

SECTION 08 14 16 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Five-ply flush wood doors for opaque finish.
2. Factory flush wood doors.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product, including the following:

1. Door core materials and construction.
2. Door edge construction
3. Door face type and characteristics.
4. Door frame construction.
5. Factory-finishing specifications.

- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data; and the following:

1. Door schedule indicating door and frame location, type, size, fire protection rating, and swing.
2. Door elevations, dimension and locations of hardware, lite and louver cutouts, and glazing thicknesses.
3. Details of frame for each frame type, including dimensions and profile.
4. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
5. Dimensions and locations of blocking for hardware attachment.
6. Dimensions and locations of mortises and holes for hardware.
7. Clearances and undercuts.
8. Requirements for veneer matching.
9. Doors to be factory finished and application requirements.
10. Apply WI Certified Compliance Program label to Shop Drawings.

C. Samples for Verification:

1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish.

1.4 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For special warranty.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in cardboard cartons, and wrap bundles of doors in plastic sheeting.
- C. Mark each door on bottom rail with opening number used on Shop Drawings.

1.6 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
 - a. Delamination of veneer.
 - b. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
 - c. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
 3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain flush wood doors from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Wood Door and Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings and temperature-rise limits indicated on Drawings, based on testing at positive pressure in accordance with UL 10C or NFPA 252.
 - 1. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F above ambient after 30 minutes of standard fire-test exposure.
- B. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing in accordance with UL 1784 and installed in compliance with NFPA 105.

2.3 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with ANSI/WDMA I.S. 1A.
 - 1. Provide labels and certificates from WI certification program indicating that doors comply with requirements of grades specified.

2.4 SOLID-CORE FIVE-PLY FLUSH WOOD DOORS FOR OPAQUE FINISH

- A. Interior Solid-Core Doors :
 - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. Eggers Industries.
 - b. Oshkosh Door Company.
 - c. VT Industries Inc.
 - 2. Performance Grade: ANSI/WDMA I.S. 1A Extra Heavy Duty.
 - 3. Architectural Woodwork Standards Grade: Premium.
 - 4. Faces: Hardboard or MDF.
 - a. MDF Faces: ANSI A208.2, Grade 150 or Grade 160.
 - 5. Exposed Vertical Edges: Any closed-grain hardwood.
 - a. Fire-Rated Single Doors: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed vertical edges.

6. Core for Non-Fire-Rated Doors:
 - a. WDMA I.S. 10 structural composite lumber.
7. Core for Fire-Rated Doors: As required to achieve fire-protection rating indicated on Drawings.
 - a. Blocking for Mineral-Core Doors: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated on Drawings as
 - 1) 5-inch top-rail blocking.
8. Construction: Five plies, hot-pressed bonded (vertical and horizontal edging is bonded to core), with entire unit abrasive planed before veneering.

2.5 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated.
 1. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
 2. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied.
 1. Locate hardware to comply with DHI-WDHS-3.
 2. Comply with final hardware schedules, door frame Shop Drawings, ANSI/BHMA-156.115-W, and hardware templates.
 3. Coordinate with hardware mortises in metal frames, to verify dimensions and alignment before factory machining.
- C. Openings: Factory cut and trim openings through doors.
 1. Light Openings: Trim openings with moldings of material and profile indicated.
 2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 08 80 00 "Glazing."

2.6 FACTORY FINISHING

- A. Comply with referenced quality standard for factory finishing.
 1. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 2. Finish faces, all four edges, edges of cutouts, and mortises.

3. Stains and fillers may be omitted on[top and] bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors.
- C. Opaque Finish:
1. ANSI/WDMA I.S. 1A Grade: Premium.
 2. Color: Match Architect's sample.
 3. Sheen: Semigloss.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, before hanging doors.
1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation, see Section 08 71 00 "Door Hardware."
- B. Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
- C. Job-Fitted Doors:
1. Align and fit doors in frames with uniform clearances and bevels as indicated below.
 - a. Do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors.
 2. Machine doors for hardware.
 3. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
 4. Clearances:
 - a. Provide 1/8 inch at heads, jambs, and between pairs of doors.

- b. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated on Drawings.
 - c. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.
 - d. Comply with NFPA 80 for fire-rated doors.
- 5. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.
 - 6. Bevel fire-rated doors 1/8 inch in 2 inches at lock edge; trim stiles and rails only to extent permitted by labeling agency.
- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
 - E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 08 14 16

SECTION 08 7100 - DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Work under this section includes furnishing and the installation of finish and security hardware specified herein and noted on drawings for a complete and operational system, including any electrified door hardware components including finish and security hardware and auto operators for entrance doors.

Items include, but are not limited to:

1. Hinges/Continuous Hinges
2. Flush Bolts
3. Exit Devices
4. Locksets and Cylinders
5. Push Plates - Pulls
6. Closers
7. Kick, Mop and Protection Plates
8. Stops, Wall Bumpers, Overhead Controls
9. Silencers
10. Miscellaneous Trim and Accessories
11. Electrified Hardware Items, Controls and Power Supplies
12. **Electronic Managed Locksets**

B. RELATED SECTIONS:

1. Section 08 11 00 – Metal Doors and Frames
2. Section 08 3113- Access Doors and Frames
3. Section 08 3473.16- Wood Sound Control Assemblies
4. Division 26 – Electrical
5. Division 27 – Communications
6. Division 28 – Electronic Safety and Security

C. Alternates

1. Refer to Division 01 in the project manual for project alternates.

1.02 REFERENCES

- A. The following references are used in this section.

