

DIVISION VIII - DOORS AND WINDOWS

SECTION 08100 - METAL DOORS AND FRAMES

PART 1 - RELATED DOCUMENTS

- A. General provisions of Contract, General and Special Conditions, and General Requirements apply to this Section.

PART 2 - DESCRIPTION OF WORK

- A. Provide labor, materials, equipment, and services necessary for proper and complete installation of all hollow metal work.
- B. Include all view windows and side lights indicated on Drawings.
- C. Work Specified in Other Sections.
 - 1. Finish Hardware is specified in another Division 8 Section.

PART 3 - LABEL CONSTRUCTION

Where Label Construction is indicated in Door and Frame Schedule, materials and construction of doors and frames shall be in accordance with and bear indicated resistive rating label of Underwriters' Laboratories, Inc.

PART 4 - SUBMITTALS

Submit Shop Drawings for all work, indicating materials, uses, gauges, details of construction, connections to other work, fastenings, and anchors, to Architect for his review. Do not start fabrication until these Drawings are approved.

PART 5 - MATERIALS

- A. Manufacturers offering products complying with requirements include:
 - Steelcraft Mfg. Co.
 - Republic Steel Corporation
- B. Materials used shall be of best quality of their respective kinds.
- C. Steel in general shall be cold rolled stretcher level, prime quality steel, of U.S. Standard gauge as specified under the various headings.
- D. Doors, frames and framed openings exposed to the exterior shall be fabricated of zinc coated steel in the gauges scheduled. The steel shall be hot dipped so as to provide a ductile coating, tightly adherent to the base steel. The zinc coating shall be an A60 coating in accordance with ASTM specification A525 (.6 oz. of zinc per sq. ft. of steel total coverage.)

PART 6 - HOLLOW METAL STEEL DOORS, POLYURETHANE CORE

- A. Physical Properties:
 - "R" Factor: 11.1
 - "U" Factor: .09
 - Compression Strength: 3600 P.S.F.
- B. Doors shall be equal to those manufactured by The Steelcraft Manufacturing Company, Cincinnati, Ohio, and designated as:
LF-18 (1-3/4", 18 gauge steel)
- C. Doors shall be fabricated of:
 - 1. Cold rolled steel, interior.
 - 2. Galvanized steel with a zinc coating of .6 ozs. per square foot total, exterior.
- D. Door shall be flush with edge seams filled and ground smooth.
- E. Doors shall have 1/8" bevel in 2" on hinge and ground smooth.
- F. Doors shall have vertical mechanical interlocking seams on hinge and lock edges.
- G. Doors shall be provided with top and bottom inverted 14 gage steel channels spot welded within the door.
- H. Doors shall be mortised and adequately reinforced for all hardware.
 - 1. Mortised hardware reinforcements shall be drilled and tapped at the factory.
 - 2. Surface applied hardware shall be field drilled by others.
- I. Doors shall be reinforced internally with a 14 gage steel reinforcement for surface closers when specified.
- J. Out swinging exterior doors shall be provided with top caps for protection against weather and with a polyurethane core.
- K. Doors shall be phosphatized and receive one coat of baked on prime paint.

PART 7 - FRAMES

- A. Fabricate frames of 16 ga. steel. Manufacturers offering products complying with the requirements include:
 - Steelcraft Mfg. Co.
 - Republic Steel Corp.
 - Fenestra, Inc.
- B. All frames shall have welded and mitered corners, equivalent to Steelcraft Type D-16. (Issue A).

- C. Frames in stud walls can be KD frames.
- D. Provide suitable anchors for jambs as required by wall construction. Provide a minimum of six (6) jamb anchors and two (2) base anchors per frame. Provide anchors as required for labeled frames.
- E. Reinforcing channels, where called for, shall be 12 gauge reinforcing channel in head.

PART 8 - HARDWARE REINFORCEMENTS

- A. Accurately mortise, reinforce, drill, and tap at factory all work to receive hardware, except do drilling and tapping for door checks and brackets at building.
- B. Reinforcements shall be of ample size and thickness to stiffen work against strain of service required. Reinforcements for locks and escutcheons shall be box type with spring lead contacts for lock cases.
- C. Provide cover boxes in back of all hardware cutouts in combination type frames.

PART 9 - FINISH

- A. All steel hollow metal work shall be phosphatized and receive one coat baked on prime coat.
- B. Each coat shall be baked on and sanded smooth.

