SECTION 087100 – DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:

1. Swinging doors.
2. Sliding Doors
3. Other doors to the extent indicated.

B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.
2. Cylinders specified for doors in other sections.

C. Related Sections:

1. Section 06 10 00 – Rough Carpentry.
2. Section 06 20 00 – Finish Carpentry.
3. Section 08 01 00 – Operations and Maintenance.
4. Section 08 11 13 – Hollow Metal Doors and Frames.
5. Section 08 14 16 – Flush Wood Doors.
6. Section 08 41 13 – Aluminum-Framed Entrances and Storefronts.
7. Section 08 81 00 – Glass and Glazing.
8. Section 09 90 00 – Painting and Coating.

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ANSI/SDI A250.13 - Testing and Rating of Severe Windstorm Resistant Components for Swing Door Assemblies.
3. ASTM E1886 - Test Method for Performance of Exterior Windows, Curtin Walls, Doors and Shutters Impacted by Missiles and Exposed to Cyclic Pressure Differentials.
4. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure difference.
5. ASTM E1996 - Standard specification for performance of exterior windows, curtain walls, doors and storm shutters impacted by Windborne Debris in Hurricanes.

6. FEMA 361 2008 - Design and Construction Guidance for Community Safe Rooms.
7. ICC 500 - ICC/NSSA Standard for the Design and Construction of Storm Shelters.
8. ICC/IBC - International Building Code.
9. NFPA 70 - National Electrical Code.
10. NFPA 80 - Fire Doors and Windows.
11. NFPA 101 - Life Safety Code.
12. NFPA 105 - Installation of Smoke Door Assemblies.
13. TAS-201-94 - Impact Test Procedures.
14. TAS-202-94 - Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components using Uniform Static Air Pressure.
15. TAS-203-94 - Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.
16. [State Building Codes, Local Amendments].

E. Standards: All hardware specified herein shall comply with the following industry standards:

1. ANSI/BHMA Certified Product Standards - A156 Series
2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.3 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.4 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.

C. Door and Frame Preparation: Related Division 08 Sections (Steel, Aluminum and Wood) doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.5 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Electrical component defects and failures within the systems operation.

C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:

1. Ten years for mortise locks and latches.
2. Ten years for extra heavy duty cylindrical (bored) locks and latches.
3. Seven years for heavy duty cylindrical (bored) locks and latches.
4. Five years for standard duty cylindrical (bored) locks and latches.
5. Five years for exit hardware.
6. Ten years for manual door closers.
7. Two years for electromechanical door hardware.

1.6 MAINTENANCE SERVICE

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

B. Continuing Service: Beginning at Substantial Completion, and running concurrent with the specified warranty period, provide continuous (6) months full maintenance including repair and replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door opening operation. Provide parts and supplies as used in the manufacture and installation of original products.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

1. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:

a. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

2. Products furnished, but not installed, under this Section include the following. Coordinating, purchasing, delivering, and scheduling remain requirements of this Section.

a. Permanent cylinders, cores, and keys to be installed by Owner.

B. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity, unless otherwise indicated:

a. Two Hinges: For doors with heights up to 60 inches.
b. Three Hinges: For doors with heights 61 to 90 inches.
c. Four Hinges: For doors with heights 91 to 120 inches.
d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

a. Widths up to 3’0”: 4-1/2” standard or heavy weight as specified.
b. Sizes from 3’1” to 4’0”: 5” standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:

a. Exterior Doors: Heavy weight, non-ferrous, ball bearing hinges unless Hardware Sets indicate standard weight.
b. Interior Doors: Standard weight, steel, ball bearing hinges unless Hardware Sets indicate heavy weight.
c. Tornado Resistant Assemblies: At a minimum, provide heavy weight hinges with stainless steel screws used in accordance with and specified as part of a Severe Storm Shelter Opening meeting ICC 500 and FEMA 361.

4. Hinge Options: Comply with the following where indicated in the Hardware Sets or on Drawings:

a. Non-removable Pins (NRP): Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the following applications:

1) Out-swinging exterior doors.
2) Out-swinging lockable interior doors.