1. NFPA 80 – Standard for Fire Doors, 2007.
2. Installation Guide for Doors and Hardware, DHI, 1984.
3. ANSI / BHMA A156.18, Materials and Finishes, 2006.

1.03 GENERAL REQUIREMENTS

- A. Provide items, articles, materials, operations and methods listed, mentioned or scheduled herein or on drawings, in quantities as required to complete project. Provide hardware that functions properly. Prior to furnishing hardware, advise Architect of items that will not operate properly, are improper for conditions, or will not remain permanently anchored.

1.04 SUBMITTALS

- A. Hardware Schedule: Submit 5 copies of hardware schedule in vertical format as illustrated by the Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Schedules which do not comply will be returned for correction before checking.

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- B. Hardware schedule shall clearly indicate architect's hardware group and manufacturer of each item proposed.
- C. The schedule shall be reviewed prior to submission by a certified Architectural Hardware Consultant (AHC), who shall affix his or her seal attesting to the completeness and correctness of the schedule.
1. Provide 2 copies of illustrations from manufacturer's catalogs and data in brochure form.
 2. Check specified hardware for suitability and adaptability to details and surrounding conditions. Indicate unsuitable or incompatible items and proposed substitutions in hardware schedule.
 3. Provide listing of manufacturer's template numbers for each item of hardware in hardware schedule.
 4. Furnish other Contractors and Subcontractors concerned with copies of final approved hardware schedule. Submit necessary templates and schedules as soon as possible to hollow metal, wood door, and aluminum door fabricators in accordance with schedule they require for fabrication.
 5. Samples: Lever design or finish sample: Provide 3 samples if requested by architect.
- D. Wiring Diagrams: Provide complete and detailed system operation and elevation diagrams specially developed for each opening requiring electrified hardware, except openings where only magnetic hold-opens or door position switches are specified. Provide these diagrams with hardware schedule submittal for approval. Provide detailed wiring diagrams with hardware delivery to jobsite.
- E. Installation Instructions: Provide manufacturer's written installation and adjustment instructions for finish hardware. Send installation instructions to site with hardware.
- F. Templates: Submit templates and "reviewed Hardware Schedule" to door and frame supplier and others as applicable to enable proper and accurate sizing and locations of cutouts and reinforcing.
- G. Contract Closeout Submittals: Comply with Section 01700 including specific requirements indicated below.
1. Operating and maintenance manuals: Submit 3 sets containing the following:
 2. Complete information in care, maintenance, and adjustment, and data on repair and replacement parts, and information on preservation of finishes.
 3. Catalog pages for each product.
 4. Name, address, and phone number of local representative for each manufacturer.
 5. Parts list for each product.
 6. Copy of final approved hardware schedule, edited to reflect "As installed".
 7. Copy of final keying schedule.
 8. As installed "Wiring Diagrams" for each opening connected to power, both low voltage and 110 volts.
 9. One complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

1.05 QUALITY ASSURANCE

- A. General Contractor's Investigation: Prior to Contract Execution, the General Contractor shall have thoroughly investigated the entities that will be performing work or supplying materials, products, equipment, or systems for this project, to ensure that they comply with all of the qualifications and requirements mentioned or implied in the Contract Documents. If it is later determined that any of the previously mentioned entities do not comply with the qualifications and requirements specified in the Contract Documents, the General Contractor will be required to replace that entity with a qualified entity at no increase in Contract Sum or Contract Time.