PART 10 - INSTALLATION

- A. Set frames in their proper locations, plumb and true and securely braced in position.
- B. Receive, store and protect and be responsible for all doors to be installed hereunder. Report immediately to Contractor shortages, damage, improper preparation, defective finishes and warped doors. Do not install any material not perfect in every respect.
- C. Inspect openings and frames to receive doors. Report damage or discrepancy affecting proper installation of units to Contractor, and have corrective work done in a suitable and satisfactory manner.
- D. Install doors in openings as indicated on Drawings in conformance with shop drawings and hardware schedule. Install doors so they hang plumb and true, with proper clearances using items of hardware scheduled for openings.
- E. Accurately set all frames and thoroughly and rigidly anchor and fasten in place in building construction. Weld drywall anchors to frames.
- F. Check frames before and after walls are constructed to see that they are properly erected.

End of Section

SECTION 08211 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Solid core doors with wood veneer faces.
 - 2. Factory fitting flush wood doors to frames and factory matching for hardware.
 - 3. Glazing stops and preparation of flush doors to receive glazing; glazing specified elsewhere.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Architectural Woodwork: Division 6.
 - 2. Metal Door Frames: Elsewhere in Division 8.
 - 3. Door Hardware: Elsewhere in Division 8.
 - 4. Glass and Glazing: Elsewhere in Division 8.
 - 5. Field Finishing of Wood Doors: Section 09900 - Painting.

1.03 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each type of door, including details of core and edge construction, trim for openings and louvers, and factory-finishing specifications.
- C. Shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for veneer matching and factory finishing and other pertinent data.
 - 1. For factory-machined doors, indicate dimensions and locations of cutouts for locksets and other cutouts adjacent to light and louver openings.
- D. Samples for verification in the form and size indicated below:
 - 1. Corner sections of doors approximately 12 inches (300 mm) square with door faces and edging representing the typical range of color and grain for each species of veneer and solid lumber required.
 - 2. Louvers consisting of blade and frame, 6 inches (150 mm) long, for each material and finish specified.
 - 3. Frames for light openings, 6 inches (150 mm) long, for each materials, type, and finish required.

1.04 QUALITY ASSURANCE

- A. Quality Standard: Comply with the following standard:
 - 1. AWI Quality Standard: "Architectural Woodwork Quality Standards: of the Architectural Woodwork Institute for grade of door, core, construction, finish, and other requirements.
- B. Fire-Rated Wood Doors: Provide wood doors that comply with NFPA 80; are identical in materials and construction to units tested in door and frame assemblies per ASTM E 152; and are labeled and listed by UL, Warnock Hersey, or another testing and inspection agency acceptable to authorities having jurisdiction.
 - 1. Oversized, Fire-Rated Wood Doors: For door assemblies exceeding sizes of tested assemblies, provide manufacturer's certificate stating that doors conform to all standard construction requirements of tested and labeled fire-door assemblies except for size.
 - 2. Temperature Rise Rating: At stairwell enclosures, provide doors that have a temperature rise rating of 450 deg F (250 deg C) maximum in 30 minutes of fire exposure.
- C. Single-Source Responsibility: Obtain doors from one source and by a single manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Comply with requirements of referenced standard and manufacturer's instructions.
- B. Identify each door with individual opening numbers as designated on shop drawings, using temporary, removable, or concealed markings.

1.06 PROJECT CONDITIONS

- A. Conditioning: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during the remainder of the construction period to comply with the following requirements applicable to Project's geographical location:
 - 1. AWI quality standard Section 100-S-11 "Relative Humidity and Moisture Content."

1.07 WARRANTY

- A. General Warranty: Door manufacturer's warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

B. Door Manufacturer's Warranty: Submit written agreement on door manufacturer's standard form signed by manufacturer, Installer, and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup, or twist) more than 1/4 inch (6.35 mm) in a 42-by-84-inch (1067-by-2134-mm) section or that show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 75-mm) span, or do not conform to tolerance limitations of referenced quality standards.

1. Warranty shall be in effect during the following period of time after date of Substantial Completion.

a. Solid Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide doors by one of the following:

1. Solid Core Doors:

- a. Algoma Hardwoods, Inc.
- b. Eggers Industries, Architectural Door Division
- c. Fenestra Corporation
- d. Graham Manufacturing Corp.
- e. Mohawk Flush Doors, Inc.
- f. V-T Industries, Inc.
- g. Weyerhaeuser Co.