5. Acceptable Manufacturers:

a. Hager Companies (HA).
b. McKinney Products (MK).
c. Stanley Hardware (ST).

B. Pivots: ANSI/BHMA A156.4, Grade 1, certified pivots provided either center hung or 3/4" offset type complete with top, bottom, and intermediate pivots (offset pivots only) in quantity according to manufacturer's recommendations. Space intermediate pivots equally not less than 25 inches on center apart or not more than 35 inches on center for doors over 121 inches high. Pivot hinges to have oil impregnated bronze bearing in the top pivot and a radial roller and thrust bearing in the bottom pivot with the bottom pivot designed to carry the full weight of the door. Pivots to be UL listed for windstorm where applicable.

1. Acceptable Manufacturers:

a. Dorma Products (DO).
b. Rixson Door Controls (RF).

2.3 DOOR OPERATING TRIM

A. Flush Bolts and Surface Bolts: ANSI/BHMA A156.3 and A156.16, Grade 1, certified automatic, self-latching, and manual flush bolts and surface bolts. Manual flush bolts to be furnished with top rod of sufficient length to allow bolt location approximately six feet from the floor. Furnish dust proof strikes for bottom bolts. Surface bolts to be minimum 8” in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.

1. Acceptable Manufacturers:

a. McKinney Architectural Hardware (MK).
b. Rockwood Manufacturing (RO).
c. Trimco (TC).

B. Coordinators: ANSI/BHMA A156.3 certified door coordinators consisting of active-leaf, hold-open lever and inactive-leaf release trigger. Coordinators fabricated from steel with nylon-coated strike plates and built-in adjustable safety release.

1. Acceptable Manufacturers:

a. McKinney Architectural Hardware (MK).
b. Rockwood Manufacturing (RO).
c. Trimco (TC).

C. Door Push Plates and Pulls: ANS/BHMA A156.6 certified door pushes and pulls of type and design specified below or in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

1. Push/Pull Plates: Minimum .050 inch thick, 4-inches wide by 16-inches high, with square corners and beveled edges, secured with exposed screws unless otherwise indicated.
2. Straight Pull Design: Minimum 1-inch round diameter stainless steel bar or tube stock pulls with 2 1/2-inch projection from face of door unless otherwise indicated.
3. Offset Pull Design: Minimum 1-inch round diameter stainless steel bar or tube stock pulls with 2 1/2-inch projection and offset of 90 degrees unless otherwise indicated.
4. Push Bars: Minimum 1-inch round diameter horizontal push bars with minimum clearance of 2 1/2-inch projection from face of door unless otherwise indicated.
5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.

a. Acceptable Manufacturers:

1) McKinney Architectural Hardware (MK).
2) Rockwood Manufacturing (RO).
3) Trimco (TC).

2.4 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.

C. Cylinders: Original manufacturer cylinders complying with the following:

1. Mortise Type: Threaded cylinders with rings and straight- or clover-type cam.
2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored-Lock Type: Cylinders with tailpieces to suit locks.

4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.

D. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:

1. Interchangeable Cores: Core insert, removable by use of a special key; usable with other manufacturers' cylinders.

E. Patented Cylinders: ANSI/BHMA A156.5, Grade 1, certified patented cylinders employing a utility patented and restricted keyway requiring the use of a patented key. Cylinders are to be protected from unauthorized manufacture and distribution by manufacturer’s United States patents. Cylinders are to be factory keyed with owner having the ability for on-site original key cutting. (Confirm key system and keyway required with owner).

1. Acceptable Manufacturers:

a. Corbin Russwin (RU) - Medeco KeyMark X4 Series.
b. Sargent Manufacturing (SA) - XC Series.

F. Keying System: Each type of lock and cylinders to be factory keyed. Conduct specified "Keying Conference" to define and document keying system instructions and requirements. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner. Incorporate decisions made in keying conference, and as follows:

1. Master Key System: Cylinders are operated by a change key and a master key.
2. Grand Master Key System: Cylinders are operated by a change key, a master key, and a grand master key.
3. Great-Grand Master Key System: Cylinders are operated by a change key, a master key, a grand master key, and a great-grand master key.
4. Existing System: Master key or grand master key locks to Owner's existing system.
5. Keyed Alike: Key all cylinders to same change key.

