SECTION 08110
HOLLOW METAL DOORS AND FRAMES

1. SCOPE:

Under this heading shall be included the furnishing and installation of steel, such as doors, hollow metal panels, frames, stops and trim, all as shown on the Plans. Hardware is specified in Section 08710. See special paint requirements under "Finish" paragraph.

2. SHOP DRAWINGS:

Shop drawings and setting diagrams shall be submitted in accordance with the requirements of the General and Special Conditions. Shop drawings shall show complete dimensions and installation details and shall include details on door construction and door and frame reinforcement, either by detail drawings or by printed specifications. Shop drawings shall call out brand name or other identification of shop paint.

3. MANUFACTURER:

Hollow metal work shall be as manufactured by Trussbilt, St. Paul, Minnesota; Richmond Fireproof Door Company, Richmond, Indiana; Overly Manufacturing Company, Greensburg, Pennsylvania; or equal.

4. WORKMANSHIP:

Workmanship shall be of the best throughout. All finished work shall be smooth and free from warps, buckles and other defects and out of wind. All miters and moldings shall be well formed and in true alignment. All miters and mouldings shall be well formed and in true alignment. All exposed welded joints shall be smooth, and no welds or weld marks shall show in the finished work.

Doors and frames shall be identified with tags or other means for the opening for which intended, and such identification shall be maintained until the doors and frames are installed. Loss of tags from doors may be considered ample cause for rejection.

5. MATERIALS:

Materials shall be the best of their respective kinds. Steel shall be cold formed, prime quality, pickled, annealed stretcher level steel, free from scale, pitting or other surface defect. Thickness of metal shall be not less than No. 18 U.S. Standard gauge for any use.

Exceptions to these thicknesses will be permitted as may be required to provide the required U.L. Labels.

6. HOLLOW METAL DOORS:

Hollow metal doors shall be Grade II Model 2. Provide openings for glass with rebates and glazing mouldings. Mouldings shall be secured in place with uniformly spaced, oval-head countersunk bronze screws spaced not to exceed 8 inches apart and with not less

than two screws to any member.

Doors shall be steel stiffened reinforced inside with continuous, vertical metal members spaced not over 5 inches on centers and welded to both faces of doors at 3 inch intervals. Fiberglass or mineral insulation shall be placed in doors for sound deadening and for thermal insulation. Honeycomb core or plastic foam core or other similar constructions will not be accepted as equal to the specified construction. Doors shall be true planes with a tolerance of +/- 1/16 inch and also so as to meet requirements of Article 14 hereinafter.

Doors shall be constructed so as not to have a channel or void at the top which could fill with, or trap, water. Filler for tops of doors shall be metal, welded, or otherwise securely fastened in place.

Provide astragals for exterior pairs of doors without mullions, unless otherwise shown and/or specified.

7. HOLLOW METAL FRAMES:

Hollow metal frames shall be of the unit type, combining buck, frame and trim, except as otherwise shown. Provide subframes where shown. Frames shall be anchored to the surrounding construction at about 14 gauge 24 inch intervals, except that anchors may be omitted on head jambs less than 4 feet long. Anchors shall be of the type shown and shall be located in the mortar joints of masonry. Anchors in masonry shall be 16 gauge corrugated steel. Jambs shall have suitable foot pieces for anchoring to the structural concrete and shall have temporary spreaders to insure delivery in proper condition. Provide extensions on frames, as shown, to anchor frames to construction overhead. Stops on frames shall be suitable width for the proper attachment of hardware. Provide stops with corrosion-resistant screws for setting glass; locate removable stops interior. Screws in stops shall be at 8 inch maximum spacing. Snap-in type stops shall not be used.

Corners of frames and fixed stops shall be mitered and welded all around. Removable stops may have square corners or mitered.

Each single door frame shall be equipped with three molded gray rubber door silencers GJ64 or equal. Furnish two silencers on frames for pairs without center mullion.

Provide full enclosing mortar boxes over all hardware mortises.

8. UNDERWRITERS LABELS:

Doors and frames shall bear the Underwriters' Laboratories labels of the class indicated on the drawings.

9. REINFORCEMENT:

All work shall be adequately reinforced to prevent distortion and for hardware and other attachments as shown and as necessary. Work that fails, due to inadequate

reinforcement, during the guarantee period, shall be replaced even though minimums specified hereinafter had been furnished. All doors and frames shall be reinforced for closers whether or not closers are required at this time. Install all reinforcement items with concealed connections designed to develop full strength of the reinforcement.

Unless otherwise shown on the drawings, minimum acceptable reinforcement for frames shall be 3/16 inch x 1-1/2 inches x 4 inches for strikes, 12 gauge x 20 inches long x 1-3/4 inches for closers, brackets and/or overhead holders, 3/16 inch x 9 inches x 1-1/2 inches for hinges, except as otherwise specified. If hinges over 4-1/2 inches high are required, increase hinge reinforcement height in proportion.

Unless otherwise shown on the drawings, minimum acceptable reinforcement for doors shall be 3/16 inch x 1-1/2 inch x 3 inch for lock fronts, 12 gauge x 3-1/2 inch channel x 14 inch long in door top for closer and/or holder, 16 gauge lock centering clips, 14 gauge for escutcheons, 3/16 inch x 9 inch x 1-1/2 inch for hinges, except as otherwise specified. If hinges over 4-1/2 inches high are required, increase hinge reinforcement height in proportion.

