

SECTION 08110
STEEL FRAMES

PART 1 GENERAL

1.1 SUMMARY

- A. Contract Conditions: Work of this Section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this Specification and accompanying Drawings.
- B. Related Sections:
 - 1. Sealants: Section 07910.
 - 2. Wood Doors: Section 08210.
 - 3. Builders Hardware: Section 08710.
 - 4. Painting: Section 09900.
- C. References:
 - 1. Comply with "Recommended Specifications, Standard Steel Doors & Frames, SDI 100, published by Steel Door Institute, 712 Lakewood Center North, 14600 Detroit Avenue, Cleveland, Ohio 44107, as modified herein.

1.2 SUBMITTALS

- A. Shop Drawings:
 - 1. Furnish manufacturer's published details of standard stock items. Delete any reference which does not apply to the project.
 - 2. Furnish detailed drawings of variations from standards, including those required to secure fire labels.
 - 3. Indicate door core, frame profile, frame corner detail, hardware preparation, detail of glazing, door edge, anchor detail.
- B. Submit independent laboratory test results for sound rated door systems to indicate sound rating base on ASTM E90.
- C. Submit manufacturer's certification indicating steel doors and frames comply with governing standards, fire labels or other standards required.

1.3 QUALITY ASSURANCE

- A. Acceptable Manufacturers:
 - 1. Standard Steel Doors and Frames: Member of Steel Door Institute, or approved, welded unit type frames.
- B. Conform with requirements of SDI-100 and SDI-105.

- C. Fire Labels:
1. Provide Underwriters labels on doors and frames where and of Class noted.
 2. Rated doors shall comply with 1997 UBC testing standards 7-2.
 3. Modify these Specifications and Architect's details as required to secure labels.
 4. Fire rated door and frame assemblies to conform to UL 10B.
 5. Install fire rated assemblies in conformance with NFPA 80.
 6. All doors and frames, where scheduled, shall bear the "S" smoke label and notation that they comply with UBC 7.2. Coordinate hardware requirements with finish hardware supplier to insure that an approved smoke seal is provided.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Frames:
1. Welded construction with mitered corners.
 2. Jamb Anchors:
 - a. Special type where detailed, standard type elsewhere.
 - b. No fewer than 4 anchors per jamb.
 3. Interior frames: 16 gauge up to 5' wide, 14 gauge over 5' wide.
 4. Exterior frames: 14 gauge, with ASTM A 525 G60 galvanizing.
 5. Glazed Openings:
 - a. Provide framing for relights as indicated.
 - b. Provide glazing stops for relights, the stops to be secured at 12" intervals with countersunk sheet metal screws.
- B. Finish:
1. Interior, Rust inhibiting primer.
 2. Exterior and wet locations, galvanized prior to primer.
 3. Shop finish: Clean, treat and prime paint all work with rust inhibiting primer compatible with finish paint specified in Division 9.
 4. Provide asphalt emulsion sound deadening coating for non-rated fire openings on concealed frame interiors.
 5. Provide Thermafiber Sound Attenuation Fire Blanket (SAFB) nominal 2.5 lb/cu. Ft. density in all fire labeled frame interiors.
- C. Fire rated: UL labeled, fire rated assembly where required.
- D. Hardware Preparation:
1. Prepare frames to receive scheduled hardware, including cutouts, reinforcing, drilling, and tapping.
 2. Reinforcement to be 12 gauge minimum.
 3. Door Frames, 3/16" by full width by 11" steel plate welded to frame reinforcement for hinge pockets, removable mullion heads and closures.

PART 3 EXECUTION

3.1 INSTALLATION

A. Steel Frames:

1. Install frames in accurate location, plumb, and level.
2. Fire labeled frames shall be installed in accordance with ANSI/NFPA-80, most recent edition.
3. Anchor in accordance with manufacturer's recommendations and reviewed shop drawings.
4. Fit doors to frames with uniform clearance, not more than 3/16" at head and jamb; clearance at sills as directed.

B. Touch-up damaged coatings and leave ready to receive finish painting.

END OF SECTION 08110

SECTION 08210
WOOD DOORS

PART 1 GENERAL

1.1 SUMMARY

- A. Contract Conditions: Work of this Section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this Specification and accompanying Drawings.
- B. Related Sections:
 - 1. Steel Door Frames: Section 08110.
 - 2. Builders Hardware: Section 08710.
 - 3. Painting and Finishing: Section 09900.

1.2 SUBMITTALS

- A. Certificates:
 - 1. Certificate or letter from manufacturer, certifying that wood doors meet or exceed current AWI and NWWDA Standards.
 - 2. Test results form independent testing laboratory to indicate that wood doors have successfully passed the 500,000 cycle slam test.
 - 3. Test results form independent testing laboratory to indicate that wood doors meet or exceed ANSI Standards for impact resistance.
 - 4. Copies of manufacturer's test results from independent testing laboratory for fire rated and sound rated doors.
- B. Shop Drawings:
 - 1. Furnish manufacturer's published details of standard stock items. Delete any reference which does not apply to the project.
 - 2. Furnish detailed drawings of variations from standards, including those required to secure fire labels.
 - 3. Indicate door core, hardware preparation, detail of glazing, door edge.
- C. Samples:
 - 1. Submit 4" x 4" samples of manufacturer's standard finish colors on specified wood species.