2.02 INTERIOR FLUSH WOOD DOORS

A. Solid Core Doors for Transparent Finish: Comply with the following requirements:

1. Faces: See Finish Schedule
2. Grade: Premium
3. Construction: 5 or 7 plies
4. Core: Particleboard core
5. Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.

B. Fire-Rated Solid Core Doors: Comply with the following requirements:

1. Faces and Grade: Provide faces and grade to match non-fire-rated doors in same area of building, unless otherwise indicated.
2. Construction: Manufacturer's standard core construction as required to provide fire-resistance rating indicated.

3. Blocking: Provide composite blocking designed to maintain fire resistance of door but with improved screw-holding capability of same thickness as core and with minimum dimensions as follows:
 - a. 5-inch (125-mm) top rail blocking
 - b. 5-inch (125-mm) bottom rail blocking
 - c. 5-by-18-inch (125-by-450-mm) lock blocks
 - d. 5-inch (125-mm) midrail blocking.
4. Edge Construction: Provide manufacturer's standard laminated-edge construction for improved screw-holding capability and split resistance as compared to edges composed of a single layer of treated lumber.
5. Pairs: Provide fire-rated pairs with fire-retardant stiles that are labeled and listed for kinds of applications indicated without formed-steel edges and astragals.

2.03 LIGHT FRAMES

- A. Wood-Veneered Beads for Light Openings in Fire Doors.

2.04 FABRICATION

- A. Fabricate flush wood doors to comply with following requirements:

1. In sizes indicated for job-site fitting:
 - a. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements of NFPA 80 for fire-resistance-rated doors.
 - b. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory machining.
 - c. Metal Astragals: Pre-matching astragals and formed-steel edges for hardware for pairs of fire-rated doors.

- B. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.

1. Light Openings: Trim openings with moldings of material and profile indicated.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine installed door frames prior to hanging door:

1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
2. Reject doors with defects.

- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Hardware: For installation see Division 8 Section "Finish Hardware."
- B. Manufacturer's Instructions: Install wood doors to comply with manufacturer's instructions and referenced quality standard and as indicated.
 - 1. Install fire-rated doors in corresponding fire-rated frames according to requirements of NFPA 80.
- C. Job-Fit Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted with fire-rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.
 - 1. Fitting Clearances for Non-Fire-Rated Doors: Provide 1/8 inch (3.2 mm) at jambs and heads, 1/16 inch (1.6 mm) per leaf at meeting stiles for pairs of doors, and 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4-inch (6.4 mm) clearance from bottom of door to top of threshold.
 - 2. Fitting Clearances for Fire-Rated Doors: Comply with NFPA 80.
 - 3. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.
 - 4. Bevel fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) on lock edge; trim stiles and rails only to extent permitted by labeling agency.
- D. Field-Finished Doors: Refer to Division 9, Section 09900 - Painting, for finishing requirements.

3.03 ADJUSTING AND PROTECTION

- A. Operation: Rehang or replace doors damaged during installation.
- B. Finished Doors: Refinish or replace doors damaged during installation.
- C. Protect doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at the time of Substantial Completion.

End of Section

SECTION 08410 - ALUMINUM ENTRANCES AND WINDOWS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division - 1 specification sections, apply to Work of this Section.

1.02 DESCRIPTION OF WORK

- A. Extent of aluminum entrances and windows is shown on drawings and schedules.
- B. Types of aluminum entrances and windows required include the following:
 - 1. Exterior entrance doors.
 - 2. Curtain Wall type framing system.
- C. Glazing: Refer to "Glass and Glazing" section of Division 8 for glazing requirements for aluminum entrances and windows, including doors.
- D. Finish hardware for aluminum doors is included as Work of this Section.
 - 1. Cylinders for locks are specified with "Finish Hardware" in another Division 8 section.
- E. Sealant around perimeter of aluminum frames is specified elsewhere in Division 7 section.
- F. Comply with provisions of Section 01028 - Modification Requirements.

1.03 SYSTEM PERFORMANCES

- A. General: Provide exterior entrance and curtain wall and windows assemblies that have been designed and fabricated to comply with requirements for system performance characteristics listed below as demonstrated by testing manufacturer's corresponding stock systems according to test methods designated.
- B. Thermal Movement: Allow for expansion and contraction resulting from ambient temperature range of 120°F (49°C).
- C. Wind Loading: Provide capacity to withstand loading indicated below, tested per ASTM E 330.
 - 1. Uniform pressure of 30 psf inward and 30 psf outward.