G. Key Quantity: Provide the following minimum number of keys:

1. Top Master Key: One (1)
2. Change Keys per Cylinder: Two (2)
3. Master Keys (per Master Key Group): Two (2)
4. Grand Master Keys (per Grand Master Key Group): Two (2)
5. Construction Control Keys (where required): Two (2)
6. Permanent Control Keys (where required): Two (2)

H. Construction Keying: Provide construction master keyed cylinders or temporary keyed construction cores where specified. Provide construction master keys in quantity as required by project Contractor. Replace construction cores with permanent cores. Furnish permanent cores for installation as directed under specified "Keying Conference".

I. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent

markers, and standard metal cabinet. Key control cabinet shall expansion capacity of 150% of the number of locks required for the project.

1. Acceptable Manufacturers:

    a. Lund Equipment (LU).
    b. Telkee (TK).

2.5 MECHANICAL LOCKS AND LATCHING DEVICES

A. Multi-Point Locksets: Vertical rod locking devices designed for openings requiring multiple latching points within one locking mechanism. Rods are retracted by dual mounted outside lever trim controls available in a variety of ANSI/BHMA operational functions. Option for single top latching only eliminates the need for bottom strikes. Electromechanical options include solenoid activated trim and inside and outside lever monitoring.

1. Acceptable Manufacturers:

    a. Sargent Manufacturing (SA) - 7000 Series.

B. Cylindrical Locksets, Grade 2 (Standard Duty): ANSI/BHMA A156.2, Series 4000, Grade 2 certified cylindrical (bored) locksets furnished in the functions as specified in the Hardware Sets. Lock chassis fabricated of heavy gauge steel, zinc dichromate plated, with through-bolted application. Furnish with standard 2 3/4” backset and 1/2" throw brass or hardened steel latchbolt. Locks are to be non-handed and fully field reversible.

1. Acceptable Manufacturers:

    a. Corbin Russwin Hardware (RU) - CL3700 Series.
    b. Sargent Manufacturing (SA) - 7-Line..

C. Lock Trim Design: As specified in Hardware Sets.

2.6 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.

2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.5.
4. Dustproof Strikes: BHMA A156.16.

2.7 CONVENTIONAL EXIT DEVICES

A. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Mounting rails to be formed from smooth stainless steel, brass or bronze architectural materials no less than 0.072" thick, with push rails a minimum of 0.062" thickness. Painted or aluminum metal rails are not acceptable. Exit device latch to be investment cast stainless steel, pullman type, with deadlock feature.

1. Acceptable Manufacturers:

a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
b. Sargent Manufacturing (SA) - 80 Series.

2.8 DOOR CLOSERS

A. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units and high impact, non-corrosive plastic covers standard. Provide all required brackets and templates required for use with overhead stops.

1. Acceptable Manufacturers:

a. Corbin Russwin Hardware (RU) - DC8000 Series.
b. Sargent Manufacturing (SA) - 351 Series.
c. Norton Door Controls (NO) - 7500 Series.

2.9 SURFACE MOUNTED CLOSER HOLDERS

A. Electromagnetic Door Holders: Certified ANSI A156.15 electromagnetic door holder/releases with a minimum 20 to 40 pounds holding power and single coil construction able to accommodate.12VDC, 24VAC, 24VDC and 120VAC. Coils to be independently wound, employing an integral fuse and armatures to include a positive release button.

1. Acceptable Manufacturers:

a. Rixson (RF) - 980/990 Series.
b. Sargent Manufacturing (SA) - 1560 Series.

2.10 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.

2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.

3. Metal Protection Plates: ANSI/BHMA A156.6 certified metal protection plates (kick, armor, or mop), beveled on four edges (B4E), fabricated from the following.

   a. Stainless Steel: 050-inch thick, with countersunk screw holes (CSK).
   b. Brass or Bronze: 050-inch thick, with countersunk screw holes (CSK).
   c. Laminate Plastic or Acrylic: 1/8-inch thick, with countersunk screw holes (CSK).

4. Fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets.

5. Metal Door Edging: Door protection edging fabricated from a minimum .050-inch thick metal sheet, formed into an angle or "U" cap shapes, surface or mortised mounted onto edge of door. Provide appropriate leg overlap to account for protection plates as required. Height to be as specified in the Hardware Sets.

6. Acceptable Manufacturers:

   a. McKinney Architectural Hardware (MK).
   b. Rockwood Manufacturing (RO).
   c. Trimco (TC).

2.11 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Acceptable Manufacturers:

   a. McKinney Architectural Hardware (MK).
   b. Rockwood Manufacturing (RO).
   c. Trimco (TC).

C. Overhead Door Stops and Holders: ANSI/BHMA A156.6, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

1. Acceptable Manufacturers:

a. Rixson Door Controls (RF).
b. Sargent Manufacturing (SA).

2.12 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: :Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and UBC 7-2, Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated, based on testing according to ASTM E 1408.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Acceptable Manufacturers:

1. McKinney Weatherstripping Products (MW).
2. Pemko Manufacturing (PE).
3. Reese Enterprises, Inc. (RS).
4. Zero International (ZE).

2.13 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.14 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. 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.

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

D. Antimicrobial Finishes: Where specified, finishes on locksets, latchsets, exit devices and push/pull trim to incorporate an FDA recognized. Silver Ion, antimicrobial coating (MicroShield™) listed for use on equipment as a suppressant to the growth and spread of a broad range of bacteria, algae, fungus, mold and mildew.

E. Confirm existing finish per floor and match.

F. Confirm finish of storefront hardware required.

PART 3 - EXECUTION

3.1 EXAMINATION

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

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. and provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SCHEDULE

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

B. Manufacturer’s Abbreviations:

1. BO – By Others
2. MK – McKinney
3. NO – Norton
4. PE – Pemko
5. RF – Rixson
6. RO – Rockwood
7. SA – Sargent

Hardware Schedule

Set: 1.0

Doors: D200

2	Pivot	L147	612	RF
2	Pivot	M19	612	RF
1	Exit Device (Exit Only)	16 73 AD8410 862	US10	SA
1	Exit Device (Night Latch)	16 73 AD8410 106 x 862	US10	SA
2	Door Closer	7500 REG/PA	691	NO
2	Drop Plate	7788	691	NO
2	Overhead Stop	1-X36 (size as required)	612E	RF
1	Threshold	272A X L.A.R.		PE
1	Weatherstrip	DOOR MANUFACTURERS STANDARD		
2	Door Bottom	DOOR MANUFACTURERS STANDARD		
2	Meeting Stile	DOOR MANUFACTURERS STANDARD		

Set: 2.0

Doors: D200A

2	Pivot	L147	612	RF
2	Pivot	M19	612	RF
2	Push Bar & Pull	BF15747 X L.A.R.	US10	RO
2	Door Closer	7500 REG/PA	691	NO
2	Drop Plate	7788	691	NO
2	Overhead Stop	1-X36 (size as required)	612E	RF
1	Threshold	272A X L.A.R.		PE
1	Weatherstrip	DOOR MANUFACTURERS STANDARD		
2	Door Bottom	DOOR MANUFACTURERS STANDARD		
2	Meeting Stile	DOOR MANUFACTURERS STANDARD		

Set: 3.0

Doors: D261

6	Hinge	T4A3786 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Exit Device (Exit Only)	16 73 NB-8710 ETP	US10	SA
1	Exit Device (Classroom)	16 73 NB-8713 ETP	US10	SA
2	Door Closer	CLP7500	691	NO
2	Kick Plate	K1050 10" X 1" L.D.W. 4BE CSK	US10	RO
1	Gasketing	S773D @ Head & Jambs		PE
2	Split Astragal	18041CNB X L.A.R.		PE

Set: 4.0

Doors: D201

6	Hinge	T4A3786 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Exit Device (Exit Only)	12 NB-MD8610	US10	SA
1	Exit Device (Classroom)	12 73 NB-MD8613 ETP	US10	SA
2	Door Closer	7500 REG/PA	691	NO
2	Kick Plate	K1050 10" X 1" L.D.W. 4BE CSK	US10	RO
2	Electromagnetic Holder	998	691	RF
1	Gasketing	S773D @ Head & Jambs		PE
2	Split Astragal	18041CNB X L.A.R.		PE

Notes: Doors to be held open by magnetic holders. Magnetic holders to be tied into building fire alarm system. During an alarm, magnetic holders will release allowing doors to close and latch. When closed, doors always have free egress.