1.3 QUALITY ASSURANCE

- A. Acceptable Manufacturers
 - 1. Model numbers listed hereinafter are taken from the catalog of Vancouver Door Company, P.O. Box 207, Puyallup, Washington, establish quality but are not restrictive.
 - 2. Similar and equal products of Eggers Industries, Graham Architectural Wood Doors, Oregon Door, Inc, V.T. Industries, and Lynden Door may be submitted, subject to Architect's approval.
 - 3. Stile and Rail Doors are manufactured by Simpson Door Company or approved.
- B. Reference Standard:

1. NWMA Standard I.S. 1-73, published by National Woodwork Manufacturer' Association, as applicable.
 2. AWI - Quality Standards of Architectural Woodwork Institute.
 - a. Type 1 Swing Doors: Meet or exceed AWI 1300 PC-7.
 - b. Type 3 Swing Doors: Meet or exceed AWI 1300 FD-1.
- C. Temperature Rise
1. Provide doors with a 450 degree temperature rise rating at all interior stair doors and as noted in the door schedule.
- D. Smoke Seal
1. All doors, where scheduled, shall bear the "S" smoke label and notation that they comply with UBC 7.2.
 2. Coordinate hardware requirements with finish hardware supplier to insure that an approved smoke seal is provided.
- 1.4 PRODUCT DELIVERY & WARRANTY
- A. Factory Treatment
1. Factory seal top and bottom edge of each door with 2 coats clear sealer.
 2. Individually package each door for complete protection.
- B. Storage
1. Stand vertically with 2 X 4 lumber, skid to prevent contact with floor.
 2. Under bottom door and over top of stack provide appropriate materials as required to protect door surfaces.
 3. Store doors in area where there will be no great variation in heat, dryness, or humidity.
- C. Handling
1. Handle doors at all times in a manner to protect all surfaces from damage.
 2. Do not drag doors across one another.
- D. Warranty
1. Furnish manufacturer's guarantee warranting each door for the term of years stated below.
 2. Include replacement of doors with defective materials or labor, to be replaced without additional cost to the Owner.
 3. Include removal, refinishing, and rehangng of doors with defective surfaces and finishing, without additional cost to the Owner.

PART 2 PRODUCTS

2.1 GENERAL

- A. Glass & Door Edges:
1. Make provision for glass where indicated.
 2. Provide wood glass stops of same wood species as face veneers.
 3. Where ceramic glass is scheduled, retain with metal clips, meeting code requirements, concealed within the wood stops.
 4. Long edges of door: Same species as face veneers.

- B. Grades & Species of Hardwood Door Faces
 - 1. Unless noted otherwise, as follows: Premium Grade.
 - 2. Grade: NWMA Sound.
 - 3. Species: Plain sliced white maple.
- C. Louvers
 - 1. Where louvers are scheduled, provide of extruded aluminum with statuary bronze finish, Airlite Type T685, Panelouvre Model M242A, or approved, 24" x 12" size.
 - 2. Install louvers at door factory with wood stops of same species as face veneers.
- D. Re-Lights
 - 1. Where glass re-lights are scheduled, provide steel stop complying with fire rating of door.
 - 2. Install re-light with wood stops of same species as face veneers to conceal steel stop.

2.2 WOOD DOORS

- A. Swing Doors, Type 1: (transparent finish)
 - 1. Solid Particle Board Core Door: Vancore 520P (Institutional) or approved.
 - 2. Fire Classification Rating:
 - a. 20 minutes when installed in an approved fire-rated frame.
 - b. Meet requirements of ICBO Report No. 2850.
 - c. Rated doors shall comply with UBC testing standards 7-2.
 - 3. Faces: Refer to Article 2.1, Paragraph B., above.
 - 4. Warranty: Life of original installation for interior locations.
- B. Swing Doors, Type 2: (painted finish)
 - 1. Solid Particle Board Core Door: Vancore 520P (Institutional) or approved.
 - 2. Fire Classification Rating:
 - a. 20 minutes when installed in an approved fire-rated frame.
 - b. Meet requirements of ICBO Report No. 2850.
 - c. Rated doors shall comply with UBC testing standards 7-2.
 - 3. Face: Birch veneer.
 - 4. Warranty: Life of original installation for interior locations.
- C. Swing Doors, Type 3:
 - 1. Mineral Solid Core fire Doors: Vancore 790, or approved.
 - 2. 1 ½ hour, "B" UL Label.
 - a. Rated doors shall comply with UBC testing standards 7-2.
 - 3. Faces: Refer to Article 2.1, Paragraph B., above.
 - 4. Warranty: Life of original installation for interior locations.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Comply with NWMA I.S.-1 and AWI quality standard. Pre-fit doors to frames. Pre-machine doors for hardware listed on final schedules. Factory bevel doors.