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- B. Manufacturer: Obtain each type of hardware (i.e. latch and locksets, hinges, closers) from single manufacturer, although several may be indicated as offering products complying with requirements.
- C. Qualifications of the Hardware Supplier: A recognized architectural door hardware supplier, with warehousing facilities, who has been furnishing hardware and installation in the Project's vicinity for a period of not less than 4 years. The supplier shall be, or shall employ, an Architectural Hardware Consultant (AHC) who is available, at reasonable times during the course of the work, for consultation about the Project's hardware requirements, to the Owner, Architect, and Contractor. An Architectural Hardware Consultant (AHC) shall prepare all hardware and access control schedules. This Supplier shall be responsible for proper coordination of all finish hardware items and access control items with related sections to insure compatibility of products.
1. Hardware supplier must be an authorized, direct factory distributor of all door hardware products specified herein to insure compliance and service of these products.
 2. Require supplier to meet with Owner to finalize keying requirements and to obtain final instructions in writing.
- D. Qualifications of Installer: The hardware installer shall have documented experience in the installation of hardware of similar quantities and types as required for this project. The installer's qualifications shall be submitted to the architect, in writing, for approval by the architect before any work shall commence.
- E. Substitutions: All substitution requests are required to be submitted prior to the bid date and complying with the procedures and time frame as outlined in Division 01, General Requirements. Approval of submitted products is at the discretion of the architect and his hardware consultant.
- F. At the Project's Completion, the Owner's Representative shall accompany the Architect and General Contractor during the Door Hardware and Access Control Items punch list phase of the project close-out, insuring the Owner's Representative is familiar with all applications and systems, as installed. Refer to additional requirements under 3.0 EXECUTION.
- G. Pre-Installation Meeting: Prior to door hardware installation, the General Contractor / Construction Manager shall request a hardware installation meeting to be held at the project location. This meeting shall convene prior to the hardware's installation. The types of hardware this meeting shall include are: locksets, exit devices, and door closers. The manufacturer's representatives of the above listed products, in conjunction with the hardware supplier for this project, shall conduct the installation training. All hardware installers shall be required to attend this meeting to receive certificate of authorized training. This meeting shall serve as door openings coordination and review of all shop drawings from related trades prior to the hardware installation. The Hardware Supplier shall include any related meeting costs in their proposal.
- H. Electrified Hardware and Security Hardware Systems: Prior to ordering the electrified hardware, the General Contractor shall request a coordination meeting. This meeting shall convene prior to or after the Door Hardware Schedule and the wiring diagrams have been submitted to the General Contractor. All related trades shall be represented at this meeting, which shall also include the architect, the Owner's representative, the hardware supplier, and the hardware manufacturer's representative as requested. This meeting shall serve as a review and coordination of all electrified hardware, wiring, connections, location for power supplies, and remote switches, and door functions. All related trades shall make any required changes, and resubmit schedules, diagrams, and any other required data, no later than one (1) week following this meeting.
- 1.06 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.

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- B. Packaging of door hardware is the responsibility of the supplier. As material is received by the hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set numbers to match the set numbers of the approved hardware schedule. Two or more identical sets may be packed in the same container.
 - C. The door hardware supplier shall deliver all individually packaged hardware items in a timely fashion to the place of installation (Shop or Project Site); direct factory shipments are not acceptable unless agreed upon beforehand. Hardware supplier shall coordinate delivery times and schedules with the contractor.
 - D. The General Contractor, door hardware supplier, access control supplier, and installers shall count, coordinate, and store all door hardware and access control items herein, verifying complete counts of all items scheduled and furnished. The contractor must report all shortages (discrepancies with shipping documents) within five (5) working days. The manufacturers' and Owner's representatives will inspect the installation of the door hardware and access control items during that phase of construction. Any deficiencies in installation of all materials included herein shall be corrected before installation continues.
 - E. The General Contractor shall provide a secure lock-up for the door hardware and security equipment delivered to the Project, but not yet installed. Control handling and installation of the 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.

1.07 WARRANTY

- A. All materials must be warranted against defects in workmanship and materials for a period of one (1) year from date of acceptance of this project, unless otherwise noted. Any evidence of misuse or abuse voids all warranties. These warranties shall be each manufacturers' standard written warranty.
- B. Special Warranties:
 - 1. Door Closers: Thirty (30) Year Period.
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- C. Any manufacturer whose standard written warranty does not equal or exceed the requirements listed above must provide a letter stating that they will extend their warranty to comply with the requirements of this specification.
- D. All of the manufacturer's fasteners and attachments supplied with each hardware item must be installed to maintain the manufacturer's fire listing and/or warranty.
- E. Refer to Section 01 - Closeout Procedures for additional warranty requirements.

1.08 MAINTENANCE

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

PART 2 PRODUCTS

2.1 BUTTS AND HINGES

A. Acceptable Manufacturers:

Ives	Hagar	Stanley
5BB1	BB1279	FBB179
5BB1HW	BB1199	FBB168

B. Application:

1. Provide NRP (non-removable pins) at out-swinging lockable doors.

C. Quantity:

1. Two hinges per leaf for openings through 60 inches high.
2. One additional hinge per leaf for each additional 30 inches in height or fraction thereof.
3. Four hinges for Dutch doors up to 90 inches in height.

~~**2.2 ELECTRIC POWER TRANSFER**~~

~~A. **Acceptable manufacturers:**~~

Von Duprin	Security Door Controls	Securitron
EPT-10	PTM-10	CEPT

~~B. **Provide power transfer sufficient for number and gage of wires to accommodate electric function of specified hardware.**~~

~~C. **Electric power transfer is to be located per manufacturer's template and UL requirements, unless interference with operation of door or other hardware items.**~~

2.3 FLUSH BOLTS AND DUSTPROOF STRIKES

A. Acceptable manufacturers:

Ives	Trimco	Burns
FB458	3915	590
FB41P	3815	7942
DP2	3910	545

- B. Provide automatic and manual flush bolts with forged bronze face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch steel or brass rods at doors up to 90 inches in height. Top rods at manual flush bolts for doors over 90 inches in height shall be increased by 6 inches for each additional 6 inches of door height. Provide dust-proof strikes at each bottom flush bolt.