- D. Transmission Characteristics of Fixed Framing: Comply with requirements indicated below for transmission characteristics and test methods.
 - 1. Air and Water Leakages: Air infiltration of not more than 0.06 CFM per sq. ft. of fixed area per ASTM E 283 and no uncontrolled water penetration per ASTM E 331 at pressure differential of 8.0 psf (excluding operable door edges).
- E. Transmission Characteristics of Entrances: Provide entrance doors with jamb and head frames which comply with requirements indicated below for transmission characteristics and test methods.
 - 1. Air Leakage: Air infiltration per linear foot of perimeter crack of not more than 0.50 CFM for single doors and 1.0 CFM for pairs of doors per ASTM E 283 at pressure differential of 1.567 psf.

1.04 QUALITY ASSURANCE

- A. Drawings are based on one manufacturer's standard aluminum entrance and windows system. Another standard system of a similar and equivalent nature will be acceptable when differences do not materially detract from design concept or intended performances, as judged solely by Architect.

1.05 SUBMITTALS

- A. Product Data: Submit manufacturer's specifications, standard details, and installation recommendations for components of aluminum entrances and curtain wall and windows required for Project, including test reports certifying that products have been tested and comply with performance requirements.
- B. Shop Drawings: Submit shop drawings for fabrication and installation of aluminum entrances and curtain wall and windows, including elevations, detail sections of typical composite members, hardware mounting heights, anchorages, reinforcement, expansion provisions, and glazing.
- C. Samples: Submit samples of color of aluminum finish, on 12" long sections of extrusions or formed shapes and on 6" square sheets.

1.06 SPECIAL PROJECT WARRANTY

- A. Provide written warranty signed by Manufacturer, Installer, and Contractor agreeing to replace aluminum entrances and windows which fail in materials or workmanship within 3 years of acceptance. Failure of materials or workmanship includes excessive leakage or air infiltration, excessive deflections, faulty operation of entrances, deterioration of finish or construction in excess of normal weathering, and defects in hardware, weatherstripping, and other components of the work.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following or an approved equal:
1. YKK AP America
 2. Kawneer Company, Inc.
 3. PPG Industries, Inc.
 4. Tubelite Div., Indal Inc.
 5. Amarlite/Arco Metals Co.

2.02 MATERIALS AND ACCESSORIES

- A. Aluminum Members: Alloy and temper recommended by manufacturer for strength, corrosion resistance, and application of required finish; ASTM B 221 for extrusions, ASTM B 209 for sheet/plate.
- B. Fasteners: Aluminum, non-magnetic stainless steel, or other materials warranted by manufacturer to be noncorrosive and compatible with aluminum components.
1. Do not use exposed fasteners except where unavoidable for application of hardware. Match finish of adjoining metal.
 2. Provide Phillips flat-head machine screws for exposed fasteners.
- C. Brackets and Reinforcements: Manufacturer's high-strength aluminum units where feasible; otherwise, nonmagnetic stainless steel or hot-dip galvanized steel complying with ASTM A 386.
- D. Concrete/Masonry Inserts: Cast iron, malleable iron, or hot-dip galvanized steel complying with ASTM A 386.
- E. Bituminous Coatings: Cold-applied asphalt mastic complying with SSPC-PS 12, compounded for 30-mil thickness per coat.
- F. Compression Weatherstripping: Manufacturer's standard replaceable stripping of either molded neoprene gaskets complying with ASTM D 2000 or molded PVC gaskets complying with ASTM D 2287. Weatherstripping shall be equal to Kawneer Sealair Weathering System, YKK, or an approved equal, which shall include head and jamb, astragal, and bottom weatherstripping.
- G. Glazing Materials: Provide manufacturers standard EDPM glazing gaskets.
- H. Sealant: Provide all sealant necessary within aluminum assemblies. Perimeter sealant around frames shall be included under Section 07900.

2.03 HARDWARE

- A. General: Refer to hardware section of Division 8 for requirements for hardware items other than those indicated herein to be provided by manufacturer of aluminum entrances.
- B. Thresholds: Extruded aluminum in mill finish, ADA compliance, complete with anchors, coordinated with pivots of size indicated or manufacturer's standard if not indicated. Set thresholds in full bed of sealant.