- B. Install doors with not more than 3/16" clearance at head and jambs, 1/4" at bottom. Comply with NFPA 80 for rated assemblies.
- C. Adjust, clean, and protect.

END OF SECTION 08210

SECTION 08310
ACCESS DOORS

PART 1 GENERAL

1.1 SUMMARY

- A. Contract Conditions: Work of this Section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this Specification and accompanying Drawings.
- B. Provide access doors where indicated and where required for access to valves, controls, and concealed items requiring maintenance. Panels shall be of same fire resistive rating as assembly in which they are installed.
- C. Related Sections:
 - 1. Gypsum Board: Section 09250.
 - 2. Painting: Section 09900.

1.2 SUBMITTALS

- A. Shop Drawings:
 - 1. Show dimensions, fabrication details, required clearances, and head and jamb conditions.

1.3 QUALITY ASSURANCE

- A. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Coordinate with work of other trades affecting or affected by work of this Section.
- C. Regulatory Agency: Fabricate panels where scheduled to be fire resistive, in accordance with Underwriters Laboratories requirements. Affix UL acceptance label on each piece.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Access Panels:
 - 1. Manufacturer: Milcor, Miami-Carey, Bilco, Cesco Products, or approved.
 - 2. Materials: Steel.
 - 3. Finish: Rust inhibiting primer specified in Section 09900.
 - 4. Type: Satisfy conditions of use.
 - 5. Size: Indicated on Drawings.
 - 6. Minimum UL Fire Rating: Indicated on Drawings.
 - 7. Hinges: Concealed type.
 - 8. Locks: Metal cam.
 - 9. Extent of Work: Provide where shown on Drawings.

PART 3 EXECUTION

3.1 EXISTING CONDITIONS

A. Examination:

1. Verify that openings to receive panels are square, plumb, and accurately sized and located.
2. Prior to start of work, notify Contractor about defects requiring correction.
3. Do not start work until conditions are satisfied.

3.2 COORDINATION

- #### A. Protect work of other trades against damage and discoloration caused by work of this Section.
- #### B. Corrosion Protection: Protect contacting dissimilar materials against electrolytic corrosion.

3.3 INSTALLATION

A. Access Panels:

1. Comply with manufacturer's installation instructions and approved shop drawings.
2. Accurately locate and anchor members, plumb, level, true, rigid, secure, square and with proper clearances.
3. Coordinate installation and field finishing with work of other trades.
4. Adjust moving parts, and hardware to operate satisfactorily at time of Substantial Completion and during warranty period.

3.4 PRODUCT CLEANING AND REPAIR

A. General:

1. Including work of other trades, clean, repair and touch up, or replace when directed, products which have been soiled, discolored, or damaged by work of this Section.
2. Leave surfaces ready for painting and finishing.
3. Remove debris from project site upon completion of work or sooner, if directed.

END OF SECTION 08310

SECTION 08410
ALUMINUM ENTRANCES AND STOREFRONT

PART 1 GENERAL

1.1 SUMMARY

- A. Contract Conditions: Work of this Section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this Specification and accompanying Drawings.
- B. Provide aluminum entrances and storefront:
 - 1. Exterior entrance doors and frames.
 - 2. Exterior storefront type framing system.
 - 3. Interior partitions, doors and frames.
 - 4. Operable sash installed within storefront framing.
 - 5. Aluminum sunshades.

1.2 SUBMITTALS

- A. Shop Drawings:
 - 1. Indicate materials, profiles, thickness, dimensions, fasteners, supports, anchors, hardware reinforcement, and other pertinent details.
 - 2. Take field measurements before fabrication where possible; do not delay job progress.
- B. Delegated-Design Submittal: For aluminum-framed storefront indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 - 1. Submit submittals as "Deferred Submittals". Transmit a copy of each submittal indicating agency approval to the Architect for record.
 - 2. Design Data: Provide framing member structural and physical characteristics and engineering calculations, and identify dimensional limitations.

1.3 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design aluminum-framed storefronts, including comprehensive engineering analysis by a qualified professional engineer licensed in the State of Oregon, using performance requirements and design criteria indicated.
- B. Wind Loads: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330/E330M, using loads 1.5 times the design wind loads and 10 second duration of maximum load.
 - 1. Design Wind Loads: comply with requirements of ASCE 7 and Structural Drawings.
 - 2. Member Deflection: Limit member deflection to 1/175 when subject to the design wind load and a maximum permanent set of 0.1 percent or 0.2 percent of span after testing to 150 percent of design wind load in any direction, with full recovery of glazing materials.

