

SECTION 08 71 00 - 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. Section includes furnishing and installing door hardware, thresholds, weatherstripping and seals.
- B. Related Sections include the following:
 - 1. Division 8 Section 08 11 00 "Metal Doors and Frames".
 - 2. Division 8 Section 08 14 00 "Wood Doors".
 - 3. Division 8 Section 08 41 00 "Entrances and Storefronts".

1.3 PERFORMANCE REQUIREMENTS

- A. Furnish and install each door hardware item to provide proper operation and required function of every unit without binding or failure.
 - 1. Interior Door Opening Force: Adjust hardware operation at interior non-fire-rated doors to provide an opening force not greater than 5 lbs at a point 3" from latch, measured to leading edge of door.
 - 2. Exterior and Fire Rated Door Opening Force: At exterior doors and fire-rated doors, adjust hardware opening force in small increments above the opening force required for interior non-fire-rated doors to close and latch the door.
 - 3. Closer Sweep Adjustment: Adjust closer sweep period so that from a 70 degree open position, door will take at least 3 seconds to move to a point 3" from latch, measured to leading edge of door.

1.4 SUBMITTALS

- A. Submit manufacturer's technical product data for each item of hardware. 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
- B. Coordinate hardware with doors, frames, and related work to ensure proper size thickness, hand, function, and finish of hardware. If requested by Architect, submit one sample of each type of exposed hardware unit, finished as required, and tagged with full description for coordination with schedule. Submit data and schedule at earliest possible date, particularly where acceptance of schedule must precede fabrication of other work (e. g. hollow metal frames) that is critical to the Project construction schedule.
 - 1. Type, style, function, size and finish of each hardware item.
 - 2. Name and manufacturer of each item.
 - 3. Fastenings and other pertinent information.
 - 4. Hardware set location cross-referenced to both Drawing floor plan and door schedule indications.

5. Explanation of all abbreviations, symbols, and codes in schedule.
 6. Mounting locations for hardware.
 7. Door and frame sizes and materials.
- C. Coordinate keying instructions, and keying information. Deliver keys and key control box to Owner in person and obtain receipt (No Exceptions).

1.5 QUALITY ASSURANCE

- A. Supplier Qualifications: A recognized finish hardware supplier who has been furnishing hardware in the Project's vicinity for a period of not less than 2 years, and who is, or employs an experienced hardware consultant (AHC) who is available, at reasonable times during the course of the Work, for consultation about Project's hardware requirements, to Owner, Architect and Contractor.
- B. Coordination and Schedules: Hardware units and usage specified in Part 2 of this Section and scheduled on the Drawings establish quality, quantity, function and finish required for each door opening. Review, coordinate and confirm that hardware specified for each opening is the proper function. In case of controversy, make appropriate notations of proposed changes from specified requirements on supplier's hardware schedule and request written clarification from the Architect prior to proceeding.
- C. Fire-Rated Openings: Provide door hardware for fire rated openings that comply with NFPA Standards No. 80 and requirements of authorities having jurisdiction. 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 shall comply with standards UBC 702 (1997) and UL 10C.
1. 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".

1.6 DELIVERY, STORAGE, AND 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 the 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. Special warranties:

- | | |
|-------------------------|-------------------|
| 1. Door Closers: | Ten year period |
| 2. Exit Devices: | Three year period |
| 3. Locks and Cylinders: | Three year period |

1.8 MAINTENANCE

- 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. Parts kits: Furnish manufacturer's standard parts kits for locksets, exit devices, and door closers.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. General: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws. With each hardware item, furnish machine screws for installation into steel, and provide threaded to the head wood screws for installation into wood; all-purpose threads are not acceptable. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed screws to match the hardware finish. Provide concealed fasteners for hardware units that are exposed when the door is closed, except to the extent no standard units of the type specified are available with concealed fasteners. Provide through bolts for closer installation.

