

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 08360 - SECTIONAL OVERHEAD DOORS
THERMACORE® INSULATED STEEL DOORS MODEL 525

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Insulated Sectional Overhead Doors.
- B. Electric Operators and Controls.
- C. Operating Hardware, tracks, and support.

1.02 RELATED SECTIONS or INFORMATION

- A. Cast-In-Place Concrete: Prepared opening in concrete. Execution requirements for placement of anchors in concrete wall construction.
- B. Unit Masonry Assemblies: Prepared opening in masonry. Execution requirements for placement of anchors in masonry wall construction.
- C. Metal Fabrications: Steel frame and supports.
- D. Joint Sealers: Perimeter sealant and backup materials.
- E. Door Hardware: Cylinder locks.
- F. Paints and Coatings: Field painting.
- G. Parking Control Equipment: Remote door control included.
- H. Raceway and Boxes: Empty conduit from control station to door operator.
- I. Wiring Connections: Electrical service to door operator as required.

1.03 REFERENCES

- A. ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors.

1.04 DESIGN / PERFORMANCE REQUIREMENTS

- A. Wind Loads: Design and size components to withstand loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with applicable code.
 - 1. Design pressure of 46/-52.00 lb/sq. ft.
- B. Wiring Connections: Requirements for electrical characteristics.
 - 1. 115 volts, single phase, 60 Hz.

- C. Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

1.05 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Indicate plans and elevations including opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.
- D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- E. Operation and Maintenance Data.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
- B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.
- C. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened labeled packaging until ready for installation.
- B. Protect materials from exposure to moisture until ready for installation.
- C. Store materials in a dry, ventilated weathertight location.

1.08 PROJECT CONDITIONS

- A. Pre-Installation Conference: Convene a pre-installation conference just prior to commencement of field operations, to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

1.09 WARRANTY

- A. Warranty: Manufacturer's limited door and operators System warranty for 10 year against delamination of polyurethane foam from steel face and all other components for 3 years or 20,000 cycles, whichever comes first.
- B. Warranty: Manufacturer's limited door warranty for 2 years against peeling or color fade of finish on Product sections with Black finish or Walnut or Golden Oak wood grain

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer: Overhead Door Corp.
- B. Substitutions: As reviewed as equal.

2.02 INSULATED SECTIONAL OVERHEAD DOORS

- A. Insulated Steel Sectional Overhead Doors: 525 Series Thermacore Wind Load Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
 - 1. Door Assembly: Metal/foam/metal sandwich panel construction, with hot melt thermal break.
 - a. Panel Thickness: 1-7/8 inches (47.63 mm).
 - b. Exterior Surface:
 - 1) Flush with non-repeating wood grain texture.
 - c. Exterior Steel: .015 inch (0.38 mm), hot-dipped galvanized.
 - d. Ends: Hot-dipped galvanized steel, full height with end caps.
 - 1) 16 gauge.
 - e. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of die cast aluminum with high strength galvanized aircraft cable. Sized with a minimum 5 to 1 safety factor.
 - 1) High cycle spring: 50,000 cycles.
 - f. Thermal Values: R-value of 16.22; U-value of 0.0616.
 - g. Air Infiltration: 0.07 cfm at 15 mph.
 - h. Sound transmission class 20 when tested in accordance with ASTM E 413.
 - i. Outdoor-indoor transmission class 20 when tested in accordance with ASTM E 1332.
 - j. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
 - 1) Insulated sections shall meet all requirements of the UBC 17-5 corner burn.
 - Finish and Color:
 - k. Two coat baked-on polyester:
 - 1) Interior color, white.
 - 2) Exterior color, by Owner

2. Windload Design: Provide to meet the Design/Performance requirements specified.
3. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
4. Lock:
 - a. Interior mounted slide lock with interlock switch for automatic operator.
5. Weatherstripping:
 - a. Flexible bulb-type strip at bottom section.
 - b. Flexible Jamb seals.
 - c. Flexible Header seal.
6. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
 - a. Size:
 - 1) 2 inch (51 mm).
 - b. Type:
 - 1) High lift.
 - c. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.
 - d. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel or wood jambs, and shall be fully adjustable to seal door at jambs.
7. Electric Motor Operation: Provide UL listed electric operator, equal to Genie Commercial Operators, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.
 - a. Standard Duty
 - 1) Model J – jackshaft
 - b. Entrapment Protection: Required for momentary contact, includes radio control operation.
 - 1) Photoelectric sensors monitored to meet UL 325/2010.
 - c. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Surface mounting.
 - 3) Interior location.
 - d. Special Operation:
 - 1) Radio control operation.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until openings have been properly prepared.
- B. Verify wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.
- C. Verify electric power is available and of correct characteristics.