- C. Water Penetration Resistance: No uncontrolled water on interior face, when tested in accordance with ASTM E331 at pressure differential of 8 psf. Water penetration is defined as any water infiltrating the system or appearing on any interior surface from sources other than condensation. Water controlled by flashing and gutters that is drained to the exterior and cannot damage adjacent materials or finishes is not considered water leakage.

1.4 QUALITY ASSURANCE

- A. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Installers Qualifications:
 - 1. Installation shall be an experienced installer approved by the manufacturer of the items specified herein.
 - 2. Installer shall have a minimum of 5 years experience installing systems.
 - 3. Submit written proof of qualifications to Architect prior to any work being performed.
- C. Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this section; require attendance by all affected installers, review preparation, installation procedures, coordination, testing requirements and scheduling necessary for related work.
- E. Provide installer warranty to correct defective Work within a five year period after the Date of Substantial Completion.
- F. Provide 5 year warranty for anodized finish and 10 year warranty for Kynar type finish. Provide manufacturer warranty for above-referenced period from Date of Substantial Completion against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.1 ALUMINUM ENTRANCES AND STOREFRONTS

- A. General:
 - 1. Aluminum entrances and storefronts for this Work are based on use of Kawneer products.
 - 2. All aluminum entrances and storefronts shall be those upon which design was based, the equal products of EFCO Corporation; or Oldcastle BuildingEnvelope
- B. Exposed Aluminum, Fasteners, and Internal Parts:
 - 1. Extruded Aluminum: Alloy and temper best suited to meet structural requirements and provide uniform texture and color when finished
 - 2. Fasteners and Internal Parts:
 - a. Aluminum, stainless steel, or plated to resist corrosion.

- b. Exposed fasteners, when required, shall have same finish as adjacent aluminum being fastened.

C. Fabrication:

1. Joints accurately formed and fitted.
2. Unless otherwise specified, secure with mechanical fasteners wherever possible and weld only on concealed surfaces.
3. No discoloration or other visible evidence of welding on exposed surfaces.
4. Make cut-outs accurately and reinforce to insure adequate strength.
5. Finish work strong, rigid, neat in appearance, and free from defects.

D. Finish:

1. All exposed aluminum: Dark bronze anodized.

2.2 STOREFRONT SYSTEM

A. Framing: Basis of Design Products for Insulating Glazing:

1. 2" x 6" extruded aluminum framing, Kawneer Trifab 601T with 601TCG037 Sill Flashing.
2. Equal products of EFCO, a Pella Company and Oldcastle BuildingEnvelope are also approved.

B. Glazing and hardware:

1. Provide for glass as indicated in Section 08800, flush glazed on all sides with butyl rubber or vinyl gaskets on both sides of glass.
2. Make proper provision for hardware specified in "Builders Hardware".

C. Asphaltic Coating Compound:

1. FS TT-C-494, Type II.

D. Other Materials:

1. All other materials, not specifically described but required for a complete and proper installation of storefront system, shall be new, first quality of their respective kinds, and subject to approval of the Architect.

2.3 ALUMINUM ENTRANCES

A. Door type:

1. 2" thick, weather stripped with compression and sliding weather stripping.
2. Vertical Stiles: 5" wide.
3. Top Rail: 6" high.
4. Bottom Rails: 10" high.
5. Glazing Stops: Square.
6. Finish: Same as Storefront.
7. Basis-of Design Products:
 - a. EFCO, a Pella Company; Series D518 Durastile Heavy Duty.
 - b. Kawneer North America; 500 Heavy Wall Entrances.
 - c. Oldcastle BuildingEnvelope; Rugged Stile.

B. Glazing Moldings and Weather-stripping:

1. Provide glazing moldings as required for 1" glass, glazed under work of another Section.
2. Weather-stripping:

- a. Weather-strip doors on 3 sides with manufacturer's standard weather-stripping installed in the door/or frame.
 - b. Provide adjustable astragals where required at the meeting stiles of pairs of doors.
 - c. Weather-strip bottom with manufacturer's standard weather-strip applied to door rail.
- C. Hardware:
- 1. Make proper provisions for hardware specified in Section 08 71 00 Builders Hardware.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Storefront System and Entrances:
- 1. Install by skilled mechanics in accordance with manufacturer's current recommendations and approved shop drawings.
 - 2. Set plumb, square, level, proper elevation and plane, and in proper alignment with adjacent work.
 - 3. Firmly anchor all members, using anchoring devices required to ensure positive attachment of the members for long life under hard use.
 - 4. Finished work rigid, neat in appearance, and free from defects.
 - 5. Upon completion, lubricate hardware and adjust doors to operate smoothly, without binding.
- B. Protection:
- 1. Wherever aluminum is in contact with steel, concrete, or other material potentially creative of electrolytic action, provide all required permanent isolation of the aluminum by back painting with Asphaltic Coating Compound, 1-1/2 mil dry film thickness to contacting face of aluminum.
 - 2. Protect all finished surfaces as necessary to prevent damage during progress of the Work.
- C. Cleaning:
- 1. After full completion and just before final acceptance, remove all protective materials and clean exposed surfaces in accordance with manufacturer's recommendations; do not use abrasives or harmful cleaning agents.