2.4 LOCKSETS – CYLINDRICAL – GRADE 1

A. Acceptable Manufacturer and Series:

Schlage	Corbin	Best
ND Series x RHO – (Owner Preferred)	CL3300 x NZD	93K x 15D

B. Provide lock functions specified in Hardware Groups, with following provisions:

1. Cylinders: Refer to "KEYING" article, herein.

2. Locks shall meet UL A label; to have a minimum listing for single doors 4' x 8'.
3. Locks shall have the ability to incorporate either a rigid or free-wheeling lever when in a locked mode.
4. Levers shall be bi-directional.
5. Levers shall be solid. Manufacturers utilizing lever fillers are not acceptable.
6. Furnish "Knurled" or "Tactile" outside levers as indicated in the door Hardware Sets. "Abrasive" outside levers shall not be acceptable.
7. Lockset adjustment plate shall be threaded for door thickness adjustment for doors 1 5/8" to 2 1/8" thickness. The adjustment plate shall have visual chassis marking for doors 1 3/4" thick.
8. Locks shall have field reversible handing.
9. Latchbolt to be steel with minimum 1/2" throw latch; 3/4" throw latch on pairs of fire rated doors.
10. Strikes shall have curved lip of sufficient length to clear trim.

2.5 ACCESS CONTROL CYLINDRICAL LOCKSETS

A. Acceptable Manufacturers and Products:

Schlage
AD-400-CY

B. Provide cylindrical lock series and function where specified in hardware groups, with the provisions below.

1. Cylinders: Refer to "KEYING" article, herein.
2. Backsets: 2-3/4 inches.
3. Strikes: Provide wrought boxes and strikes with proper lip length to protect trim but not to project more than 1/8 inch beyond trim, frame or inactive leaf. Where required, provide open back strike and protected to allow practical and secure operation.

C. Provide access control products with non-volatile memory.

D. Doors to stairs (other than exit stairs), loading platforms, boiler rooms, stages and doors serving other hazardous locations shall have knurled or other similar approved marking of door lever handles or cross bars in accordance with local building codes.

E. Lockset powered by four AA batteries with options for eight AA batteries or a 12V or 24V DC power supply.

F. Lockset shall have ability to communicate battery status

2.6 EXIT DEVICES

A. Acceptable Manufacturer:

Von Duprin
98/99 Series- NO SUBSTITUTION

B. Provide exit device series and functions as specified in Hardware Groups. Von Duprin product numbers are referenced in the Hardware Groups.

C. All exit devices shall be UL listed for panic. Exit devices for labeled doors shall be UL listed as "Fire Exit Hardware".

D. Where lever trim is specified, provide lever design to match lockset levers.

E. Provide lever trim with breakaway feature.

F. Provide cylinders for exit devices with locking trim and cylinder dogging.

- G. Provide exit devices with stainless steel touch bars. Load bearing plastic parts are not acceptable.
- H. Provide exit devices with cast metal, flush end caps.
- I. Provide deadlocking latchbolt feature for exit devices.
- J. Provide roller strikes on all rim exit devices.

2.7 KEYING

- A. Acceptable Manufacturer:

Schlage
Everest D
Everest C

- B. All building systems shall conform to the Campus Keying structure.
 - 1. Schlage Everest D for Interior Keys
 - 2. Schlage Everest D for Campus Mechanical Keys
 - 3. Schlage Everest C for Campus Entry Keys

- C. All keys shall be Blank Bow on both sides
- D. Supply 1 change key for each key symbol used.
- E. Provide no keys with the cylinders
- F. Provide key blanks equal to 3 blanks per cylinder.

2.8 DOOR TRIM

- A. Acceptable Manufacturers and Types:

Ives	Trimco	Rockwood
8200	1001-9	70C
8303	1018-3B	107
9100	1741	BF15847
8190	1191-3	K1050
8400	K0050	KP50

- B. Push Plates:
 - 1. Ives type 8200 4 inches by 16 inch unless otherwise indicated.
 - 2. Where width of door stile prevents use of 6 inch wide plate, provide push plate one inch less than width of stile but not less than 4 inches wide.
- C. Pull Plates:
 - 1. Ives type 8303 4 inches by 16 inches unless otherwise indicated.
- D. Push Bars:
 - 1. Ives type 9100, unless otherwise indicated.
- E. Pulls:
 - 1. Ives Series 8190, unless otherwise indicated.
 - 2. Where required, mount back to back with push bars.

F. Kick Plates and Armor Plates: Ives 8400 Series, minimum of 0.050 inch thick, beveled 4 edges. Fabricate protection plates not more than 1-1/2 inch less than door width on push side and not more than 1/2" width on pull side.

1. At single doors provide width two inches less than door width on stop side and one inch less than door width on pull side.
2. At pairs of doors provide width one inch less than door width on both sides.
3. Height of 8 inches, unless otherwise indicated.
4. Provide plates with countersunk screw holes.

2.9 DOOR CLOSERS

A. Acceptable Manufacturers and Types of Exposed Closers:

LCN	Sargent	Corbin
4040XP (Owner Preferred)	281 / 281-P10	DC8200 / DC8210 x A3

- B. Closers shall have fully hydraulic, full rack and pinion action with a high strength cast iron cylinder.
- C. Provide non-sized closers, continuously adjustable over the full range of closer sizes, and allow for reduced opening force to meet opening force requirements of ANSI A117.1
- D. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, swing speed, and back check.
- E. Provide closers with solid forged steel main arms (and forearms for parallel arm closers) and where specified to have a cast-in solid stop on the closer shoe ("CUSH"). Parallel arm mounted closers shall have "EDA" type arms or, where specified, "CUSH" or "SCUSH" type arms.
- F. Provide drop plates, brackets, or adapters for arms as required to suit details.
- G. Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- H. Provide back-check for closers.
- I. Provide hold-open arms where indicated.
- J. Provide closers for doors as noted in Hardware Groups and, in addition, provide closers for labeled doors whether or not specifically noted in group.
- K. Provide closers meeting the requirements of UBC 7-2, 1997 and UL 10C positive pressure tests.
- L. Pressure relief valves (PRV's) shall not be permitted.