2.2 HARDWARE UNITS AND USAGE

- A. Units specified below establish the design, grade, function, finish, size, and other qualities required for this Project. Provide the following hardware units in the quantities specified and locations indicated on the Door Schedule. Provide US 26D finish unless otherwise specified. Refer to Door Schedule on Drawings for door sizes, fire ratings, hardware function, exit devices, door closers, and other requirements at each door opening
1. Butt Hinges: Provide the following butt hinges produced by Hager, or equivalent butt hinges produced by, McKinney or Stanley, as approved. Provide 1-1/2 pair per door leaf up to 7'-6" high and one additional hinge per leaf for each additional 2'-6" of door height. Doors over 36" in width to receive heavy weight 5" x 4.5 hinges.
 - a. Out-Swinging Exterior Doors Except Storefront: Ives 5BB1HW 4.5 x 4.5 NRP x non-ferrous.
 - b. In-swinging Exterior Doors: Ives 5BB1HW 4.5 x 4.5 non-ferrous.
 - c. Out-Swinging Interior High Frequency Doors: Ives 5BB1HW 4.5 x 4.5 x NRP.
 - d. In-Swinging Interior High Frequency Doors: Ives 5BB1HW 4.5 x 4.5
 - e. Out-Swinging Interior Average Frequency Doors: Ives 5BB1 4.5 x 4.5 NRP.
 - f. In-Swinging Interior Average Frequency Doors: Ives 5BB1 4.5 x 4.5.

2. Continuous Hinges:
 - a. Acceptable manufacturers: Ives, Zero
 - b. Continuous gear hinges to be manufactured of extruded 6063-T6 aluminum alloy with anodized finish, or factory painted finish as scheduled.
 - c. All hinges are to be manufactured to template. Uncut hinges shall be non-handed and shall be a pin less assembly of three interlocking extrusions applied to the full height of the door and frame without mortising.
 - d. Vertical door loads shall be carried on chemically lubricated polyacetal thrust bearings. The door and frame leaves shall be continually geared together for the entire hinge length and secured with a full cover channel. Hinge to operate to a full 180°.
 - e. Hinges to be milled, anodized and assembled in matching pairs. Fasteners supplied shall be 410 stainless steel, plated and hardened.
 - f. Provide UL listed continuous hinges at fire doors. Continuous hinges at fire doors (suffix -FR) shall meet the required ratings without the use of auxiliary fused pins or studs.

3. Door Closers:
 - a. Adjust closers to comply with ADA requirements. Provide type of arm recommended by closer manufacturer for door conditions (use, door hand and swing) indicated.
 - b. Closers for fire-rated doors shall be provided with temperature stabilizing fluid that complies with standards UBC 7-2 (1997) and UL 10C.
 - c. Door closer shall have fully hydraulic, full rack and pinion action.
 - d. Hydraulic fluid shall be of a type requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to minus 30 degrees F.
 - e. Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped. Closers shall have separate adjustment for latch speed, general speed, and back check.
 - f. Provide powder coating certified to exceed 100 hours salt Spray testing by ETL, an independent testing laboratory, used by BHMA for ANSI certification.
 - g. Pressure relief valves are not accepted.
 - h. Closers to be installed to allow door swing as shown on plans. Doors swinging into exit corridors shall provide for corridor clear width as required by code. Where possible, mount closers on room side of door.
Door closers meeting this specification: LCN 1260/1460 Series or equal product by Falcon.

4. Cylindrical Locks and latches: as scheduled, fastened with through-bolts and threaded chassis hubs.
 - a. Chassis: Cold-rolled steel, handing field-changeable.
 - b. Latch bolts: 1/2" inch projection.
 - c. Lever Trim: Through-bolt, accessible design, cast lever or metal-filled wrought types as schedule.
 - d. Strikes: 16 gage curved steel, bronze or brass with 1" deep box construction, lips of sufficient length to clear trim and project clothing.
 - e. Certifications:
 - i. ANSI A156.2, Grade 2
 - ii. UL listed for 3-hour doors