END OF SECTION 08410

SECTION 08710
BUILDERS HARDWARE

PART 1 GENERAL

1.1 SUMMARY

- A. Contract Conditions: Work of this Section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this Specification and accompanying Drawings.
- B. Provide and install all hardware for proper operation, fastening and locking of moving parts shown on drawings, whether or not listed in hardware schedule.
- C. Related Sections:
 - 1. Steel Frames: Section 08110
 - 2. Wood Doors and Frames: Section 08210.

1.2 SUBMITTALS

- A. Product Data: Manufacturer's technical data for each item of hardware. Include information required to show compliance with specified requirements, and instructions for installation and maintenance.
- B. Hardware Schedule:
 - 1. Submit five copies of a complete vertical schedule of hardware, listing each opening, door size, hand, frame material and door label.
 - 2. State keying, material, finish and manufacturers number for each item.
 - 3. Obtain approval before proceeding.
 - 4. Approval of schedule does not relieve Contractor of responsibility for furnishing all necessary hardware.
 - 5. Coordinate with doors, frames, and related work to ensure proper size, thickness, hand, function and finish.
 - 6. Organize hardware schedule into groups indicating complete designations of every item required for each door opening. Include the following:
 - a. Type, style, function, size and finish of each hardware item.
 - b. Name and manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of hardware group referenced to plans and schedules.
 - e. Explanation of abbreviations, symbols and codes contained in the schedule.
 - f. Mounting locations.
 - g. Door and frame sizes and materials.
 - h. Keying information.
- C. Samples: Upon request prior to submittal of the final hardware schedule and ordering hardware, submit one sample of each type of exposed hardware unit, finish as specified, and tagged with description for coordination with schedule. Samples will be returned to supplier and if undamaged, may be used in the work.
- D. Templates: Furnish templates to each fabricator of doors, frames, and other work to be factory prepared for the installation of hardware.

1.3 QUALITY ASSURANCE

- A. Provide products of acceptable manufactures which have been in satisfactory use in similar service for five (5) years. Obtain each type of hardware from a single manufacturer. Use experienced installers.
- B. Representative:
 - 1. Hardware supplier shall be or have in his employ a member of the American Society of Hardware Consultants or a person who is the equivalent thereof.
 - 2. This individual shall be available for consultations at all times and shall make one final inspection to insure that all hardware has been properly installed according to the manufacturer's recommendations.
- C. Supplier Qualifications:
 - 1. A recognized architectural hardware supplier who has 3 years experience distributing and servicing Contract Architectural Hardware.
 - 2. Have in employ for minimum of 2 years a qualified Hardware Consultant.
 - 3. Authorized distributor for lock manufacturing company, established purchasing agreements with manufacturers of various specialty products specified.
 - 4. The following Distributors meet these requirements and are approved to bid the Work:
 - a. Bell Hardware; Salem, Oregon.
 - b. Benson Industries; Portland Oregon.
 - c. Chown Hardware; Portland, Oregon.
 - d. Mid-Valley Glass & Millwork Eugene, Oregon
 - e. or approved.
- C. Provide a 5 year warranty on all products, except 10 year warranty required on closers.
- D. Codes:
 - 1. All hardware shall comply with applicable local and state fire and current building codes.
 - 2. Where doors carry a UL label for fire ratings, all hardware applied to that door shall comply with that rating.
 - 3. Doors installed for smoke protection shall receive hardware as recommended by NFPA or as approved by Underwriters' Laboratories.
- E. It is the responsibility of this section to coordinate the smoke seals with the wood and hollow metal door manufacturers to insure that the assembly meets UBC 7.2 requirements for a smoke assembly.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Tag each item or package separately, with identification related to final hardware schedule, and include basic installation instructions.

- C. Inventory hardware jointly with representatives of supplier and installer until each is satisfied that count is accurate.
- D. Deliver individually packaged hardware items at the proper times to the required locations for installation.
- E. Provide secure lockable storage for hardware delivered to the project.

1.5 FASTENERS

- A. All exposed fasteners shall be phillips head machine/wood screws.

PART 2 PRODUCTS

2.1 MATERIALS

A. Approved Manufacturers:

- 1. The numbers listed in the hardware schedule are taken from catalogs of the following manufacturers.

2. Hardware item:	Specified:	Substitutions:
a. Butts	McKinney	none
b. Locksets	Schlage	none
c. Cylinders interior	Medeco	none
d. Cylinders exterior	Medeco	none
e. Closers	LCN	none
f. Kickplates	Rockwood	Ives
g. Panics	Von Duprin	none
h. Flushbolts	Ives	Glynn Johnson
i. Overhead Stops	ABH	Glynn Johnson
j. Stops	Ives	none
k. Thresholds	Pemko	NGP
l. Seals	Zero	none
m. Intumescent seals	Zero/Pemko	none

2.2 SCHEDULED HARDWARE

- A. General: Requirements for design, grade, function, size and other qualities of each type of hardware is specified and listed in the Hardware Schedule at the end of this Section.

