULL	8190EZHD 12" O	IVE
2	SURFACE CLOSER	4050A SCUSH	LCN
1	CREDENTIAL READER	BY SECURITY/ACCESS CTRL SYSTEMS	
2	DOOR CONTACT	679-05WD/HM	SCE
1	POWER SUPPLY	PS902 900-2RS 120/240 VAC	VON

COORDINATE HARDWARE WITH ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

BALANCE OF EAC COMPONENTS BY ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

OPERATION: CREDENTIAL READER TO UNLOCK HARDWARE AND ALLOW PASSAGE MOMENTARILY. DOOR CONTACT MONITORED REMOTELY VIA SECURITY AND ACCESS CONTROL SYSTEMS. FREE EGRESS AT ALL TIMES.

HARDWARE SET: 45

DOOR NUMBER:

A107A

EACH TO HAVE:

3	HINGE	5BB1 4.5 X 4.5	IVE
1	STOREROOM LOCK	ALX80	SCH
1	CYL/CORE	AS REQUIRED	
1	ELECTRIC STRIKE	4211/4212 FSAFSE 12/24 VDC	VON
1	SURFACE CLOSER	1450 RW/PA STD	LCN
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CCV	IVE
1	CREDENTIAL READER	BY SECURITY/ACCESS CTRL SYSTEMS	
1	DOOR CONTACT	679-05WD/HM	SCE
1	POWER SUPPLY	PS902 120/240 VAC	VON

COORDINATE HARDWARE WITH ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

BALANCE OF EAC COMPONENTS BY ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

OPERATION: CREDENTIAL READER TO UNLOCK HARDWARE AND ALLOW PASSAGE MOMENTARILY. DOOR CONTACT MONITORED REMOTELY VIA SECURITY AND ACCESS CONTROL SYSTEMS. FREE EGRESS AT ALL TIMES.

HARDWARE SET: 46

DOOR NUMBER:

A107B

EACH TO HAVE:

3	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	STOREROOM LOCK	ALX80	SCH
1	CYL/CORE	AS REQUIRED	
1	ELECTRIC STRIKE	4211/4212 FSAFSE 12/24 VDC	VON
1	SURFACE CLOSER	1450 EDA STD	LCN
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CCV	IVE
1	CREDENTIAL READER	BY SECURITY/ACCESS CTRL SYSTEMS	
1	DOOR CONTACT	679-05WD/HM	SCE
1	POWER SUPPLY	PS902 120/240 VAC	VON

COORDINATE HARDWARE WITH ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

BALANCE OF EAC COMPONENTS BY ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

OPERATION: CREDENTIAL READER TO UNLOCK HARDWARE AND ALLOW PASSAGE MOMENTARILY. DOOR CONTACT MONITORED REMOTELY VIA SECURITY AND ACCESS CONTROL SYSTEMS. FREE EGRESS AT ALL TIMES.

HARDWARE SET: 47

DOOR NUMBER:

A103A

EACH TO HAVE:

4	HINGE	5BB1HW 4.5 X 4.5 NRP	IVE
1	STOREROOM LOCK	ALX80	SCH
1	CYL/CORE	AS REQUIRED	
1	ELECTRIC STRIKE	4211/4212 FSAFSE 12/24 VDC	VON
1	SURFACE CLOSER	1450 EDA STD	LCN
1	KICK PLATE	8400 8" X 2" LDW B-CS	IVE
1	WALL STOP	WS406/407CCV	IVE
1	CREDENTIAL READER	BY SECURITY/ACCESS CTRL SYSTEMS	
1	DOOR CONTACT	679-05WD/HM	SCE
1	POWER SUPPLY	PS902 120/240 VAC	VON

COORDINATE HARDWARE WITH ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

BALANCE OF EAC COMPONENTS BY ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

OPERATION: CREDENTIAL READER TO UNLOCK HARDWARE AND ALLOW PASSAGE MOMENTARILY. DOOR CONTACT MONITORED REMOTELY VIA SECURITY AND ACCESS CONTROL SYSTEMS. FREE EGRESS AT ALL TIMES.

HARDWARE SET: 48

DOOR NUMBER:

C108A C112A K207B K210B

CASED OPENING TO RECEIVE NO HARDWARE.

HARDWARE SET: AL-01

DOOR NUMBER:

EXTE EXTL EXTS

EACH TO HAVE:

2	CONT. HINGE	112XY EPT	IVE
2	POWER TRANSFER	EPT10	VON
2	ELEC PANIC HARDWARE	QEL-7847-EO 24 VDC	VON
1	ELEC PANIC HARDWARE	QEL-7847-NL 24 VDC	VON
1	CYL/CORE	AS REQUIRED	
2	90 DEG OFFSET PULL	8190EZHD 12" O	IVE
2	OH STOP	100S	GLY
2	SURFACE CLOSER	4050A TOP JAMB	LCN
2	MOUNTING PLATE	4050A-18G SRT	LCN
1	THRESHOLD	65BK-223	ZER
1	CREDENTIAL READER	BY SECURITY/ACCESS CTRL SYSTEMS	
2	DOOR CONTACT	679-05WD/HM	SCE
1	POWER SUPPLY	PS902 900-2RS 120/240 VAC	VON

COORDINATE HARDWARE WITH ALUMINUM DOOR/FRAME MANUFACTURER/SUPPLIER.