Set: 5.0

Doors: D250, D350

3	Hinge	T4A3786 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Exit Device (Classroom)	73 8813 ETP	US10	SA
1	Door Closer	7500 REG/PA	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Wall Stop	403	US10	RO

Set: 6.0

Doors: D204

3	Hinge	T4A3786 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Exit Device (Classroom)	73 8813 ETP	US10	SA
1	Door Closer	7500 REG/PA	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Overhead Stop	1-X36 (size as required)	612E	RF

Set: 7.0

Doors: D207, D255, D307, D350A

3	Hinge	T4A3786 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Exit Device (Passage)	12 8815 ETP	US10	SA
1	Door Closer	7500 REG/PA	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Wall Stop	403	US10	RO
1	Gasketing	S88D @ Head & Jambs		PE

Set: 8.0

Doors: D110

6	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
2	Flush Bolt	557	US10	RO
1	Dust Proof Strike	570	US10	RO
1	Lockset (Storeroom)	28 73 7G04 LB	US10	SA
1	Door Closer	CLP7500 (active leaf)	691	NO
2	Kick Plate	K1050 10" X 1" L.D.W. 4BE CSK	US10	RO
1	Overhead Stop	9-X36 (size as required)	612E	RF
1	Gasketing	S773D @ Head & Jambs		PE
2	Door Bottom	4131CPKL X L.A.R.		PE
1	Astragal	357SP X S88D X L.A.R.		PE

Set: 9.0

Doors: D263, D264

6	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Auto Flush Bolt	1940	US10	RO
1	Dust Proof Strike	570	US10	RO
1	Lockset (Storeroom)	28 73 7G04 LB	US10	SA
1	Coordinator	1672	Black	RO
2	Mounting Bracket	1601AB	Black	RO
1	Door Closer	7500 REG/PA	691	NO
1	Door Closer	CLP7500	691	NO
2	Kick Plate	K1050 10" X 1" L.D.W. 4BE CSK	US10	RO
1	Wall Stop	403	US10	RO
1	Gasketing	S88D @ Head & Jambs		PE
2	Split Astragal	18041CNB X L.A.R.		PE

Set: 10.0

Doors: D238

3	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Lockset (Storeroom)	28 73 7G04 LB	US10	SA
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Wall Stop	403	US10	RO

Set: 11.0

Doors: D228

3	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Lockset (Storeroom)	28 73 7G04 LB	US10	SA
1	Door Closer	7500 REG/PA X 2018S	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO

1	Overhead Stop	9-X36 (size as required)	612E	RF

Set: 12.0

Doors: D102, D102A, D208, D244, D279

3	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Lockset (Storeroom)	28 73 7G04 LB	US10	SA
1	Door Closer	7500 REG/PA	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Wall Stop	403	US10	RO
1	Gasketing	S773D @ Head & Jambs		PE
1	Door Bottom	420APKL X L.A.R.		PE

Set: 13.0

Doors: D109, D210, D212, D213, D217, D218, D219, D220, D221, D222, D223, D235, D236, D237

3	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Lockset (Office)	28 73 7G05 LB	US10	SA
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Wall Stop	403	US10	RO
1	Coat Hook	802	US10	RO

Set: 14.0

Doors: D260A

6	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Multi-Point Lock (Exit Only)	NB-WD7010 ESL	US10	SA
1	Multi-Point Lock (Classroom)	73 NB-WD7013 ESP	US10	SA
2	Door Closer	7500 REG/PA	691	NO
2	Kick Plate	K1050 10" X 1" L.D.W. 4BE CSK	US10	RO
2	Overhead Stop	1-X36 (size as required)	612E	RF
1	Gasketing	S773D @ Head & Jambs		PE
2	Split Astragal	18041CNB X L.A.R.		PE