2.10 WALL STOPS AND HOLDERS

A. Acceptable Manufacturers and Types:

Ives	Trimco	Rockwood
WS406/407CCV	1270WVP	409

- B. Provide WS406/407CCV Series wall stop for each door leaf unless otherwise specified, or where conditions require the use of an overhead stop.
- C. Floor or base stops shall be used only where definitely specified or absolutely unavoidable.

2.11 OVERHEAD STOPS

A. Acceptable Manufacturers

Glynn Johnson	Rixson	Sargent
90	9 Series	590 Series

- B. Provide overhead stops for interior doors equipped with regular arm surface type closer for doors that open against equipment, casework, sidelights, other objects that would make wall stops inappropriate.
- C. Provide sex bolt attachments for mineral core door application.

2.12 GASKETING

A. Acceptable Manufacturers:

National Guard	Reese	Zero
5050	F-797B	188S

- B. Where smoke gasket is specified in hardware groups, provide 188S, unless detailed otherwise.
- C. Provide gaskets for 20-minute doors and doors designated for smoke and draft control.
- D. Where frame applied intumescent seals are required by the manufacturer, provide gaskets that comply with UBC 7-2, 1997 and UL 10C positive pressure tests.

~~2.13 DOOR POSITION SWITCHES~~

~~A. Acceptable Manufacturers and Types:~~

Schlage	Sentrol
679-05HM	1078W

- ~~B. Coordinate door and frame preparations with door and frame suppliers.~~
- ~~C. Switches shall be installed in frame head approximately 4" from latching door edge.~~

~~2.14 POWER SUPPLIES~~

~~A. Acceptable Manufacturers and Types:~~

Schlage Electronics	Precision	Securitron
PS900 Series	ELR Series	BPS Series

~~B. Requirements:~~

- ~~1. Provide power supplies, recommended and approved by the manufacturer of the electrified locking component, for the operation of electrified locks, electrified exit devices, magnetic locks, electric strikes, and other components requiring a power supply.~~
- ~~2. Provide the appropriate quantity of power supplies necessary for the proper operation of the electrified locking component and/or components as recommended by the manufacturer of the electrified locking components with consideration for each electrified component utilizing the power supply, the location of the power supply, and the approved wiring diagrams. Locate the power supplies as directed by the Architect.~~

- 3. ~~Provide a power supply that is regulated and filtered 24 VDC, or as required, and UL class 2 listed.~~

C. Options: Provide the following options.

- 1. ~~Provide a power supply, where specified, with the internal capability of charging optional sealed backup batteries 24 VDC, or as required, in addition to operating the DC load.~~
- 2. ~~Provide sealed batteries for battery back-up at each power supply where specified.~~
- 3. ~~Provide keyed power supply cabinet.~~
- 4. ~~Provide a power supply complete requiring only 120VAC to the fused input and shall be supplied in an enclosure.~~
- 5. ~~Provide a power supply with emergency release terminals, where required, that allow the release of all devices upon activation of the fire alarm system complete with fire alarm input for initiating "no delay" exiting mode.~~

2.15 SILENCERS

- A. Acceptable Manufacturers and types:

Ives	Hagar	Rockwood
SR64	307D	608

- B. Provide grey rubber silencers featuring pneumatic design that, once installed, forms an air pocket to absorb shock and reduce noise of door closing.
- C. Provide three (3) silencers per hollow metal strike jamb; two (2) per hollow metal double door head. Omit at doors scheduled to receive perimeter weatherstripping or smoke gasket.
- D. Silencers shall meet ANSI/BHMA A156.16, L03011

2.16 FASTENERS

- A. Including, but not limited to, wood or machine screws, bolts, nuts, anchors, etc. of proper type, material, and finish required for installation of hardware.
- B. Use phillips head for exposed screws. Do not use aluminum screws to attach hardware.
- C. Provide self-tapping (TEC) screws for attachment of sweeps and stop-applied weatherstripping only.