- D. If preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

- A. Install overhead doors and track in accordance with approved shop drawings and the manufacturer's printed instructions.
- B. Coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.
- C. Anchor assembly to wall construction and building framing without distortion or stress.
- D. Securely brace door tracks suspended from structure. Secure tracks to structural members only.
- E. Fit and align door assembly including hardware.
- F. Coordinate installation of electrical service. Complete power and control wiring from disconnect to unit components.

3.04 CLEANING AND ADJUSTING

- A. Adjust door assembly to smooth operation and in full contact with weatherstripping.
- B. Clean doors and frames.
- C. Remove temporary labels and visible markings.

3.05 PROTECTION

- A. Do not permit construction traffic through overhead door openings after adjustment and cleaning.
- B. Protect installed products until completion of project.
- C. Touch-up, damaged coatings and finishes and repair minor damage before Substantial Completion.

END OF SECTION

SECTION 08710 - FINISH HARDWARE

PART 1 – GENERAL

1.0 Related Documents

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

1.01 SUMMARY

A. Section Includes:

1. Door Hardware.
2. Storefront and Entrance Door Hardware.
3. Installation of Finish Hardware.

B. Related Sections:

1. Section 06200 - Finish Carpentry
2. Section 07900 - Joint Sealers – exterior thresholds
3. Section 08100 – Metal Doors and Frames
4. Section 08200 - Wood and Plastic Door

C. Specific Omissions: Hardware for the following is specified or indicated elsewhere.

1. Cabinets, including open wall shelving and locks.
2. Signs, except where scheduled.
3. Toilet accessories, including grab bars.

1.02 REFERENCES

- A. Use date of standard in effect as of BID date.
- B. American National Standards Institute – ANSI 156.18 – Materials and Finishes.
- C. ICC/ANSI A117.0 – 1998 – Specifications for making buildings and facilities usable by physically handicapped people.
- D. ADA – Americans with Disabilities Act of 1990.
- E. BHMA – Builders Hardware Manufacturers Association.
- F. DHI – Door and Hardware Institute
- G. NFPA – National Fire Protection Association
 1. NFPA 80 – Fire Doors and Windows
 2. NFPA 101 – Life Safety Code
 3. NFPA 105 – Smoke and Draft Control Door Assemblies
 4. NFPA 252 – Fire Tests of Door Assemblies

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 x GG MK	26D	FA
1 ea Exit Device	25R NL-OP	626	FA
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>
Hinges	Ives	Hager, Bommer
Locks	Falcon	Schlage, Best
Exit Devices	Falcon	Von Duprin, Precision
Closers	LCN	Corbin-Russwin, Sargent
Trim/Auxiliary	Ives	Hager, Rockwood
Weather Strip	NGP	Pemko, Hager

2.02 HARDWARE FINISHES

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

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. Cylinders shall be provided with small format interchangeable cores keyed to the owner's specifications. 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" or 2 3/8 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 A156.2 series 4000 Grade 1 Cylindrical lock as scheduled.

2.05 EXIT DEVICES

Characteristics:

- a. Tested to be in accordance with ANSI A156.3, 1994, Grade 1. All exit devices to be heavy duty, with one-piece removable covers. The housing shall be manufactured from extruded aluminum without exposed screws or rivets.
- b. Exit Devices shall be "UL" listed for Life Safety. All exit devices for fire-rated door openings shall have "UL" labels for "Fire Exit Hardware". All exit devices shall conform to NFPA 80 and NFPA 101 requirements.
- c. All series exit devices shall be "touchpad" (modern) types, incorporating a hydraulic fluid damper, which decelerates the touchpad on its return stroke and eliminates noise associated with the exit device operation. All exit devices shall be non-handed. The touchpad shall extend a minimum of 1/2 of the door width and shall be a minimum of 2-3/16" in height. Plastic touchpads shall not be acceptable. The touchpad height shall exceed height of mechanism case or rail assembly to eliminate "Pinch Points". If the touchpad height does not exceed the height of the mechanism case or rail assembly, provide a factory installed insert / filler on the top and bottom of the touchpad along the mechanism case and rail assembly; to prevent "Pinch Points".
- d. All latch bolts to be the deadlocking type. Latch bolts shall have a self-lubricating coating to reduce wear. Plated or plastic coated latch bolts shall not be acceptable.
- e. All metal end caps to be standard with all exit devices.
- f. Exit device strikes, where surface applied, shall be a roller type and have an anti-slip mounting plate.