BALANCE OF HARDWARE BY ALUMINUM DOOR/FRAME MANUFACTURER/SUPPLIER.

COORDINATE HARDWARE WITH ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

BALANCE OF EAC COMPONENTS BY ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

OPERATION: CREDENTIAL READER TO UNLOCK HARDWARE AND ALLOW PASSAGE MOMENTARILY. DOOR CONTACT MONITORED REMOTELY VIA SECURITY AND ACCESS CONTROL SYSTEMS. FREE EGRESS AT ALL TIMES.

HARDWARE SET: AL-02

DOOR NUMBER:

EXTA	EXTM	EXTT
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EACH TO HAVE:

2	CONT. HINGE	112XY	IVE
1	PANIC HARDWARE	7847-EO	VON
1	PANIC HARDWARE	7847-NL-OP-110MD	VON
1	CYL/CORE	AS REQUIRED	
2	90 DEG OFFSET PULL	8190EZHD 12" O	IVE
2	OH STOP	100S	GLY
2	SURFACE CLOSER	4050A TOP JAMB	LCN
2	MOUNTING PLATE	4050A-18G SRT	LCN
1	THRESHOLD	65BK-223	ZER

COORDINATE HARDWARE WITH ALUMINUM DOOR/FRAME MANUFACTURER/SUPPLIER.
BALANCE OF HARDWARE BY ALUMINUM DOOR/FRAME MANUFACTURER/SUPPLIER.

HARDWARE SET: AL-03

DOOR NUMBER:

EXTB	EXTC	EXTD	EXTU
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EACH TO HAVE:

2	CONT. HINGE	112XY	IVE
2	PANIC HARDWARE	7847-EO	VON
2	90 DEG OFFSET PULL	8190EZHD 12" O	IVE
2	OH STOP	100S	GLY
2	SURFACE CLOSER	4050A TOP JAMB	LCN
2	MOUNTING PLATE	4050A-18G SRT	LCN
1	THRESHOLD	65BK-223	ZER

COORDINATE HARDWARE WITH ALUMINUM DOOR/FRAME MANUFACTURER/SUPPLIER.
BALANCE OF HARDWARE BY ALUMINUM DOOR/FRAME MANUFACTURER/SUPPLIER.

HARDWARE SET: AL-04

DOOR NUMBER:

C101A	C101B	C101C	C101D
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EACH TO HAVE:

2	CONT. HINGE	112XY	IVE
2	PUSH/PULL BAR	9103EZHD-12"-NO	IVE
2	OH STOP	100S	GLY
2	SURFACE CLOSER	4050A TOP JAMB	LCN
2	MOUNTING PLATE	4050A-18G SRT	LCN

COORDINATE HARDWARE WITH ALUMINUM DOOR/FRAME MANUFACTURER/SUPPLIER.
BALANCE OF HARDWARE BY ALUMINUM DOOR/FRAME MANUFACTURER/SUPPLIER.

HARDWARE SET: AL-05

DOOR NUMBER:

K101A

EACH TO HAVE:

2	CONT. HINGE	112XY EPT	IVE
2	POWER TRANSFER	EPT10	VON
2	ELEC PANIC HARDWARE	QEL-7847-EO 24 VDC	VON
1	ELEC PANIC HARDWARE	QEL-7847-NL 24 VDC	VON
1	CYL/CORE	AS REQUIRED	
2	90 DEG OFFSET PULL	8190EZHD 12" O	IVE
2	OH STOP	100S	GLY
2	SURFACE CLOSER	4050A RW/PA	LCN
2	MOUNTING PLATE	4050A-18G SRT	LCN
1	CREDENTIAL READER	BY SECURITY/ACCESS CTRL SYSTEMS	
2	DOOR CONTACT	679-05WD/HM	SCE
1	POWER SUPPLY	PS902 900-2RS 120/240 VAC	VON

COORDINATE HARDWARE WITH ALUMINUM DOOR/FRAME MANUFACTURER/SUPPLIER.

BALANCE OF HARDWARE BY ALUMINUM DOOR/FRAME MANUFACTURER/SUPPLIER.

COORDINATE HARDWARE WITH ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

BALANCE OF EAC COMPONENTS BY ELECTRICAL, SECURITY AND ACCESS CONTROL SYSTEMS.

OPERATION: CREDENTIAL READER TO UNLOCK HARDWARE AND ALLOW PASSAGE MOMENTARILY. DOOR CONTACT MONITORED REMOTELY VIA SECURITY AND ACCESS CONTROL SYSTEMS. FREE EGRESS AT ALL TIMES.

HARDWARE SET: AL-06

DOOR NUMBER:

A207A A208A A209A A210A

EACH TO HAVE:

1	CONT. HINGE	112XY	IVE
1	ENTRANCE/OFFICE LOCK	ALX50	SCH
1	CYL/CORE	AS REQUIRED	
1	WALL STOP	WS406/407CCV	IVE

END OF SECTION 087100