Set: 15.0

Doors: D224, D262

3	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Lockset (Classroom)	28 73 7G37 LB	US10	SA
1	Door Closer	7500 REG/PA	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Wall Stop	403	US10	RO

Set: 16.0

Doors: D257A

3	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Lockset (Classroom)	28 73 7G37 LB	US10	SA
1	Door Closer	7500 REG/PA X 2018S	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Overhead Stop	9-X36 (size as required)	612E	RF
1	Gasketing	S773D @ Head & Jambs		PE

Set: 17.0

Doors: D261A

3	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Lockset (Classroom)	28 73 7G37 LB	US10	SA
1	Door Closer	7500 REG/PA	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Wall Stop	403	US10	RO
1	Gasketing	S773D @ Head & Jambs		PE

Set: 18.0

Doors: D376

3	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Lockset (Classroom)	28 73 7G37 LB	US10	SA
1	Door Closer	7500 REG/PA	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Overhead Stop	1-X36 (size as required)	612E	RF
1	Gasketing	S773D @ Head & Jambs		PE

Set: 19.0

Doors: D215, D216

3	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Lockset (Privacy)	28 7U65 LB	US10	SA
1	Door Closer	7500 REG/PA	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Mop Plate	K1050 6" X 1" L.D.W. 4BE CSK	US10	RO
1	Wall Stop	403	US10	RO
1	Gasketing	S773D @ Head & Jambs		PE

Set: 20.0

Doors: D209, D214, D266, D267, D268, D269

3	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Lockset (Passage)	28 7U15 LB	US10	SA

1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Wall Stop	403	US10	RO

Set: 21.0

Doors: D278, D300

3	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Lockset (Passage)	28 7U15 LB	US10	SA
1	Door Closer	7500 REG/PA	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Wall Stop	403	US10	RO

Set: 22.0

Doors: D257

3	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Lockset (Passage)	28 7U15 LB	US10	SA
1	Door Closer	7500 REG/PA	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Wall Stop	403	US10	RO
1	Gasketing	S773D @ Head & Jambs		PE

Set: 23.0

Doors: D101, D301

3	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Lockset (Passage)	28 7U15 LB	US10	SA
1	Door Closer	7500 REG/PA	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Electromagnetic Holder	998	691	RF
1	Gasketing	S88D @ Head & Jambs		PE

Notes: Door to be held open by magnetic holder. Magnetic holder to be tied into building fire alarm system. During an alarm, magnetic holder will release allowing door to close and latch. When closed, door always has free egress.

Set: 24.0

Doors: D275, D276, D277

3	Hinge	T4A3786 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Push Plate	70C	US10	RO
1	Pull Plate	107x70C	US10	RO
1	Door Closer	7500 REG/PA	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Mop Plate	K1050 6" X 1" L.D.W. 4BE CSK	US10	RO

1	Wall Stop	403	US10	RO
1	Gasketing	S773D @ Head & Jambs		PE

Set: 25.0

Doors: D351, D352

3	Hinge	T4A3786 4-1/2" x 4-1/2" (NRP)	US10	MK
1	Push Plate	70C	US10	RO
1	Pull Plate	107x70C	US10	RO
1	Door Closer	7500 REG/PA	691	NO
1	Kick Plate	K1050 10" X 2" L.D.W. 4BE CSK	US10	RO
1	Mop Plate	K1050 6" X 1" L.D.W. 4BE CSK	US10	RO
1	Overhead Stop	1-X36 (size as required)	612E	RF
1	Gasketing	S773D @ Head & Jambs		PE

Set: 26.0

Doors: D260

6	Hinge	TA2714 4-1/2" x 4-1/2" (NRP)	US10	MK
4	Pull	RM3110-16 BTB	US10	RO
2	Door Closer	7500 REG/PA	691	NO
2	Kick Plate	K1050 10" X 1" L.D.W. 4BE CSK	US10	RO
2	Wall Stop	403	US10	RO
1	Gasketing	S773D @ Head & Jambs		PE
2	Split Astragal	18041CNB X L.A.R.		PE

END OF SECTION 087100