2.3 MATERIALS & FABRICATION

A. General:

- 1. Hand of Door: As indicated.
- 2. Do not use products which have manufacturer's name or trade name displayed in a visible location, except in conjunction with UL labels. Manufacturers identification will be permitted on rim of lock cylinders.
- 3. Base Metals: Manufacturer's standard metal alloy, composition, temper and hardness. All exterior hardware to be non-ferrous base metal.
- 4. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self tapping sheet metal screws.

5. Provide concealed fasteners for hardware exposed when door is closed. Do not use thru-bolts except where it is not feasible to adequately reinforce the work.
- B. Hinges, Butts, and Pivots:
1. Templates: Except for hinges and pivots to be installed into wood doors and frames, provide template units.
 2. Screws: Furnish flat head machine screws for installation of units, except furnish flat head wood screws for installation into wood. Finish screw heads to match hinges or pivots.
 3. Hinge Pins:
 - a. Steel Hinges: Steel Pins.
 - b. Non-Ferrous Hinges: Stainless steel pins.
 - c. Exterior Doors: Non-removable pins.
 - d. Out-Swing Corridor Doors: Non-removable pins.
 - e. Interior Doors: Provide non-removable pins at all doors.
 - f. Tips: Button tip, finished to match levers.
 - g. Quality: Not less than 3 for doors up to 90" high, and 1 additional for each 30" of additional height.
 - h. Provide extra heavy weight hinges for doors 40 " wide and over and where scheduled.
 - i. Provide 4-1/2" x 4" up to 40" wide and 5" x 4-1/2" over 40" wide. check details and provide width sufficient to clear trim when door opens 180 degrees.
- C. Lock Cylinders and Keying:
1. Provide a high security Medeco key system that is an extension of the owners existing system. Masterkey and grandmasterkey to the owners requirements. The keys and keying shall be available from a local (within 100 mile radius of Albany, Oregon) distributor.
 2. Furnish construction cylinders as required by the general contractor to provide security to the project.
 3. Metals: Construct lock cylinder parts from brass/bronze, stainless steel or nickel silver.
 4. Comply with Owner's instructions for masterkeying and provide individual change key for each lock not designated to be keyed alike
 5. Key Material: Nickel silver, provide 2 per each cylinder.
 6. All keys are to be shipped directly to Owners by registered delivery.
- D. Locks, Latches and Bolts:
1. Locksets and Latchsets: "ND95" series cylindrical locksets with Rhodes levers.
 2. Strikes: Manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set.
 3. Lock Throw: 5/8" minimum. Comply with UL requirements for fire rated openings.
 4. Flush Bolt Heads: Minimum 1/2" diameter brass, bronze or stainless steel rods, with minimum 12" long rods for doors up to 7'-0" in height. Provide longer rods for doors exceeding 7'-0" in height.
- E. Closers and Door Control Devices

1. Surface door closers shall be standard duty type with cast iron bodies and full aluminum covers.
 2. Closers shall have separate valves for closing speed, latch speed and back check adjustment.
 3. Closers shall be fully adjustable for sizes 1 through 5. Individually set spring tension at each door. Opening force shall comply with ADA and Oregon UBC requirements.
 4. All doors must be reinforced for the closer. Thru bolts will not be allowed.
 5. All closers to be adjusted for 180 degree opening regardless of swing range of door.
- F. Exit Devices:
1. Exit devices shall be Von Duprin 99 series with stainless steel finish to match the Owners standards.
 2. Exit devices shall be UL listed for life safety. Exit devices for labeled fire doors shall be UL listed as fire exit hardware. All exit devices shall be listed by State Fire Marshall.
 3. Exit devices mounted on mineral core or particle board core fire doors shall be mounted to blocking provided inside the door. Exposed thru bolts will not be allowed.
 4. Exit devices shall be plated in architectural hardware finishes to match that of locksets.
 5. Shim kits shall be provided as required to clear any possible interference with light kits.
- G. Door Trim:
1. Fasteners: Phillips Head exposed fasteners; either machine screws or self tapping screws.
 2. Fabricate edge trim of stainless steel, not more than 1/2" nor less than 1/16" smaller in length than door dimension.
 3. Kick Plate Size: Provide kick plates 10" tall x 2" less than door at single doors, 1" less than door width at pairs of doors unless otherwise indicated.
- H. Thresholds: Standard metal threshold of type, size and profile indicated. Fabricate to accommodate door hardware and to fit door frames.
- I. Gasketing: Provide gasketing material at all doors that are scheduled to have a fire label or a smoke label. All gasketing shall comply with UBC-97 for positive pressure compliance. Smoke gasketing must be coordinated to comply with the wood and hollow metal door positive pressure labeling procedure. The required products may differ from the specified products.
- 2.4 HARDWARE FINISHES
- A. Provide matching finishes for hardware units at each door or opening, to the greatest extent possible. Reduce color and texture differences as much as commercially possible.
- B. All plated hardware to be US-26D (626 finish) satin chrome. Closer covers shall be aluminum similar to 626 finish.