- g. All outside exit device trim shall be forged brass, full escutcheon. The pull shall have a grip that is 6 ¼' CTC and project 2 11/16".
- h. The exit device end caps shall be secured with three (3) screws to a truss bracket.
- i. The "touchpad" exit devices shall be patterned punched to designate code requirements; where required.
- j. All exit devices shall be made of brass, bronze, stainless steel, or aluminum material, plated to the standard architectural finishes to match the balance of the door hardware.
- k. Electric Latch retract options will require Power Supply from the same manufacturer.

2.06 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.

2.07 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.

2.08 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 minimum thickness .050 stainless steel unless otherwise indicated.

2.09 THRESHOLDS

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

2.10 DOOR STOP

Provide door stops wherever necessary to prevent door or hardware from striking any 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.

2.11 SILENCERS

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

2.12 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.

2.13 FEMA 361 ICC 500

Doors to have Schlage LM9300 Multi Point Latch or Securitech equivalent

PART 3 – EXECUTION

3.01 APPLICATION

INSTALLATION: Work shall be done by the **Hardware Supplier**, using skilled and experienced craftsman trained in the trade of installing 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 #1, 4

Continuous Hinges	112 HD	
Elec Rim Exit	25RNL	
Mortise Cylinder	C987	
Closer	4040XP	Cush
Threshold	425EV	
Weather Strip	160VA	
Door Sweep	97V	
Permanent Core	C607	

Hardware Set 2 TORNADO DOOR FEMA361 ICC500

Tag #5, 6, 8

Hinges	5BB1 HW	4 ½ x 4 ½
Vacant/Occupied Indicator	LM9350 BD	L06 x L283-722
Closer	4040XP	
Kickplate	8400 B-CS	10 x 2" LTDW
Mop Plate	8400 B-CS	6 x 1" LTDW
Door Seals	134N	
Door Sweep	C627A	

Hardware Set 3 Tag#7

Hinges	5BB1	4 ½ x 4 ½
Classroom Lockset	T561	BD Dane
Closer	4040XP	
Kickplate	8400 B-CS	10 x 2" LTDW
Mop Plate	8400 B-CS	6 x 1" LTDW
Door Seals	134N	
Door Sweep	C627A	
Wall Stop	407CVX	
Permanent Core	C607	

Hardware Set 4 Tag #11

Hinge	5BB1	4 ½ x 4 ½
Privacy Latch	T301S	Dane

Closer	1461 R w/PA
Kick Plate	8400 B-CS 8" x 2" LTDW
Wall Stop	407CVX

Hardware Set 5 Tag #9

Hinge	5BB1 4 ½ x 4 ½
Classroom Lockset	T561 BD Dane
Closer	1461 R w/PA
Kick Plate	190S 8" x 2" LTDW
Wall Stop	407CVX
Permanent Core	C607

Hardware Set 6 Tag #10

Hinges	5BB1 4 ½ x 4 ½
Storeroom Lockset	T581 BD Dane
Closer	1461 R w/PA
Wall Stop	407CVX
Permanent Core	C607

Hardware Set 7 Tag #12, 13

Hinge	5BB1 4 ½ x 4 ½
Privacy Latch	T301S Dane
Kick Plate	8400 B-CS 8" x 2" LTDW
Wall Stop	407CVX

SECTION 08734 - COMMERCIAL DOOR OPERATORS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Overhead Sectional Door Openers.

1.02 RELATED SECTIONS

- A. Metal Fabrications: Support framing and framed opening.
- B. Finish Carpentry: Wood jamb and head trim.
- C. Sectional Overhead Doors.
- D. Door Hardware: Product Requirements for cylinder core and keys.
- E. Painting: Field applied finish.
- F. Raceway and Boxes: Conduit from electric circuit to door operator and from door operator to control station.
- G. Wiring Connections: Power to disconnect.

1.03 REFERENCES

- A. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- B. NEMA ICS 6 - Enclosures for Industrial Controls and Systems.
- C. NEMA MG1 - Motors and Generators.

1.04 DESIGN / PERFORMANCE REQUIREMENTS

- A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.
- B. Electric Motors shall be alternating-current squirrel-cage motors conforming with NEMA MG 1.
- C. Wiring Connections: Requirements for electrical characteristics.
 - 1. 115 volts, 60 Hz single phase.

1.05 SUBMITTALS

- A. Submit under provisions of Section 01300.

- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Details of construction and fabrication.
 - 4. Installation methods.
- C. Shop Drawings: Include detailed plans, elevations, details of framing members, required clearances and accessories. Include relationship with adjacent construction.
- D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- E. Operation and Maintenance Data: Submit lubrication requirements and frequency, and periodic adjustments required.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified with minimum of five years documented experience.
- B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Install in areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship and installation is approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.
- C. Store materials in a dry, warm, ventilated weathertight location.

1.08 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.09 WARRANTY

- A. Provide operators with a 2 year or 20,000 cycle limited warranty on motor and parts.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer: Overhead Door Corp., 2501 S. State Hwy. 121, Suite 200, Lewisville, TX 75067. ASD. Tel. Toll Free: (800) 275-3290. Phone: (469) 549-7100. Fax: (972) 906-1499. Web Site: . E-mail: sales@overhaddoor.com.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.02 OVERHEAD SECTIONAL DOOR OPERATORS

- A. Commercial Sectional Door Operator: Model RSX Commercial Door Operator:
 - 1. Application:
 - a. Lift Clearance Sectional Door.
 - 2. Electric Motor: UL listed.
 - a. Rating:
 - 1) 1/2 horsepower single phase or three.
 - b. Motor frame comply with:
 - 1) NEMA 48 for 1/2 hp single phase.
 - Construction:
 - 2) Open drip-proof construction.
 - c. Reduction: Primary reduction is SuperBelt, an auto tension poly-V flex belt that does not require adjustment. Secondary reduction is by chain and sprocket.
 - d. Duty cycle: Accommodate standard usage, up to 60 cycles per hour during peak usage periods.
 - 1) Brake: DC Disc type with selectable Progressive Braking for smooth stopping.
 - 2) Clutch: Adjustable friction disc type.
 - 3) Limit System: LimitLock limit system, magnetic type providing absolute positioning with push to set and remote setting capabilities. Limit System shall remain synchronized with the door during manual operation and supply power interruptions.
- 3. Control System: Microprocessor based with relay motor controls on a single board. System incorporates a 16 character Liquid Crystal Display (LCD) to display the system status. System shall include the following:
 - a. Capable of monitoring and reporting on a variety of operating conditions, including: Current operating status, Current command status, Motor movement status, Current error status (if applicable), Hoist Interlock status (if applicable), External Interlock status, and 24VDC status.
 - b. A delay-on-reverse operating protocol.
 - c. Maximum run timers in both directions of travel that limit motor run time in the event a clutch slips or some other problem occurs.
 - d. Provisions for the connection of a 2-wire monitored photo-eye.

- e. Control action will be constant contact close until a monitored entrapment device is installed, allowing for selection of momentary contact.
 - f. Provisions for connection of single and/or 3-button control stations.
 - g. Provisions for connection of an external 3-wire radio controls and related control devices.
 - h. On board open, close and stop control keys for local operation.
 - i. CodeDodger radio receiver that is dual frequency cycling at 315 Mhz and 390 Mhz capable of storing 250 single button and/or 250 Open-Close-Stop transmitters with the ability to add and/or delete transmitters individually, identify and store activating transmitter IDs.
4. Mounting
- a. Sectional Steel Doors:
 - 1) Jackshaft/Hoist that is side or center mounted with:
 - (a) Chain/sprocket coupling to door.
 - (b) Direct shaft-to-shaft coupling to door.
5. Release:
- a. Release shall be a pull and hold type mechanism with single cable operation and an integrated interlock switch on hoist units.
 - b. Release shall consist of a manual disconnect door arm on trolley units.
6. Hoist: Chain hoist consists of chain pocket wheel, chain guard and smooth hand chain on hoist units.
7. Entrapment Protection:
- a. Control system shall have provisions to connect monitored entrapment protection devices such as a monitored photo-eye and to provide constant contact close control operation in lieu of such devices.
- Control accessories:
- b. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Controls surface mounted.
 - c. Special Operation:
 - 1) Radio control operation.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify door sizes, configuration, tolerances and conditions are acceptable.
- B. Examine conditions of substrates, supports, and other conditions under which this work is to be performed.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.

- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Use anchorage devices to securely fasten assembly without distortion or stress.
- C. Fit and align assembly including hardware; level and plumb, to provide smooth operation.
- D. Coordinate installation of electrical service with Section 16150. Complete wiring from disconnect to unit components.

3.04 ADJUSTING

- A. Test for proper operation and adjust as necessary to provide proper operation without binding or distortion.
- B. Adjust hardware and operating assemblies for smooth and noiseless operation.

3.05 CLEANING

- A. Clean components using non-abrasive materials and methods recommended by manufacturer.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

3.06 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

3.07 SCHEDULES

END OF SECTION

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