2.04 FABRICATION

- A. General - Sizes and Profiles: Required sizes for door and frame units, including profile requirements, are indicated on drawings.
 - 1. Details shown are based upon standard details by manufacturer indicated. Similar details by other manufacturers listed will be acceptable, provided they comply with other requirements, including profile limitations.
- B. Prefabrication: To greatest extent possible, complete fabrication, assembly, finishing, hardware application, and other work before shipment to project site. Disassemble components only as necessary for shipment and installation.
 - 1. Do not drill and tap for surface-mounted hardware items until time of installation at project site.
 - 2. Perform fabrication operations, including cutting, fitting, forming, drilling, and grinding of metal work in manner which prevents damage to exposed finish surfaces. For hardware, perform these operations prior to application of finishes.
- C. Reinforcing: Install reinforcing as necessary for performance requirements; separate dissimilar metals with bituminous paint or other separator which will prevent corrosion.
- D. Continuity: Maintain accurate relation of planes and angles, with hairline fit of contacting members.
- E. Fasteners: Conceal fasteners wherever possible.
- F. Weatherstripping: For exterior doors, provide compression weatherstripping against fixed stops; at other edges, provide sliding weatherstripping retained in adjustable strip mortised into door edge.
 - 1. Provide EPDM/vinyl blade gasket weatherstripping in bottom door rail, adjustable for contact with threshold.
 - 2. At interior doors and other locations without-weatherstripping, provide neoprene silencers on stops to prevent metal-to-metal contact.

2.05 STOREFRONT FRAMING SYSTEM

- A. General: Provide inside-outside matched resilient flush-glazed system fabricated for stick-type erection procedure, with provisions for glass replacement.
 - 1. Drawings are based on YKK, Simular by Kawneer, or an approved equal:
 - a. All aluminum doors, medium style.
 - b. All exterior windows and storefront: YKK Model YES 45TU System (2" x 4½") for 1" glazing. Aluminum door, single glazed.
 - c. Interior windows: YKK Model YES 40FS, shall be 1¾" x 4" center glazed for non-insulated glass.
 - 2. Provide thermal-break frame members.

2.06 STILE-AND-RAIL TYPE ALUMINUM DOORS

- A. Frame: Provide tubular frame members, fabricated with mechanical joints using heavy inserted reinforcing plates and concealed tie-rods or j-bolts, or fabricate with structurally welded joints, at manufacturer's option.
- B. Glazing: Fabricate doors to facilitate replacement of glass, without disassembly of door stiles and rails. Provide square snap-on extruded aluminum glazing stops, with exterior stops anchored for non-removal.

2.07 FINISH

- A. All exposed aluminum surfaces shall be free of scratches and other serious blemishes.
 - 1. Finish shall be YKK standard Dark Bronze, Kawneer Standard Dark Bronze, or an approved equal.
 - 2. Hardware to match door.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Comply with manufacturer's instructions and recommendations for installation of aluminum entrances and windows.
- B. Set units plumb, level, and true to line, without warp or rack of framing members, doors. Anchor securely in place, separating aluminum and other corrodible metal surfaces from sources of corrosion or electrolytic action at points of contact with other materials.
- C. Drill and tap frames and doors and apply surface-mounted hardware items, complying with hardware manufacturer's instructions and template requirements. Use concealed fasteners wherever possible.

- D. Set sill members and other members in bed of sealant to provide weathertight construction.
- E. Refer to "Glass and Glazing" section of Division 8 for their installation of glass shown to be glazed into doors and framing.

3.02 ADJUST AND CLEAN

- A. Adjust operating hardware to function properly, without binding, and to provide tight fit at contact points and weatherstripping.
- B. Clean completed system, inside and out, promptly after erection and installation of glass and sealants. Remove excess glazing and sealants, dirt, and other substances from aluminum surfaces.
- C. Institute protective measures and other precautions required to assure that aluminum entrances and curtain wall and windows will be without damage or deterioration other than normal weathering at time of acceptance.

END OF SECTION

SECTION 08710

PART 1 – GENERAL

1.01 Related Documents

Drawings and general provisions of contract and Division 1 specification sections, apply to work of this section

1.02 SUMMARY

Work under this heading includes furnishing all hardware to respective trades. The hardware supplier shall promptly furnish templates to all manufacturers furnishing materials necessary for completion of this part.

