SECTION 08 71 00 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Commercial door hardware.
2. Cylinders for doors specified in other Sections.
3. Electrified door hardware.

B. See Division 08 door sections for astragals and door silencers.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Details of electrified door hardware, including wiring diagrams.

C. Samples: For each exposed finish.

D. Product certificates and test reports.

E. Other Action Submittals:

1. Door Hardware Sets: Prepared by or under the supervision of Installer and Hardware Consultant, detailing fabrication and assembly of door hardware, as well as procedures and diagrams.

   a. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
   b. Content: Include the following information:

      1) Identification number, location, hand, fire rating, and material of each door and frame.
      2) Type, style, function, size, quantity, and finish of each door hardware item. Include description and function of each lockset and exit device.
      3) Complete designations of every item required for each door or opening including name and manufacturer.
      4) Description of each electrified door hardware function, including location, sequence of operation, and interface with other building control systems.

2. Keying Schedule: Prepared by or under the supervision of Installer, detailing University's final keying instructions for locks.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by lock manufacturer.

1. Installer's responsibilities include supplying and installing door hardware and providing a qualified Architectural Hardware Consultant available during the course of the Work to consult with Contractor, and University about door hardware and keying.

B. Hardware Consultant Qualifications: A person who is currently certified by DHI as an Architectural Hardware Consultant and who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project.

C. Source Limitations: Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated. Manufacturers that perform electrical modifications and that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.

D. Fire-Rated Door Assemblies: 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 NFPA 252.

1. Test Pressure: Test at atmospheric pressure After 5 minutes into the test, neutral pressure level in furnace shall be established at 40 inches or less above the sill.

E. Keying Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system.

F. Preinstallation Conference: Conduct conference at Project site.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver keys to manufacturer of key control system for subsequent delivery to University.

B. Deliver keys and permanent cores to University by registered mail or overnight package service.

1. <**Insert name and address of University's representative.**>

1.5 COORDINATION

A. Templates: Distribute door hardware templates for doors, frames, and other work specified to be factory prepared for installing 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.

1.6 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Three years from date of Substantial Completion, except as follows:

a. Electromagnetic Locks: Five years from date of Substantial Completion.
b. Exit Devices: Two years from date of Substantial Completion.
c. Manual Closers: 10 years from date of Substantial Completion.
d. Concealed Floor Closers: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in this Section and door hardware sets indicated in door and frame schedule.

1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturers' products.

B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Sets" Article. Products are identified by using door hardware designations, as follows:

1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in Part 3 "Door Hardware Sets" Article.
2. References to BHMA Standards: Provide products complying with these standards and requirements for description, quality, and function.
3. Match existing hardware unless indicated otherwise by University.

2.2 HINGES, GENERAL

A. Template Requirements: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.

B. Hinge Base Metal: Unless otherwise indicated, provide the following:

1. Exterior Hinges: Stainless steel, with stainless-steel pin.
2. Interior Hinges: Stainless steel, with stainless-steel pin.
3. Hinges for Fire-Rated Assemblies: Stainless steel, with stainless-steel pin.

C. Nonremovable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for outswinging exterior doors and outswinging corridor doors with locks.

D. Fasteners: Comply with the following:

1. Machine Screws: For metal doors and frames. Install into drilled and tapped holes.
2. Wood Screws: For wood doors and frames.
3. Threaded-to-the-Head Wood Screws: For fire-rated wood doors.
4. Screws: Phillips flat-head; machine screws (drilled and tapped holes) for metal doors. Finish screw heads to match surface of hinges.

2.3 HINGES

A. Butts and Hinges: BHMA A156.1.

B. Template Hinge Dimensions: BHMA A156.7.

2.4 PIVOTS AND PIVOT HINGES

A. Pivots: BHMA A156.4.

B. Self-Closing Pivot Hinges: BHMA A156.17.

2.5 LOCKS AND LATCHES, GENERAL

A. Accessibility Requirements: Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf.

B. Latches and Locks for Means of Egress Doors: Comply with NFPA 101. Latches shall not require more than 15 lbf to release the latch. Locks shall not require use of a key, tool, or special knowledge for operation.

C. Electrified Locking Devices: BHMA A156.25.

D. Lock Trim: match existing

E. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors.

F. Backset: 2-3/4 inches, unless otherwise indicated.

G. Strikes: Manufacturer's standard strike with strike box for each latchbolt or lock bolt, with curved lip extended to protect frame, finished to match door hardware set.

2.6 MECHANICAL LOCKS AND LATCHES

A. Lock Functions: Function numbers and descriptions indicated in door hardware sets comply with the following:

1. Bored Locks: BHMA A156.2.

2. Mortise Locks: BHMA A156.13.
3. Interconnected Locks: BHMA A156.12.

B. Bored Locks: BHMA A156.2, Grade 1 unless Grade 2 is indicated; Series 4000.

C. Mortise Locks: Stamped steel case with steel or brass parts; BHMA A156.13, Grade 1 unless Grade 2 is indicated; Series 1000.

D. Interconnected Locks: BHMA A156.12, Grade 1 unless Grade 2 is indicated; Series 5000.

2.7 AUXILIARY LOCKS AND LATCHES

A. Auxiliary Locks: BHMA A156.5. Grade 1 unless Grade 2 is indicated;

2.8 ELECTROMAGNETIC LOCKS

A. General: BHMA A156.23; electrically powered, of strength and configuration indicated; with electromagnet attached to frame and armature plate attached to door.

1. Type: Full exterior or full interior, as required by application indicated.
2. Strength Ranking: 1500 lbf.

B. Delayed-Egress Locks: BHMA A156.24.

1. Means of Egress Doors: Lock releases within 15 seconds after applying a force not more than 15 lbf for not more than 3 seconds, as required by NFPA 101.
2. Security Grade: Activated from secure side of door by initiating device.
3. Movement Grade: Activated by door movement as initiating device.

2.9 ELECTROMECHANICAL LOCKS

A. General: Grade for type of lock indicated; motor or solenoid driven.

2.10 SELF-CONTAINED ELECTRONIC LOCKS

A. General: Internal, battery-powered, self-contained electronic locks; consisting of complete lockset, motor-driven lock mechanism, and actuating device; enclosed in zinc-dichromate-plated, wrought-steel case. Provide key override, low-battery detection and warning, LED status indicators, and ability to program at the lock; type and function indicated.

1. Type: Mortise.
2. Actuating Device: Magnetic-stripe card reader.
3. Faceplate Material: Stainless steel.
4. Trim: Match trim specified for mechanical locks.

2.11 STOPS

A. Provide wall stops or floor stops for doors without closers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mount hardware in locations recommended by the Door and Hardware Institute unless otherwise indicated on the drawings.

B. See schedules on drawings.

END OF SECTION 08 71 00