- iii. Approved Manufacturers: Schlage AL Series or equal product by Falcon.
- 5. Exit Devices: Provide the following at the locations shown on the Door Schedule:
 - a. Exit Devices shall be cross bar type, fabricated of bronze or brass, plated to the standard architectural finishes to match the balance of the door hardware.
 - b. Cross bar shall extend a minimum of one half of the door width. Cross bar shall match exit device finish.
 - c. Exit devices shall be UL listed panic exit hardware. All exit devices for fire rated openings shall be UL labeled fire exit hardware.
 - d. Exit devices meeting this specification: Von Duprin 33/99 Series.
- 6. Kick Plates, Push, and Pulls: Provide the following at locations designated; Trimco or equivalent by Quality, BBW.
 - a. Kick Plates shall be 10" high x 2" less than door width x minimum 0.0538" (1.3 mm) thick x B3E.
 - b. Push/Pulls: 8190-0; 8200 6 x 16; 8303EZ-0 6 x 16.
- 7. Stops: Provide the following at locations designated; Ives or equivalent by Hager, Trimco. Furnish wall stop wherever possible and if wall stop not acceptable, furnish floor stop. Where neither wall nor floor stops are acceptable, furnish Glynn Johnson overhead stop 450 Series @ interior and 900 Series @ exterior.
 - a. Stops: FS18; WS402CCV; FS436.
- 8. Weather stripping, Seals and Thresholds: Provide the following at locations designated; National Guard Products or equivalent by Reese, Zero.

2.3 KEYING REQUIREMENTS

A. Keys and Keying:

- 1. All locks shall be keyed to a new grand master key system as directed by the Owner.
- 2. All locks/cylinders to be construction master keyed.
- 3. All keys and cores shall be stamped with Visual Key Control, omit change key number on key bow.
- 4. All cylinders for use with panic hardware to be large format interchangeable core.
- 5. Provide 10 of each cut Master key and higher level.
- 6. Provide 3 each cut key per lock.
- 7. Provide 10 each construction master keys.
- 8. Provide 2 each control keys.

B. Key Control System:

- 1. Provide a Telkee (302) 678-7800 key control system, or equivalent by Lund Equipment Co., Inc., Cleveland, OH (Tel) 330-659-4800. Include envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal wall cabinet, all as recommended by system manufacturer, with capacity for 150% of the number of locks required for the Project. Hardware supplier to assist Owner in setting up key control system. Organize keys by room, by master, grand master and key blanks, in key envelopes with neatly marked room numbers, as determined at key meeting.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect. Reinforce the attachment substrate for secure installation and adjust for proper operation. Provide clean, properly sized mortises and drilled holes for all mortised and surface applied finish hardware.

3.2 INSTALLATION

- A. General: Install each hardware item in compliance with the manufacturer's instructions and recommendations.
- B. Do not install surface-mounted items until finishes have been completed on the substrate. Before painter's finish is applied, remove all finish hardware, except prime painted items. After finish coats are dry, permanently replace and readjust finish hardware for proper operation.
- C. Set units level, plumb, and true to line and location
- D. Cut and fit threshold and floor covers to profile of doorframes, with mitered corners and hairline joints. Join units with concealed welds or concealed mechanical joints. Cut smooth openings for bolts and similar items, if any. Screw thresholds to substrate with No. 10 or larger stainless steel screws
- E. Installation survey is to be performed by a certified "AHC" in the employment of the Hardware Supplier.

3.3 ADJUSTMENT

- 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 and lubricated to operate freely and smoothly as intended for the application made.

3.4 HARDWARE SCHEDULE

SPECWORKS # 119391-B85D3DSC4

HW SET: 01

DOOR NUMBER:

100A 100B

EACH TO HAVE:

1	EA	CYLINDER	20-057-ICX/20-061-ICX AS REQ'D	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
	EA	NOTE:	RELOCATED DOOR/FRAME/HARDWARE TO		
			REMAIN		

COORDINATE CYLINDER REQUIREMENTS WITH EXISTING HARDWARE.