Extent of finish hardware is indicated on drawing and in schedules.

The following specifications are a guide and a description of the quality materials required. No material of quality or weight less than outlined in this specification will be accepted. The contractor will be responsible for supplying the correct quantity of all materials, whether or not specifically mentioned in this specification. Any additional items that may be required shall be furnished and be of type, quality, and utility consistent with other hardware specified.

1.03 SUBMITTALS

ARCHITECT'S HARDWARE SCHEDULE:

Architect's hardware schedule is by hardware set number. Refer to drawings for designation of hardware set number applicable to each opening. Certain additional items of hardware and/or hardware accessories specified herein shall be finished and noted on the hardware schedule.

SUPPLIER'S HARDWARE SCHEDULE

A complete hardware schedule, indicating type, number, location, and finish shall be submitted to architect for approval, together with such samples as may be required for review. Opening numbers shall be same as used in contract documents. Schedule shall be prepared according to Door and Hardware Institute recommendations (schedule and sequence format) and shall include degree of door closer installation.

Supplier's hardware schedule will be reviewed by architect for type, quality, finish, and for function (other than hand). Contractor shall be responsible for checking schedule for correct hand of locksets and for supplying quantity of items required by contract documents.

Provide supplementary or revised hardware schedules if deemed necessary by architect.

Do not ship or deliver hardware to job prior to review of hardware schedules by architect.

Hardware schedule shall be submitted in the following format. Hardware schedules submitted to architect for review not in this format will be rejected:

HARDWARE SET 1

1 Sgl Door #001 Exterior from Corridor RHR 90 deg
Each leaf 3'0 x 7'0 x HMF x NLWD

Item, quantity, manufacturer's #, size, product type, finish, and product information

3 ea	Hinge	BB1191	NRP 4.5 x 4.5	26D	HA
1 ea	Cylinder	951	GGMK	26D	FA
1 ea	Exit Device	25R-L	Dane 3070 RHR	WD 32D	MO

Etc.

1.04 QUALITY ASSURANCE

All hardware shall be furnished by an established Builders Hardware firm who maintains and operates an office, display, and stock in this area, and who is a regular authorized distributor of the lock they propose to furnish. All hardware schedules submitted for approval shall carry the signature and seal of a certified Architectural Hardware Consultant.

1.05 PROJECT CONDITIONS

Delivery storage and handling: Hardware supplier shall receive and check all hardware at his warehouse. Drop shipments to the jobsite from various manufacturers will not be permitted. All hardware shall be in its original packaging and plainly labeled and numbered to agree with the numbers and as listed in the hardware schedule. The contractor shall submit his schedules for approval to the architect before proceeding with any work. When required, hardware supplier shall deliver hardware and/or hardware templates to the various door manufacturers. The general contractor shall provide storage facilities for the finish hardware after delivery to the job site.

1.06 ITEMS NOT INCLUDED

Hardware for metal windows, toilet partitions, cabinets, access panels, etc. is not included in this section. See other sections for hardware to be furnished by others.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

Numbers given in this schedule are of the following manufacturers.

<u>PRODUCTS</u>	<u>MFG. SPECIFIED</u>	<u>APPROVED EQUAL</u>
Continuous Hinge	Ives	Hager, Select
Ball Bearing Hinge	Ives	Hager, Bommer
Locks	Falcon	Schlage, Best
Exit Devices	Von Duprin	Precision
Closers	LCN	Corbin-Russwin, Sargent
Trim/Auxiliary	Hager Companies	Rockwood, Ives
Weather Strip	Hager Companies	Pemko, NGP

2.02 HARDWARE FINISHES

US 32D (630)	Hinges, Locks, Trim
US 32D (630)	Push/Pulls, Exit Devices, Stops
Sprayed Aluminum	Door Closers
Aluminum	Thresholds

2.03 HINGES

Ball Bearing Hinges shall be five-knuckle construction. Hinges for exterior doors shall be stainless steel with non-removable pins, in the finish specified. Oil impregnated bearings are not an acceptable substitute for ball bearings. All hinges shall be 4 ½" x 4 ½", unless otherwise specified.

