

**SECTION 087100
DOOR HARDWARE****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Hardware for wood, aluminum, and hollow metal doors.
- B. Hardware for fire-rated doors.
- C. Electrically operated and controlled hardware.
- D. Lock cylinders for doors that hardware is specified in other sections.
- E. Thresholds.
- F. Weatherstripping and gasketing.

1.02 RELATED REQUIREMENTS

- A. Section 080671 - Door Hardware Schedule: Schedule of door hardware sets.
- B. Section 081113 - Hollow Metal Doors and Frames.
- C. Section 081416 - Flush Wood Doors.
- D. Section 281000 - Access Control: Electronic access control devices.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- B. BHMA (CPD) - Certified Products Directory Current Edition.
- C. BHMA A156.1 - American National Standard for Butts and Hinges 2016.
- D. BHMA A156.3 - American National Standard for Exit Devices 2014.
- E. BHMA A156.6 - American National Standard for Architectural Door Trim 2015.
- F. BHMA A156.15 - American National Standard for Release Devices - Closer Holder, Electromagnetic and Electromechanical 2015.
- G. BHMA A156.16 - American National Standard for Auxiliary Hardware 2018.
- H. BHMA A156.18 - American National Standard for Materials and Finishes 2016.
- I. BHMA A156.20 - American National Standard for Strap and Tee Hinges, and Hasps 2017.
- J. BHMA A156.21 - American National Standard for Thresholds 2014.
- K. BHMA A156.22 - American National Standard for Door Gasketing and Edge Seal Systems Sponsor 2017.
- L. BHMA A156.28 - American National Standard for Recommended Practices for Mechanical Keying Systems 2018.
- M. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames 2016.
- N. BHMA A156.115W - American National Standard for Hardware Preparation in Wood Doors with Wood or Steel Frames 2006.
- O. DHI (H&S) - Sequence and Format for the Hardware Schedule 1996.
- P. DHI (KSN) - Keying Systems and Nomenclature 1989.
- Q. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.
- R. ITS (DIR) - Directory of Listed Products current edition.

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- S. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- T. NFPA 80 - Standard for Fire Doors and Other Opening Protectives 2019.
- U. NFPA 101 - Life Safety Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- V. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives 2019.
- W. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies 2017.
- X. UL (DIR) - Online Certifications Directory Current Edition.
- Y. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies Current Edition, Including All Revisions.
- Z. UL 1784 - Standard for Air Leakage Tests of Door Assemblies Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.
- C. Shop Drawings - Door Hardware Schedule: Submit detailed listing that includes each item of hardware to be installed on each door. Use door numbering scheme as included in Contract Documents.
 - 1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
 - 2. Comply with DHI (H&S) using door numbers and hardware set numbers as indicated in construction documents.
 - a. Submit in vertical format; see Section 08 0671.
 - 3. List groups and suffixes in proper sequence.
 - 4. Provide complete description for each door listed.
 - 5. Include all notes and operational descriptions in hardware sets. Submittals without these will not be reviewed be returned as rejected.
- D. Shop Drawings - Electrified Door Hardware: Submit diagrams for power, signal, and control wiring for electrified door hardware that include details of interface with building safety and security systems. Provide elevations and diagrams for each electrified door opening as follows:
 - 1. Prepared by or under supervision of Architectural Hardware Consultant (AHC) and Electrified Hardware Consultant (EHC).
 - 2. Elevations: Submit front and back elevations of each door opening showing electrified devices with connections installed and an operations narrative describing how opening operates from either side at any given time.
 - 3. Diagrams: Submit point-to-point wiring diagram that shows each device in door opening system with related colored wire connections to each device.

1.05 WARRANTY

- A. See Section 017800 - Closeout Submittals for additional warranty requirements.
- B. Warranty against defects in material and workmanship for period indicated, from Date of Substantial Completion.
 - 1. Closers: Five years, minimum.
 - 2. Exit Devices: Three years, minimum.
 - 3. Locksets and Cylinders: Three years, minimum.
 - 4. Other Hardware: Two years, minimum.

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PART 2 PRODUCTS**2.01 DESIGN AND PERFORMANCE CRITERIA**

- A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.
- B. Provide individual items of single type, of same model, and by same manufacturer.
- C. Provide door hardware products that comply with the following requirements:
 - 1. Applicable provisions of federal, state, and local codes.
 - 2. Accessibility: ADA Standards and ICC A117.1.

2.02 HINGES

- A. Basis of Design: Ives 5BB1HW series.
 - 1. Equal product of any B.H.M.A. member will also be acceptable.

2.03 CONTINUOUS HINGES

- A. Basis of Design: Ives 112XY/224XY series.
 - 1. Equal product of any B.H.M.A. member will also be acceptable.