HW SET: 02 ACCESS CONTROL

DOOR NUMBER:

101

EACH TO HAVE:

1	EA	POWER TRANSFER	EPT-10	689	VON
1	EA	CONTINUOUS HINGE	112HD/224HD AS REQ'D X EPT PREP	628	IVE
1	EA	PANIC HARDWARE	EL-RX-33A-NL-OP	628	VON
1	EA	RIM CYLINDER	20-057-ICX	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	OFFSET DOOR PULL	8190-0-O	630	IVE
1	EA	SURFACE CLOSER	1461 EDA FC	689	LCN
1	EA	MOUNTING PLATE	1460-18PA X AS REQ'D	689	LCN
1	SET	SEALS	BY DOOR MANUFACTURER		B/O
1	EA	DOOR SWEEP	198NA	CL	NGP
1	EA	THRESHOLD	513	AL	NGP
1	EA	POWER SUPPLY	PS914-2RS-FA-BB	GRY	VON
1	EA	CARD READER	BY SECURITY CONTRACTOR		B/O

HW SET: 03 ACCESS CONTROL

DOOR NUMBER:

103

EACH TO HAVE:

1	EA	POWER TRANSFER	EPT-10	689	VON
1	EA	CONTINUOUS HINGE	112HD/224HD AS REQ'D X EPT PREP	628	IVE
1	EA	PANIC HARDWARE	RX-99L E996L 17	628	VON
1	EA	RIM CYLINDER	20-057-ICX	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	SURFACE CLOSER	1461 EDA FC	689	LCN
1	EA	SECURITY FLOOR STOP	FS18S	BLK	IVE
1	SET	SEALS	5050B	BRN	NGP
1	EA	DOOR SWEEP	100VA	CL	NGP
1	EA	DRIP CAP	16A	CL	NGP
1	EA	THRESHOLD	896V	AL	NGP
1	EA	POWER SUPPLY	PS902-FA-BB	GRY	SCE
1	EA	CARD READER	BY SECURITY CONTRACTOR		B/O

HW SET: 04 ACCESS CONTROL

DOOR NUMBER:

105

EACH TO HAVE:

1	EA	POWER TRANSFER	EPT-10	689	VON
1	EA	CONTINUOUS HINGE	112HD/224HD AS REQ'D X EPT PREP	628	IVE
1	EA	PANIC HARDWARE	RX-99L E996L 17	628	VON

1	EA	RIM CYLINDER	20-057-ICX	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	SURFACE CLOSER	1461 SCUSH FC	689	LCN
1	SET	SEALS	5050B	BRN	NGP
1	EA	DOOR SWEEP	100VA	CL	NGP
1	EA	DRIP CAP	16A	CL	NGP
1	EA	THRESHOLD	896V	AL	NGP
1	EA	POWER SUPPLY	PS902-FA-BB	GRY	SCE
1	EA	CARD READER	BY SECURITY CONTRACTOR		B/O

HW SET: 05
DOOR NUMBER:
237

EACH TO HAVE:

1	EA	CONTINUOUS HINGE	112HD/224HD AS REQ'D	628	IVE
1	EA	INSTITUTION LOCK	ND82PD SPA	626	SCH
1	EA	SURFACE CLOSER	1461 CUSH FC	689	LCN
1	SET	SEALS	5050B	BRN	NGP
1	EA	DRIP CAP	16A	CL	NGP
1	EA	DOOR SWEEP	198NA	CL	NGP
1	EA	THRESHOLD	425	AL	NGP

HW SET: 06
DOOR NUMBER:
106

EACH TO HAVE:

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	FIRE EXIT HARDWARE	99L-F 996L 17	626	VON
1	EA	MORTISE CYLINDER	20-057-ICX	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	SURFACE CLOSER	1461 CUSH FC	689	LCN
1	SET	SEALS	5020B	BRN	NGP

HW SET: 07
DOOR NUMBER:
107

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	AL80PD NEP	626	SCH
1	EA	SURFACE CLOSER	1261 CUSH SLIM	689	LCN
1	SET	SEALS	5020B	BRN	NGP

HW SET: 08

DOOR NUMBER:

206 213 233

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	AL80PD NEP	626	SCH
1	EA	FLOOR/WALL STOP	FS436/WS402CCV AS REQ'D	626	IVE
1	SET	SEALS	BY FRAME MANUFACTURER		B/O

HW SET: 09

DOOR NUMBER:

214

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	AL80PD NEP	626	SCH
1	EA	OVERHEAD STOP	450S	630	GLY
1	SET	SEALS	BY FRAME MANUFACTURER		B/O

HW SET: 10

DOOR NUMBER:

220

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	AL80PD NEP	626	SCH
1	EA	SURFACE CLOSER	1261 CUSH SLIM	689	LCN
1	SET	SEALS	BY FRAME MANUFACTURER		B/O

HW SET: 11

DOOR NUMBER:

201A 201B 202

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	ENTRANCE LOCK	AL53PD NEP	626	SCH
1	EA	SURFACE CLOSER	1461 RW/PA FC	689	LCN
1	EA	FLOOR/WALL STOP	FS436/WS402CCV AS REQ'D	626	IVE
1	SET	SEALS	BY FRAME MANUFACTURER		B/O

HW SET: 12

DOOR NUMBER:

208 209 210 224 226 228
229 230

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	ENTRANCE LOCK	AL53PD NEP	626	SCH
1	EA	FLOOR/WALL STOP	FS436/WS402CCV AS REQ'D	626	IVE
1		SET SEALS	BY FRAME MANUFACTURER		B/O
1	EA	COAT HOOK	572B	626	IVE

HW SET: 13

DOOR NUMBER:

212 215 216 227 234 236

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	AL70PD NEP	626	SCH
1	EA	FLOOR/WALL STOP	FS436/WS402CCV AS REQ'D	626	IVE
1		SET SEALS	BY FRAME MANUFACTURER		B/O

HW SET: 14

DOOR NUMBER:

203

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PASSAGE SET	AL10S NEP	626	SCH
1	EA	SURFACE CLOSER	1461 RW/PA FC	689	LCN
1	EA	FLOOR/WALL STOP	FS436/WS402CCV AS REQ'D	626	IVE
1		SET SEALS	5020B	BRN	NGP

HW SET: 15

DOOR NUMBER:

225B

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY SET	AL40S NEP	626	SCH
1	EA	SURFACE CLOSER	1261 RW/PA SLIM	689	LCN
1	EA	FLOOR/WALL STOP	FS436/WS402CCV AS REQ'D	626	IVE
1		SET SEALS	BY FRAME MANUFACTURER		B/O

HW SET: 16
DOOR NUMBER:
225A

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	ENTRANCE LOCK	AL53PD NEP	626	SCH
1	EA	DEADLOCK	D271	626	FAL
1	EA	FLOOR/WALL STOP	FS436/WS402CCV AS REQ'D	626	IVE
1	SET	SEALS	BY FRAME MANUFACTURER		B/O

NOTE: POWDER ROOM SIDE OF DOOR TO BE KEY SIDE; OCCUPANCY DEADBOLT TO HAVE
TURN ON POWDER ROOM SIDE OF DOOR.

HW SET: 17
DOOR NUMBER:
204 231

EACH TO HAVE:

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	PUSH PLATE	8200 6" X 16"	630	IVE
1	EA	PULL PLATE	8303EZ-0 6" X 16"	630	IVE
1	EA	SURFACE CLOSER	1461 RW/PA FC	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	FLOOR/WALL STOP	FS436/WS402CCV AS REQ'D	626	IVE
1	SET	SEALS	BY FRAME MANUFACTURER		B/O

HW SET: 18
DOOR NUMBER:
205

EACH TO HAVE:

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	PUSH PLATE	8200 6" X 16"	630	IVE
1	EA	PULL PLATE	8303EZ-0 6" X 16"	630	IVE
1	EA	SURFACE CLOSER	1461 RW/PA FC	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	ROLLER BUMPER	RB471	626	IVE
1	SET	SEALS	BY FRAME MANUFACTURER		B/O

END OF SECTION 08 81 00