2.04 LOCKSETS

Furnish locksets and cylinders by same manufacturer. All lever locks shall be mortise or bored type as indicated. Lock bodies and lock trim shall be by the same manufacturer. Backset on all lever locks and deadlocks shall be 2 ¾" as required. All deadlocks shall have 1" throw bolts and be equipped with armor fronts. Trim for locksets shall be as indicated in the hardware sets. Locksets shall be ANSI/BHMA A156.1 series 4000 Grade 1 Cylindrical Lock as scheduled.

2.05 CLOSERS

Door closers shall be full rack and pinion type. Closers shall be surface mounted. Equip closers with (2) two key operated regulating valves for individual control of both closing and latching speeds. Regulating valves shall be accessible from top of closer only and shall be completely unobtrusive. Closer shall have minimum of 15% door closing power adjustment and adjustable back check. Enclose closer in a cover of plastic. Closers on all exterior out-swinging doors and others as scheduled shall be parallel arm installation. Closer bodies and/or closer feet to be mounted on surface of door shall be supplied with sex bolts.

2.06 PUSH AND PULL UNITS

Push plates and pulls shall be solid stainless steel with a satin finish. Minimum thickness is .050; size and design are indicated in Hardware Sets.

2.07 PROTECTIVE PLATES

Kick, Armor, and Mop plates shall be height listed in schedule and width of 2" less than door width, or 1" less than door width of each leaf on pairs of doors. Plates shall be .050 stainless steel unless otherwise indicated.

2.08 THRESHOLDS

Provide (aluminum) thresholds where scheduled, with machine screws and lead expansion shields.

2.09 DOOR STOP

Provide door stops wherever necessary to prevent door or hardware from striking and adjacent partition or obstruction. Provide wall type whenever possible. All door stops and holders mounted on concrete floor or masonry walls shall have machine screws and lead expansion shields.

2.10 SILENCERS

Provide GJ-64 silencers for all hollow metal frames. Single doors shall have three (3) silencers. Double doors shall have two (2) silencers.

2.11 KEYING

Key locks to owner's specification. Obtain owners approval and signature on final approved keying. Perform all keying at lock factory, and register key data there. Deliver all master keys to Owner. No master keys shall be delivered to any other person.

PART 3 – EXECUTION

3.01 APPLICATION

INSTALLATION: Work shall be done by a craftsman skilled and experienced in installation of finish hardware. Mortised items shall be neatly set in and made flush with door or frame surface. Manufacturer's instructions and recommendations shall be strictly followed.

FASTENERS: Hinges, pivots, locks, and exit devices shall be installed with proper sex bolts, wood or machine screws as supplied by the manufacturer. Surface closers shall be mounted to door with sex bolts. Door pulls shall be installed on doors with thru-bolts as supplied by manufacturer.

3.02 HARDWARE SETS

Hardware Set 1	Tag # 01, 02
Continuous Hinge	112HD
Rim Cylinder	C953 G
Mortise Cylinder	C987 G
Rim Exit	CD33A NL-OP
Offset Pull	8190HD-18
Hold Open Closer	4040XP Cush
Spacer	4040XP-61
Cush Shoe Support	4040XP-30
Plate	4040XP-18

NOTE: Threshold and Weather Strip by Aluminum Door Supplier

Hardware Set 2	Tag # 03	
Hinges	5BB1 NRP 4 ½ x 4 ½	630
Rim Cylinder	C953 G	
Mortise Cylinder	C987 G	
Rim Exit	CD99 NL	
Hold Open Closer	4040XP H Cush	
Threshold	412S	
Sweep	759S-V	
Weather Strip	892S-N	
Rain Drip	810S 42"	

Hardware Set 3	Tag # 04	
Hinges	5BB1 4 ½ x 4 ½	
Storeroom Lock	T581 GD Dane	
Electric Strike	S6514	
Remote Release	PB660 MO	
Power Supply	10-1	
Key Pad	9212i	
Closer	1461 R w/PA	
Wall Stop	WS407 CVX	

Operational Intent: Door normally closed and locked. Egress is always free. Ingress via keypad, remote release at assistant city clerk or by key. 120 VAC to power supply and single gang box between window and door located at same height as light switches.