2.04 FLUSH BOLTS

- A. Basis of Design: Ives FB series.
 - 1. Equal product of any B.H.M.A. member will also be acceptable.

2.05 FIRE AND PANIC EXIT HARDWARE

- A. Basis of Design: Von Duprin 35A series.
 - 1. No substitutions based on building standards.

2.06 GRADE 1 MORTISE LOCKS

- A. Manufacturers:
 - 1. Basis of Design: Schlag L9000 series with "03A" lever trim.
 - 2. No substitutions based on building standards..

2.07 SURFACE CLOSERS

- A. Manufacturers:
 - 1. Basis of Design: LCN 4000 series.
 - 2. No substitutions based on building standards.

2.08 WALL STOPS

- A. Basis of Design: Ives WS series.
 - 1. Equal product of any B.H.M.A. member will also be acceptable.

2.09 OVERHEAD STOPS

- A. Basis of Design: Glynn-Johnson 100/900 series as indicated in sets. Size per manufacturer instructions.
 - 1. Equal product of any B.H.M.A. member will also be acceptable.

2.10 KICK PLATES

- A. Basis of Design: Ives 8400 series, size as indicated in sets. Furnish 10 inches high and 1 inch less door width on pairs and 2 inches less door width on single door leaf. Furnish with countersunk holes and oval head stainless steel screws.
 - 1. Equal product of any B.H.M.A. member will also be acceptable.

2.11 GASKETS AND THRESHOLDS

- A. Basis of Design: National Guard Products.
 - 1. Pemko.

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2. Zero.

2.12 THRESHOLDS

- A. Basis of Design: National Guard Products. Install thresholds in a bed of sealant.
 1. Pemko.
 2. Zero.

2.13 CYLINDERS & KEYING

- A. Furnish Best 7-pin small format interchangeable cores for all items capable of being locked, keyed to the existing system according to the owner's instructions. Furnish mortise or rim type housings as required by locking device.
 1. No substitutions based on building standards.

2.14 FINISHES

- A. Finishes: Furnish finish for each item as indicated in sets. Furnish painted finish to match the door frame color wherever "PTD" is specified. Note there are multiple finishes on this project.

2.15 POWER TRANSFERS

- A. Furnish Von Duprin model EPT-10.
 1. McKinney.
 2. Securitron.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that doors and frames are ready to receive this work; labeled, fire-rated doors and frames are properly installed, and dimensions are as indicated on shop drawings.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Install hardware on fire-rated doors and frames in accordance with applicable codes and NFPA 80.
- C. Install hardware for smoke and draft control doors in accordance with NFPA 105.
- D. Use templates provided by hardware item manufacturer.
- E. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list; unless noted otherwise in Door Hardware Schedule or on drawings.
- F. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.

3.03 FIELD QUALITY CONTROL

- A. Perform field inspection and testing under provisions of Section 014000 - Quality Requirements.

3.04 ADJUSTING

- A. Adjust work under provisions of Section 017000 - Execution and Closeout Requirements.
- B. Adjust hardware for smooth operation.
- C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.05 CLEANING**3.06 PROTECTION**

- A. Protect finished Work under provisions of Section 017000 - Execution and Closeout Requirements.
- B. Do not permit adjacent work to damage hardware or finish.

3.07 HARDWARE SETS

HW SET: 01

1	EA	CONTINUOUS HINGE	112XY	628	IVE
1	EA	OFFICE LOCK	L9050BDC 03A	626	SCH
1	EA	FINAL CORE	BEST 7-PIN SFIC	626	BES
1	EA	WALL STOP	WS447	626	IVE

HW SET: 02

1	EA	CONTINUOUS HINGE	112XY	628	IVE
1	EA	OFFICE LOCK	L9050BDC 03A	626	SCH
1	EA	FINAL CORE	BEST 7-PIN SFIC	626	BES
1	EA	OVERHEAD STOP	100S	630	GLY

HW SET: 03

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	OFFICE LOCK	L9050BDC 03A	626	SCH
1	EA	FINAL CORE	BEST 7-PIN SFIC	626	BES
1	EA	WALL STOP	WS447	626	IVE

HW SET: 04

2	SET	HANGING DEVICE	BY PKG FIRE DOOR MFG		B/O
2	EA	EPT-10	BY PKG FIRE DOOR MFG	689	B/O
1	EA	RX-3547A-L-F-LBR M360-03	BY PKG FIRE DOOR MFG	626	B/O
1	EA	RX-3547A-F-EO	BY PKG FIRE DOOR MFG	626	B/O
1	EA	RIM CYLINDER	BEST 1E72 7-PIN SFIC	626	BES
1	EA	FINAL CORE	BEST 7-PIN SFIC	626	BES
2	EA	4111 SCUSH	BY PKG FIRE DOOR MFG	689	B/O
1	SET	SMOKE GASKET	BY PKG FIRE DOOR MFG		B/O
1	EA	CARD READER	BY SECURITY CONTRACTOR		B/O
1	EA	DOOR POSITION SWITCH	BY SECURITY CONTRACTOR		B/O
1	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O