PART 3 EXECUTION

3.1 INSPECTION

- A. Verify that conditions are satisfactory for the installation of finish hardware. Do not commence the installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. It is this Section's responsibility to contact the factory representative through the hardware supplier for initial instructions at the jobsite for all exit devices, floor and surface door closers, mortise locksets and any other hardware requiring special installation knowledge, i.e. electrical or electronic hardware.
- B. Hardware Locations:
 - 1. Hinges:
 - a. Bottom Hinge: 10" from door bottom to bottom of hinge.
 - b. Top Hinge: 5" from frame head to top of hinge.
 - c. Center Hinge: Center between top and bottom hinge.
 - d. Additional Hinge: 6" from bottom of top hinge to top of additional hinge.
 - 2. Locksets and Latchsets: 40" from floor to center of strike.
 - 3. Push Bars: 45" from floor to center of plate.
 - 4. Pull Plates: 42" from floor to center of plate.
 - 5. Exit Devices: 40" from floor to center of pad or to template.
 - 6. Deadlock Strike: 48" from floor, center of strike.
- C. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished, coordinate removal, storage and reinstallation or application of surface protection with Section 09900, "Painting". Do not install surface mounted items until finishes have been completed on the substrate.
- D. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as required for proper installation and operation.
- E. Drill and countersink units which are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- F. Set thresholds for exterior doors in full bed of butyl rubber or polyisobutylene mastic sealant.

3.3 ADJUST AND CLEAN

- A. Adjusting and Inspection:
 - 1. Adjust moving parts to operate freely, to ensure proper operation or function, without binding, at time of substantial completion. Make further adjustments, when required during the five year warranty period.
 - 2. Replace units which cannot be adjusted to operate freely and smoothly as intended.
 - 3. Contact hardware supplier prior to final inspection and obtain approval of proper installation and adjustment.

4. The Hardware Consultant shall inspect the project prior to occupancy and certify proper installation and operation.
 5. Make final check and adjustment of hardware just prior to substantial Completion. Clean operating items as required to restore proper function and finish. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Instruct Owner's personnel in proper adjustment and maintenance of hardware and finishes during the final adjustment.
- D. Continued Maintenance and Service: Six months following Substantial Completion of project, the installer and hardware representative shall return to the project and re-adjust hardware items. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures. Replace hardware items which have deteriorated or failed due to faulty design, materials, or installation.

3.4 SCHEDULE

- A. Hardware Groups: Provide finish hardware for each door as scheduled and specified.

HW-1

8	EA	HINGE	5BB1HW 5 X 4.5 NRP	630	IVE
2	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	REMOVABLE MULLION	KR4954 STAB	689	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL-XP98-DT-L/TRIM-CON	626	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL-XP98-NL-L/TRIM-CON	626	VON
1	EA	MULLION STORAGE KIT	MT54	689	VON
1	EA	CYLINDER	PROVIDE WALL BACKING IC MORTISE CYLINDER-COORDINATE WITH OWNER	626	MED
1	EA	CYLINDER	IC RIM CYLINDER-COORDINATE WITH OWNER	626	MED
2	EA	VANDAL RESISTANT PULL	VRP30 MATCH PANIC CUSTOM FINISH	WHT	ROC
1	EA	SURFACE CLOSER	4040XP CUSH WMS	689	LCN
1	EA	SURF. AUTO OPERATOR	4642 WMS RHR LEAF	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	695	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN
1	EA	WEATHER RING	8310-801	PLA	LCN
1	EA	ACTUATOR, JAMB MOUNT	8310-818T	630	LCN
1	EA	SURFACE MOUNT BOX	8310-819S	689	LCN
1	EA	ACTUATOR, WALL MOUNT	8310-853T	630	LCN
1	EA	FLUSH MOUNT BOX	8310-867F	689	LCN
2	EA	WALL STOP	WS406/407CVX	630	IVE
2	EA	MULLION SEAL	5110BL	BLK	PEM
2	EA	DOOR SWEEP	18061CNB	CL	PEM

1	EA	THERMAL BREAK THRESHOLD	273X3AFGK COORDINATE WITH ARCHITECTURAL DETAILS	AL	PEM
2	EA	WIRE HARNESS	CON-26P FROM EPT TO ELECTRIFIED HARDWARE		SCH
2	EA	WIRE HARNESS	CON-6W FROM INCOMING POWER SUPPLY		SCH
1	EA	POWER SUPPLY	PS904 900-4RL 900-BBK ACCESS CONTROL - WORK OF DIVISION 28 PROVIDE FACTORY POINT TO POINT WIRING DIAGRAMS PROVIDE RISER DIAGRAMS SEALS BY DOOR SUPPLIER		VON

120VAC TO POWER SUPPLY AND DOOR OPERATOR. HOME RUN FROM POWER SUPPLY TO QEL DEVICE AS FOLLOWS: 200FT/18 AWG, 320FT/16 AWG, 500FT/14 AWG, OR 800FT/12 AWG.