2.17 TYPICAL FINISHES AND MATERIALS

- A. Finishes, unless otherwise specified:
 - 1. Butts: Interior Doors
 - a. Wood Doors- US26D (BHMA 652) on Steel
 - 2. Continuous Hinges:
 - a. All Exterior Doors- US28 (BHMA 628) on Aluminum
 - 3. Flush Bolts:
 - a. US26D (BHMA 626) on Brass or Bronze
 - 4. Exit Devices:
 - a. US26D (BHMA 626) on Brass or Bronze
 - 5. Locks and Latches:
 - a. US26D (BHMA 626) on Brass or Bronze
 - 6. Push Plates, Pulls and Push Bars:
 - a. US32D (BHMA 630) on Stainless Steel
 - 7. Kick Plates, Armor Plates, and Edge Guards:
 - a. US32D (BHMA 630) on Stainless Steel
 - 8. Overhead Stops and Holders:

- a. US32D (BHMA 630) on Stainless Steel
- 9. Closers: Surface mounted.
 - a. Sprayed Aluminum Lacquer.
- 10. Miscellaneous Hardware:
 - a. US26D (BHMA 626) on Brass or Bronze
 - b. US28 (BHMA 628) on Aluminum
 - c. US32D (BHMA 630) on Stainless Steel
 - d. A- Aluminum
 - e. AA- Clear Anodized
 - f. ANCLR- Anodized Clear
 - g. BLK- Black
 - h. GRY- Gray
 - i. LGR- Light Gray
 - j. S-BK- Silicone Black

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine doors, frames, and related items for conditions that would prevent the proper application of finish hardware. Do not proceed until defects are corrected.

3.2 INSTALLATION

- A. Mount hardware units at heights indicated in the following applicable publications, except as specifically indicated or required to comply with governing regulations and, except as otherwise indicated, by the Architect.
 - 1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.
- B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 09 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.
- C. Sets units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Where scheduled, door pulls shall be through-bolted with bolt heads concealed behind push plates.
- E. Where scheduled, door closers shall be through-bolted.
- F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- G. Set thresholds, for exterior and interior doors, in a full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 07 - Joint Sealers.
- H. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.
- I. The hardware installer shall be responsible for installation of all mechanical and electromechanical hardware items contained within this specification, in accordance with the manufacturer's technical installation guidance, and in addition to all applicable code requirements.

- J. The Electrical Sub-Contractor, under Division 26 - Electrical, shall be responsible for providing and installing all (120 VAC) power source wiring as required for the electrified locking and access control hardware, equipment, accessories, and power supplies. This includes quad outlets as required on a dedicated circuit in designated IT / Telecommunication Room(s) and the related conduit, stud-ins, junction boxes, and connectors required for the power source delivery and connections. Provide cabling, conduit, stub-ins, patch cords, fire stop systems, data connectors, junction boxes, and back boxes for both the electrified locking hardware and access control equipment at each of the access controlled or monitored openings per plan drawings and specifications. Provide and install conduit between each of the aforementioned devices and between junction boxes, power supplies, and access control equipment located on or above each door opening.
1. At wall mounted remote card readers, provide conduit on the secured side of each door opening, at 48" from above the finished floor and 6" from the edge of each door frame, to the related power supplies and access control equipment; unless otherwise instructed by Architect.
 2. At all electrical hardware power transfer items provide conduit on the secured side of each door opening, from the power transfer items, through-wire hinges, or serviceable panel locations, inside of frame's jambs, to the related power supplies and access control equipment.
 3. Installation of power supplies and interfacing of security system with fire alarm system as required, and coordination of complete security system shall be provided by the Electrical Sub-Contractor, under the Division 26 - Electrical. Electrical Sub-Contractor shall be responsible for providing and installing all 120 VAC cabling connections and terminations from the electrical junction boxes to these electrical devices.
- K. The Access Control System's supplier shall be responsible for providing all low-voltage (12 / 24 VDC) wiring and communication cabling (RS-232 / RS-485) installation from network control processors to reader controllers, I / O monitor / control interface panels, electrified and integrated locking hardware, remote card readers, keypads, or display terminals, monitoring and signaling switches, and power supplies, identification, and termination in accordance with the manufacturer's technical installation guidance, in addition to all applicable code requirements. Installation of all card readers, controllers, software packages, door position switches, and run low voltage wiring from the power supplies / controllers to the electrified hardware items at each opening where specified. The Access Control System's installer shall also be responsible for connectors, final wire terminations, final hook-ups, testing, system set-up, warranty, and Owner Turnover. Owner Training shall be provided under this Section.
- L. Upon completion of the final installation of the Door Hardware and Access Control System, and burn in of the Security System, the Contract Hardware Distributor and the Access Control System's Supplier shall jointly make final adjustments to the electrified hardware and Access Control System's openings to insure proper adjustment and function of the opening is in compliance with the system's functionality requirements.

3.3 FIELD QUALITY CONTROL

- A. After installation has been completed, provide services of qualified hardware consultant to check Project to determine proper application of finish hardware according to schedule. Also check operation and adjustment of hardware items.
- B. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

3.4 ADJUSTING AND CLEANING

- A. At final completion, hardware shall be left clean and free from disfigurement. Make final adjustment to door closers and other items of hardware. Where hardware is found defective repair or replace or otherwise correct as directed.

- B. Adjust door closers to meet opening force requirements of Uniform Federal Accessibility Standards.
- C. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of space or area, return to work during week prior to acceptance or occupancy, and make final check and adjustment of hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors.
- D. Instruct Owner's personnel in proper adjustment and maintenance of door hardware and hardware finishes.
- E. Clean adjacent surfaces soiled by hardware installation.

3.5 PROTECTION

- A. Provide for proper protection of items of hardware until Owner accepts Project as complete.

3.6 HARDWARE GROUPS

- A. The following schedule of hardware groups shall be considered a guide only, and the supplier is cautioned to refer to general conditions, special conditions, and the preamble to this section. It shall be the hardware supplier's responsibility to furnish all required hardware.
- B. Refer to the door schedule for hardware group required at each door opening.