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HW SET: 05

2	SET	HANGING DEVICE	BY PKG FIRE DOOR MFG		B/O
2	EA	EPT-10	BY PKG FIRE DOOR MFG	BLK	B/O
1	EA	RX-3547A-L-F-LBR M360-03	BY PKG FIRE DOOR MFG	622	B/O
1	EA	RX-3547A-F-EO	BY PKG FIRE DOOR MFG	622	B/O
1	EA	RIM CYLINDER	BEST 1E72 7-PIN SFIC	622	BES
1	EA	FINAL CORE	BEST 7-PIN SFIC	622	BES
2	EA	4111 SCUSH	BY PKG FIRE DOOR MFG	693	B/O
1	SET	SMOKE GASKET	BY PKG FIRE DOOR MFG		B/O
1	EA	CARD READER	BY SECURITY CONTRACTOR		B/O
1	EA	DOOR POSITION SWITCH	BY SECURITY CONTRACTOR		B/O
1	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O

HW SET: 06

8	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	SET	LATCHING FLUSH BOLT	FB51P-24"	630	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	EU STOREROOM LOCK	RX-L9092BDC 03A 24VDC	626	SCH
1	EA	FINAL CORE	BEST 7-PIN SFIC	622	BES
1	EA	COORDINATOR	COR X FL	628	IVE
2	EA	SURFACE CLOSER	4111 SCUSH X ST-1496	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW	630	IVE
1	SET	SEALS	2525C	CHR	NGP
1	EA	ASTRAGAL SEAL	5070BR	BRN	NGP
1	EA	CARD READER	BY SECURITY CONTRACTOR		B/O
2	EA	DOOR POSITION SWITCH	BY SECURITY CONTRACTOR		B/O
1	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O

HW SET: 07

1	SET	HANGING DEVICE	BY PKG FIRE DOOR MFG		B/O
1	EA	EPT-10	BY PKG FIRE DOOR MFG	689	B/O
1	EA	RX-L9092BDC 03A 24VDC	BY PKG FIRE DOOR MFG	626	B/O
1	EA	FINAL CORE	BEST 7-PIN SFIC	626	BES
1	EA	4011	BY PKG FIRE DOOR MFG	689	B/O
1	EA	900S	BY PKG FIRE DOOR MFG	630	B/O
1	SET	SMOKE GASKET	BY PKG FIRE DOOR MFG		B/O
1	EA	CARD READER	BY SECURITY CONTRACTOR		B/O
1	EA	DOOR POSITION SWITCH	BY SECURITY CONTRACTOR		B/O
1	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O

HW SET: 08

2	SET	HANGING DEVICE	BY PKG FIRE DOOR MFG		B/O
2	EA	3547A-L-BE-F-LBR L370-03	BY PKG FIRE DOOR MFG	626	B/O
2	EA	4111 SCUSH	BY PKG FIRE DOOR MFG	689	B/O
1	SET	SMOKE GASKET	BY PKG FIRE DOOR MFG		B/O

HW SET: 09

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	EU STOREROOM LOCK	RX-L9092BDC 03A 24VDC	626	SCH
1	EA	FINAL CORE	BEST 7-PIN SFIC	622	BES
1	EA	SURFACE CLOSER	4111 SCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	SEALS	2525C	CHR	NGP
1	EA	CARD READER	BY SECURITY CONTRACTOR		B/O
1	EA	DOOR POSITION SWITCH	BY SECURITY CONTRACTOR		B/O
1	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O

HW SET: 10

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	L9080BDC 03A	626	SCH
1	EA	FINAL CORE	BEST 7-PIN SFIC	622	BES
1	EA	SURFACE CLOSER	4111 SCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	SEALS	2525C	CHR	NGP

HW SET: 11

1	EA	CONTINUOUS HINGE	112XY-EPT	BLK	IVE
1	EA	PANIC HARDWARE	RX-35A-EO	622	VON
1	EA	SURFACE CLOSER	4111 SCUSH	693	LCN
1	SET	WEATHER SEAL	BY FRAME MFG.	BLK	B/O
1	EA	DOOR SWEEP	C699DKB	BLK	NGP
1	EA	DRIP CAP	16DKB	BLK	NGP
1	EA	THRESHOLD	8425DKB	BLK	NGP
1	EA	CARD READER	BY SECURITY CONTRACTOR		B/O
1	EA	DOOR POSITION SWITCH	BY SECURITY CONTRACTOR		B/O
1	EA	POWER SUPPLY	BY SECURITY CONTRACTOR		B/O

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