SECTION 087100 – DOOR HARDWARE

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Hardware for wood & metal doors.

1.2 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

A. Section 08 12 13 – Hollow Metal Frames: Furnish templates for frame preparation.
B. Section 08 13 13 – Hollow Metal Doors: Furnish templates and cylinders for door preparation.

1.3 REFERENCES

A. ADA - Americans with Disabilities Act.
B. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
C. UL305 - Panic Hardware

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 00.
B. Shop Drawings: Indicate locations and mounting heights of each type of hardware.
C. Submit manufacturer's parts lists and templates.
D. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.
E. Approval of the hardware list by the Architect shall not relieve the Contractor from the responsibility for furnishing all required finish hardware. All doors not designated to receive any hardware shall be furnished with hardware to match similar doors at no additional cost to Owner.

1.5 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01 33 00.
B. Record actual locations of installed cylinders and their master key code.

1.6 OPERATION AND MAINTENANCE DATA

A. Submit under provisions of Section 01 33 00.
B. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

1.7 QUALITY ASSURANCE

A. Perform work in accordance with the following requirements:

1. ANSI A117.1 – Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
2. ADA – Americans with Disabilities Act.
3. ANSI A117.1.
4. ANSI A-115 Series, Door and Hardware Prep.
5. ANSI A-156 Series, Hardware.
6. SGMS 1201 – Auxiliary Hardware.
7. BHMS 1301 – Materials and Finishes.
8. NFPA 80 – Standards for Fire Doors.
9. DHI Publications Keying – Procedures Abbreviations and Symbols, Hardware for Labeled Fire Doors, Recommended Location for Builders Hardware.
10. UL 305.

1.8 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience.
B. Hardware Supplier: Company specializing in supplying commercial institutional door hardware with 3 years documented experience approved by manufacturer.
C. Hardware Supplier Personnel: Employ a qualified person to assist in the work of this section.

1.9 REGULATORY REQUIREMENTS

A. Conform to applicable code for requirements applicable to doors and frames.
B. Disabled Accessibility Requirements:
1. In accordance with the Americans with Disabilities Act, the following standards shall be included when bidding doors and door openings, controls and operating mechanisms, and signage. (Standards as set forth by the State Purchasing and General Services Commission and by The Americans with Disabilities Act.) Any items not conforming to these or any other standards, codes or ordinances shall be brought to the attention of the project architect for his/her interpretation.
2. State Purchasing and General Services Commission
a. Doors and Openings. Raised thresholds and floor level changes at Doorways: Changes in level at doors shall not exceed one-half inch (1/2") in height and shall be beveled with a slope no greater than 1:2.
b. Door Hardware: Handles, knobs, pulls, latches, locks and other operating devices on doors shall be mounted no higher than 48 inches above the floor or ground surface and shall have a shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or severe twisting to operate. The force required to activate door hardware shall be no greater than five (5) lbs. Preferred designs include but are not

limited to: lever-operated mechanisms, push-type mechanisms, and U-shaped handles. When sliding doors are fully open, operating hardware shall be exposed and usable from both sides. Doors to hazardous areas such as loading platforms, boiler rooms, mechanical and electrical rooms, and other areas that might be dangerous to a blind person, shall be made identifiable to the touch by a textured surface on the door handle, knob, pull or other operating hardware. This textured surface may be made by knurling or roughening or by a material applied to the contact surface. Such textured surfaces shall not be provided for emergency exit doors or any doors other than those hazardous areas.

c. Door Closers: If a door has a closer, then the sweep period of the closer shall be adjusted so that from an open position of 90 degrees, the door will take at least three seconds to move to an open position of approximately 12 degrees.

d. Door Opening Force: The maximum force for pushing or pulling open a door shall comply with this paragraph. For hinged doors, the force shall be applied perpendicular to the door at the door opener or 30 inches from the hinged side, whichever is farther from the hinge. For sliding or folding doors, the force shall be applied parallel to the door at the door pull or latch.

1) Exterior doors shall not exceed 8.5 lbf. Slight increases in opening force shall be allowed where 8.5 lbf. is insufficient to compensate for air-pressure differentials.
2) Sliding doors, folding doors, and interior hinged doors shall not require a force exceeding 5 lbf.
3) Fire doors may be adjusted to meet the maximum opening force allowed by the governing authority or applicable building code.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Section 01 60 00.
B. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.
C. Deliver keys to Owner by security shipment direct from hardware supplier.

1.11 COORDINATION

A. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware.

1.12 WARRANTY

A. Provide five-year warranty under the provisions of Section 01 70 00.
B. Warranty: Include coverage for door closers.

1.13 MAINTENANCE MATERIALS

A. Provide maintenance materials under provisions of 01 70 00.
B. Provide special wrenches and tools applicable to each different or special hardware component.
C. Provide maintenance tools and accessories supplied by hardware component manufacturer.

PART 2 - PRODUCTS

2.1 SUPPLIERS

A. As listed in Hardware Schedule.
B. Substitutions: Under provisions of Section 01 60 00.

2.2 ACCEPTABLE MANUFACTURERS

A. Hinges: Stanley, Hager & Soss. ANSI A-156.1 and A-1-156.7, template, full-mortise, heavy duty, ball and plain bearing as required (Min. 4 ½ x 4 ½). Non-removable pins. Non-ferrous (all doors).
B. Locksets: Sargent, Schlage, Yale & Corbin Russwin. Heavy Duty, Commercial Grade. Mortise at exterior doors; Cylindrical at interior doors. Lever handles (all doors).
C. Exit Devices; Sargent, Von Duprin & Corbin Russwin.
D. Closers: Sargent, Yale, Norton & LCN.
E. Protection plates: Ives, Trimco & Quality.
F. Stops/Holders/Bumpers: Quality, Trimco & Ives.
G. Flush Bolts: Quality, Trimco & Ives.
H. Gasketing; Pemko, Hager & National Guard.
I. Thresholds: Pemko & National Guard.

2.3 KEYING

A. All Lock cylinders are to be keyed to Owner's instructions. Furnish 2 ea. keys per lock.

2.4 FINISHES

A. Finishes: refer to door hardware schedule

2.5 GRADE – BHMA Grade 2.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that doors and frames are ready to receive work and dimensions are as indicated on shop drawings or instructed by the manufacturer.

3.2 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions.
B. Use templates provided by hardware item manufacturer.

3.3 FIELD QUALITY CONTROL

A. Supplier to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.

3.4 ADJUSTING

A. Adjust work under provisions of Section 01 70 00.
B. Adjust hardware for smooth operation.

3.5 PROTECTION OF FINISHED WORK

A. Protect finished work.
B. Do not permit adjacent work to damage hardware or finish.

3.6 SCHEDULE
A. Refer to door schedule in drawings for information.

END OF SECTION 087100