HARDWARE GROUP NO. H-01

FOR USE ON MARK/DOOR #(S):

STORRS 130C
REESE 335B
REESE 402

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4 1/2 X 4 1/2	652	IVE
1	EA	<u>WIRELESS NETWORKED ELECTRONIC LOCK</u>	<u>AD-400-CY-70-MT-RHO JD (REESE)</u> <u>AD-400-CY-70-MT-TLR JD (STORRS)</u>	626	LO
1	EA	CYLINDER CORE	23-030 EVEREST D-RESTRICTED KWY NOTE D125 KEYWAY	626	SCH
1	EA	CLOSER	4040 XP REG MOUNT PULLSIDE	AL	LC
1	EA	KICKPLATE	8400 8" X 34 1/2" B-CS	US32D	IV
1	EA	WALL BUMPER	WS406/407CCV	US26D	IV
4	<u>EA</u>	<u>POWER TRANSFER SWITCH</u>	<u>EPT 10</u> <u>679-05HM</u>	<u>SP28</u>	<u>VON</u> <u>LO</u>
3		DOOR SILENCERS		GRY	IV

STORRS 130C: FOR ACCESS CONTROL, USE EXISTING PIM LOCATED OUTSIDE HALLWAY. NO NEW REQ'D AT THIS LOCATION.

REESE 335B: PROVIDE AND INSTALL 1501 PIM WITH NETWORK DROP.

REESE 402: PROVIDE AND INSTALL 1501 PIM WITH NETWORK DROP.

NOTE: DOOR TO BE NORMALLY CLOSED AND LOCKED AT ALL TIMES. VALID KEY OR CREDENTIAL REQUIRED FOR ACCESS. FREE EGRESS AT ALL TIMES.

HARDWARE GROUP NO. H2

FOR USE ON MARK/DOOR #(S):

STORRS 176A

STORRS 276A

STORRS 222B

ROWE 142

ROWE 217

REESE 226

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	<u>WIRELESS NETWORKED ELECTRONIC LOCK</u>	<u>AD-400-CY-70-MT-RHO JD (REESE)</u> <u>AD-400-CY-70-MT-TBL JD (STORRS)</u>	626	LO
1	EA	CYLINDER CORE	23-030 EVEREST D-RESTRICTED KWY	626	SCH
4	EA	<u>POWER TRANSFER SWITCH</u>	<u>EPT 10</u> <u>679-05HM</u>	<u>SP28</u>	<u>VON LO</u>
1	EA	<u>COVER PLATE</u>	<u>8305</u>	<u>626</u>	<u>IV</u>

ACCESS CONTROL:

STORRS 176A: FOR ACCESS CONTROL, PROVIDE AND INSTALL NEW SSP/EP CONTROLLER IN ROOM 180A LOCATION. PROVIDE NEW 400/485 PIM AND INSTALL IN CORRIDOR WEST OF ROOM 166 AS A CENTRAL LOCATION.

STORRS 276A: FOR ACCESS CONTROL, PROVIDE AND INSTALL 400/485 PIM I AND INSTALL IN CORRIDOR WEST OF ROOM 268 AS A CENTRAL LOCATION. PROVIDE THRU SLAB CONDUIT PATHWAYS TO THE SSP/EP CONTROLLER (PROVIDED WITH STORRS 176A DOOR) AND WIRE SSP/EP TO THE NEW PIM.

STORRS 222B: FOR ACCESS CONTROL, USE EXISTING CONTROLLER LOCATED IN ROOM 220 ON THE SOUTH WALL. PROVIDE AND INSTALL NEW PIM 400-485 IN CORRIDOR EAST OF ROOM 240.

ROWE 142 & 217: FOR ACCESS CONTROL, USE EXISTING PIM LOCATED IN CORRIDORS. NO NEW REQ'D AT THIS LOCATION.

REESE 226: FOR ACCESS CONTROL, USE EXISTING PIM LOCATED IN CORRIDORS. NO NEW REQ'D AT THIS LOCATION.

REMOVE EXISTING DOOR PRIVACY OR CLASSROOM SET. PREP DOOR FOR CARD ACCESS READER. CLEAN UP EXISTING DOOR PENETRATIONS AND PROVIDE & INSTALL NEW COVERPLATE (COORDINATED WITH NEW HARDWARE)

HARDWARE GROUP NO. H3

FOR USE ON MARK/DOOR #(S):

230-1 STORRS

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4 ½ X 4 ½	652	IVE
1	EA	<u>WIRELESS NETWORKED ELECTRONIC LOCK</u>	<u>AD-400-CY-70-MT-TBL JD</u>	626	LO
1	EA	CYLINDER CORE	23-030 EVEREST D-RESTRICTED KWY NOTE D125 KEYWAY	626	SCH
1	EA	CLOSER	4040 XP REG MOUNT PULLSIDE	AL	LC
1	EA	WALL BUMPER	WS406/407CCV	US26D	IV
4	EA	POWER TRANSFER	EPT-10	SP28	VON
4	EA	SWITCH	679-05HM		LO
3		DOOR SILENCERS		GRY	IV