Hardware Set 4	Tag # 05, 07, 08, 10, 21, 22, 23	
Hinge	5BB1 4 ½ x 4 ½	
Office Lock	T511 GD Dane	
Wall Stop	236W	

Hardware Set 5	Tag # 06, 15	
Hinge	5BB1 4 ½ x 4 ½	
Passage Latch	T101S Dane	
Closer	1461 R w/PA	
Wall Stop	236W	

Hardware Set 6	Tag # 09, 12
Hinge	5BB1 4 ½ x 4 ½
Office Lock	T511 GD Dane
Closer	1461 R w/PA
Wall Stop	236W
Hardware Set 7	Tag # 11, 16, 17, 20
Hinge	5BB1 4 ½ x 4 ½
Storeroom Lock	T581 GD Dane
Closer	1461 R w/PA
Hardware Set 8	Tag # 13, 14
Hinge	5BB1 4 ½ x 4 ½
Privacy Latch	T301S Dane
Closer	1461 R w/PA
Wall Stop	236W
Hardware Set 9	Tag # 19
Hinge	5BB1 4 ½ x 4 ½
Passage Latch	T101S Dane
Wall Stop	236W
Hardware Set 10	Tag # 18
Hinge	5BB1 4 ½ x 4 ½
Classroom Lock	T561 GD Dane
Double Cylinder DL	D131 GD
Overhead Stop	450S

SECTION 08800 - GLASS AND GLAZING

PART 1 - SCOPE

- A. This Section includes all labor, materials, equipment and related items required for the work of glass and glazing as shown on the Drawings and specified herein.

PART 2 - SUBMITTALS

- A. The Contractor shall submit to the Architect for approval prior to furnishing materials at the job site, in five (5) copies, manufacturer's specifications, application and performance data, etc. for all glass and glazing materials, except miscellaneous accessories specified hereunder.
- B. Samples. The Contractor shall submit if requested to the Architect for approval prior to furnishing materials at the job site, duplicate samples of the following:
 - 1. Glass of each type, not less than 3" x 5".
 - 2. Glazing compound, one (1) cartridge.

PART 3 - CODES AND STANDARDS

- A. All glazing compounds and methods of glazing shall be in accordance with applicable portions of the Flat Glass Marketing Association's "Glazing Manual", latest edition.
- B. All safety glazing shall meet requirements of the Kentucky Department of Housing, Buildings, and Construction and appropriate Kentucky Revised Statutes.

PART 4 - PRODUCT HANDLING

- A. Glass shall be delivered to the job and shall be stored on end and under cover. Glass shall be properly crated, packaged, and protected from damage. Glazing compounds shall be delivered in manufacturer's sealed containers, with attached labels properly identifying the types.

PART 5 - MATERIALS

- A. Insulating glass for installation in aluminum windows shall be of sizes shown, composed of outer and inner panes of 1/4" (for color, see elevations) 1/4" clear .548, 1" O.A. , by LOF separated by a 1/2" dehydrated air space. Each unit shall be hermetically sealed and glass shall be separated by a spacer around the edges as standard with the manufacturer.
 - 1. Warranty. Each unit shall be guaranteed by the manufacturer not to develop, under normal conditions, material obstruction of vision as a result of film formation on the internal glass surfaces caused by failure of the hermetic seal other than through glass breakage for a period of ten (10) years.

- B. Compound for glazing in openings other than those which are dry-glazed shall be non-staining, one-part polysulfide base sealant, and shall be PRC "Rubber Caulk 5000", Pecora "Synthacalk GC-9", or DAP "Flexiseal". Color of compound shall be manufacturer's standard as selected by the Architect.
- C. Miscellaneous Items. Provide neoprene spacers, setting blocks, clips, and all accessories required for the work of glazing.
- D. Other material shall be as specified hereinafter.

PART 6 - GLAZING

A. General Requirements:

1. Glazing shall be done in a weathertight and waterproof manner. No glazing work shall be done when the temperature is below 40 degree F.
 2. Glazing surfaces shall be extremely clean, dry and completely dust free before commencing application of glazing materials.
 3. Remove glazing beads completely, perform glazing operations and set back in correct location. Do not mar beads, screws and the like.
 4. Glazing shall be done at the building after windows, frames, doors, etc. are installed.
 5. Remove excess glazing compound from glass and other adjacent surfaces to prevent permanent stains or other damage.
- B. Aluminum entrance doors and fixed window frames shall be glazed in strict accordance with entrance manufacturer's instructions and details for these operations.

PART 7 - CLEANING

- A. At completion, remove dirt, stains, etc. from glass. Wash and polish glass inside and outside surfaces. Exercise care so as not scratch or damage glass. Do not use acid solution or water containing caustic soaps. Leave work in perfect condition as approved by the Architect.

End of Section