HW-2

3	EA	HINGES	T4A3386 NRP 4-1/2" X 4-1/2"	MC
1	EA	PULL	106 x 70C 4x16	ROC
1	EA	PUSH	70C 4x16	ROC
1	EA	CLOSER	4040	LCN
1	EA	WALL STOP	WS 407CCV	IV
1	EA	KICK PLATE	K1050F 10" x 2" LDW	ROC
1	EA	GASKET	PS-074	STE

END OF SECTION 08710

SECTION 08800
GLASS AND GLAZING

PART 1 GENERAL

1.1 SUMMARY

- A. Contract Conditions: Work of this Section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this Specification and accompanying Drawings.
- B. Provide glass and glazing for all applications, including without limitation, windows, glazed doors, transoms, and sidelights, interior glazed partition walls, and mirrors.

1.2 QUALITY ASSURANCE

- A. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Installer's Qualifications:
 - 1. Provide at least one person who shall be thoroughly trained and experienced in the skills required, who shall be completely familiar with the referenced standards and the requirements of this Work, and who shall personally direct all installation performed under this Section of these Specifications.
- C. Conform to Flat Glass Marketing Association (FGMA) Glazing Sealing Systems Manual for glazing installation methods.
- D. Approved Manufacturers:
 - 1. Except for Fire Protection Glass (Contraflam), and mirrors, all glass as manufactured by PPG Industries, Inc., or approved.
- E. Environmental Conditions:
 - 1. Do no glazing when temperature is lower than 40 deg. F. or when dust or insects are present.
 - 2. Do no glazing in wet weather except under cover.
- F. WARRANTY
 - 1. Laminated glazing is subject to 10 year warranty against delamination, including providing products to replace failed units.
 - 2. Insulated glass is subject to 10 year warranty against edge seal failure, interpane dusting or misting, including providing products to replace failed units.
 - 3. Coated glazing is subject to 10 year warranty against deterioration of coated glass including peeling, cracking and other indications of deterioration of exterior coating, including providing products to replace failed units.
 - 4. Fire Rated Glass Assembly is subject to 5 year warranty from date of shipment by manufacturer.

PART 2 PRODUCTS

2.1 MATERIALS

A. Glazing sheets:

1. Primary glass, Fed. Spec. DD-G-451:
 - a. Clear and tinted float glass.
 - b. Figured/pattern glass.
2. Heat treated glass products, Fed. Spec. DD-G-1403:
 - a. Tempered glass.

B. Safety Glazing:

1. Labeling: Where safety glazing labeling is indicated permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
2. Provide safety glazing at locations defined in Section 2406 of the Oregon Structural Specialty Code and elsewhere as indicated.

C. Glass Schedule:

Type 2T: Insulated Full Tempered

1. Clear float glass, tempered, meeting CSI Standard C1048, 1/4", exterior.
2. Clear float glass, tempered, meeting CSI Standard C1048, 1/4", interior.
3. Glass lights hermetically sealed and separated by spacer and 1/2" dehydrated air space.
4. Low-e coating on #2 surface.
5. Performance criteria (based on PPG Solarban 60):
 - a. Visible light transmittance: 42% min.
 - b. Winter nighttime U-value: 0.29 max.
 - c. Summer daytime U-value: 0.27 max.
 - d. Shading coefficient: 0.30 max.
 - e. Solar Heat Gain coefficient: 0.30 max.

D. Glazing materials:

1. Silicone glazing sealants.
 - a. Structural sealant: Dow Corning 795 or approved.
 - b. Weather seal: Dow Corning or approved.
2. Polysulfide glazing sealant; Sonolastic 2-Part; Sonneborn Building Products or approved.
3. Preformed glazing tapes; Tremco Polyshim Tape or approved.
4. Setting blocks, shims and spacers as required.

PART 3 EXECUTION

3.1 INSTALLATION

A. General:

1. Comply with Reference Standards as modified herein.
2. Recommended materials and methods are mandatory.

3. Inspect framing and report unsatisfactory conditions in writing.
 4. Comply with FGMA "glazing Manual" and manufacturer's instructions and recommendations.
 5. Use manufacturer's recommended spacers, blocks, primers, sealers, gaskets, and accessories.
- B. Sealant:
1. Install sealants to provide complete wetting and bond and to create a substantial wash away from glass.
- C. Cleaning and Repair:
1. Remove and replace damaged glass and glazing.
 2. Upon completion, clean excess putty and compound from glass and surrounding work.
 3. Immediately prior to Substantial Completion, wash, polish and protect all glass supplied under this section.

END OF SECTION 08 80 00