HARDWARE GROUP NO. H4

FOR USE ON MARK/DOOR #(S):

STORRS 230B

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
2	EA	<u>MANUAL FLUSH BOLT</u>	<u>FB458</u>	<u>626</u>	<u>IVE</u>
1	EA	<u>DUST PROOF STRIKE</u>	<u>DP2</u>	<u>626</u>	<u>IVE</u>
1	EA	STOREROOM LOCK	ND80TD RHO	626	SCH
1	EA	CONVENTIONAL CORE	23-030 EV D	626	SCH
2	EA	<u>OH STOP & HOLDER</u>	<u>90H</u>	<u>630</u>	<u>GLY</u>
2	EA	SILENCER	SR64	GRY	IVE
1	EA	<u>WALL BUMPER</u>	<u>WS406/407CCV</u>	<u>US26D</u>	<u>IV</u>

HARDWARE GROUP NO. H5

FOR USE ON MARK/DOOR #(S):

STORRS
230-2STORRS
230-3

1	EA	CYLINDER CORE	23-030 EVEREST D- RESTRICTED KWY	626	SCH
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PROVIDE AND COORDINATE CYLINDER CORES WITH OVERHEAD COILING DOORS AND
OVERHEAD COUNTER DOOR MANUFACTURERS.

HARDWARE GROUP NO. H6

STORRS 230-A**STORRS
230-3**

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4 ½ X 4 ½	652	IVE
1	EA	<u>WIRELESS NETWORKED ELECTRONIC LOCK</u>	<u>AD-400-CY-70-MT-TBL JD (STORRS)</u>	626	LO
1	EA	CYLINDER CORE	23-030 EVEREST D-RESTRICTED KWY NOTE D125 KEYWAY	626	SCH
1	EA	CLOSER	4040 XP REG MOUNT PULLSIDE	AL	LC
1	EA	KICKPLATE	8400 8" X 34 ½" B-CS	US32D	IV
1	EA	WALL BUMPER	WS406/407CCV	US26D	IV
1	EA	<u>POWER TRANSFER</u>	<u>EPT 10</u>	<u>SP28</u>	<u>VON</u>
1	EA	<u>SWITCH</u>	<u>679-05HM</u>		<u>LO</u>
3		DOOR SILENCERS		GRY	IV

DOOR TO SWING 170 DEGREES.**ACCESS CONTROL:****STORRS 230A: USE PIM INSTALLED IN THIS CONTRACT AND LISTED UNDER DOOR STORRS
DOOR 222B (HARDWARE SET H2)**NOTE: DOOR TO BE NORMALLY CLOSED AND LOCKED AT ALL TIMES. VALID KEY OR
CREDENTIAL REQUIRED FOR ACCESS. FREE EGRESS AT ALL TIMES.

HARDWARE GROUP NO. H7

FOR USE ON MARK/DOOR #(S):

REESE 116

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PASSAGE SET	ND10S RHO	626	SCH
1	EA	WALL STOP	WS406/407CCV	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. H8

DOOR HARDWARE

08 7100 - 16

FOR USE ON MARK/DOOR #(S):

REESE – 116A
ELECTRICAL

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	ND80TD RHO	626	SCH
1	EA	CONVENTIONAL CORE	23-030 EV D	626	SCH
1	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	GASKETING	188S-BK	S-BK	ZER

HARDWARE GROUP NO. H9

FOR USE ON MARK/DOOR #(S):

REESE
DOOR 335A

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	ND80TD RHO	626	SCH
1	EA	CONVENTIONAL CORE	23-030 EV D	626	SCH
1	EA	WALL STOP	WS406/407CCV	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. H10

FOR USE ON MARK/DOOR #(S)

STORRS 230-4**STORRS 230-5 (IF ALTERNATE 3A IS NOT TAKEN ONLY).**

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	<u>RE-USE EX. HINGES FROM EX. DOOR. ALIGN WITH FRAME.</u>	652	IVE
4	EA	<u>FIRE EXIT DEVICE</u>	<u>98NL-F X 996L-NL-R&V-06-425-SNB (QTY-2)</u>	<u>US26D</u>	<u>VO</u>
4	EA	<u>RIM CYLINDER HOUSING</u>	<u>20-079</u>	<u>626</u>	<u>SC</u>
1	EA	CONVENTIONAL CORE	23-030 EV D RESTRICTED KEYWAY	626	SCH
1	EA	CLOSER	4040 XP <u>REG</u> Mount push side	AL	LC
1	EA	WALL STOP	<u>REUSE EX.</u>	626	IVE
1	EA	<u>DOOR SEAL</u>	<u>188SBK 1 X 36" 2 X 84"</u>	<u>GRY</u>	<u>ZE</u>
3	EA	<u>DOOR SILENCERS</u>		<u>GRY</u>	<u>IV</u>

ACCESS CONTROL:

STORRS 230-4: USE PIM INSTALLED IN THIS CONTRACT AND LISTED UNDER DOOR STORRS DOOR 222B (HARDWARE SET H2).

STORRS 230-5: USE PIM INSTALLED IN THIS CONTRACT AND LISTED UNDER DOOR STORRS DOOR 222B (HARDWARE SET H2).

END OF SECTION