10. HARDWARE:

Hardware, except as may be otherwise specified, will be furnished under Section 08710 of the specifications, and templates and samples will be delivered to this subcontractor as there specified. The hollow metal work shall be constructed to accept the required hardware. Cut, fit, drill and tap for all mortise hardware. Surface mounted hardware may be fitted after the hollow metal work is installed.

Hinges shall be so fitted that there will be a clearance of not more than 1/16 inch between the door and the stop, and the door manufacturer shall check the suitability of all hardware that attaches to hollow metal construction.

11. FINISH:

Frames shall be thoroughly cleaned by a vapor degreasing process and shall be cleaned of all rust, grease and dirt. Doors and other panels shall be cleaned, sanded, and metallic filled as required to obtain a smooth surface. The undersides of all removable stops, as well as the areas that they cover, shall be painted.

Paint shall be a zinc base cold galvanizing compound. The paint shall contain not less than 64 percent total solids by weight, and the zinc content of the total solids shall be not less than 94 percent by weight. Weight per gallon shall be not less than 23 pounds per gallon. All work shall be coated following the paint manufacturer's directions. Coating shall be applied to both inside and outside surfaces of both doors and frames. The dry film thickness shall be not less than 1.5 mils. Work shall be suitable for the final paint specified in Section 09900.

12. INSPECTION:

Inspect all material in the shop prior to shipment. Thoroughly check for welds,

smooth joints, intersecting points, paint finish, etc. Wrap doors and frames with suitable protective coverings before shipment. Frames shall be delivered complete with integral trim. Knocked-down frames will not be accepted.

13. INSTALLATION:

All work shall be installed in the best manner by skilled workmen. All parts shall be properly secured and anchored. Frames shall be set accurately in place, plumbed and braced, and then the masonry and other work shall be built around them. Doors and hardware shall be adjusted for proper operation. Check setting of each frame before building around it, and see that jambs are parallel and plumb, that head is level and at correct elevation, and that frame as a whole is in proper position and alignment. Fill frames with mortar as masonry work progresses. Provide temporary spreaders as necessary to keep jambs straight during the laying of masonry work.

The installation shall be such that each hollow metal door, when closed and latched, will be almost in contact with the stop on the lock side throughout its height and on the hinge side will be uniformly 1/16 inch or less from the stop but not in contact with the stop. Clearance between door and side jambs shall be uniform and not more than 1/8 inch and not less than 1/16 inch; clearance to head jamb shall be not more than 1/8 inch and not less than 1/16 inch, and clearance to threshold shall be 1/8 inch and to floor where there is no threshold 3/8 inch, both with 1/16 inch tolerance.

14. LOUVERS:

Provide louvers in hollow metal doors as required. Louvers shall be set so as to prevent vision from corridors into rooms. Blades and frames shall be not lighter than 18 gauge steel. Shall be aluminum.

END OF SECTION

SECTION 08520
ALUMINUM WINDOWS

1. SCOPE:

Under this section shall be included the furnishing and installation of aluminum windows, as shown on the drawings.

2. MANUFACTURER:

Windows shall be made by Alenco, Reynolds, Wausau, or equal, conforming to AAMA specifications and having a rating of A2-HP or better.

3. SHOP DRAWINGS:

Shop drawings shall be submitted as required by the General and Special Conditions.

4. WORKMANSHIP:

All work shall be done by craftsmen skilled in this particular work, and it shall be installed by or under the direct supervision of the manufacturers of the materials furnished. The completed work shall be weather tight and shall show uniform, good finish throughout, free of defects and blemishes. The several parts of the work shall b plumb or level, as the case may be, and true to the designs shown on the drawings. There shall be no open ends, open corners, defective joints, or the like. Suitable provisions shall be made for expansion and contraction so that no harmful buckling, opening of joints, undue stress on fasteners, or other detrimental effects due to changes in temperature.

5. WINDOWS:

Windows, frames and sash members shall be 6063-T5 aluminum, not less than 0.062" wall thickness. Sill members shall be not less than 0.078" thickness.

Frame and sash corners shall be mortised and joined with screw fasteners. Frame sill corners shall have a sealant applied to provide a watertight joint. Sill of frame shall be designed with weep holes.

Frames and sashes shall be 1-1/2 inches deep.

Include all hardware, glazing beads and accessories as necessary for complete and ready to use installation.

Operating sash shall be equipped with spring loaded, self-locking aluminum latch, which shall engage an integral part of the frame sill. Sash shall be counter balanced with a spiral balance mechanism to held sash stationary at any point for its full range of travel.

Weatherstripping shall be accomplished with flexible vinyl equal to C5 230-60.

Glazing shall be from interior accomplished with snap-in type glazing beads furnished by the window manufacturer. Windows shall be suitable for the glass required. Wall thickness of snap-in beads shall not be less than .040".

Finish shall be caustic soda etch. Provide two shop coats of clear methacrylate lacquer over the final finish.

All related trim as may be required shall be of 6063-T5 aluminum alloy with finish to match that of the windows. All joints in frames and in sash shall be weather and watertight.

7. INSTALLATION OF WINDOWS:

All work shall be erected plumb, true and square and securely fastened in place and made tight. Suitable provision shall be made for deflection of lintels and for expansion and contraction.

Windows and hardware shall be adjusted to operate properly so that windows open and close easily and so that they will be tight when closed.

Windows shall be secured with screws and bolts and nuts of the several necessary kinds. All fastenings shall be of non-corrosive metal suitable for use with aluminum.

Aluminum shall be protected from contact with dissimilar metals, mortar, plaster, concrete, masonry, etc., with a coating of bituminous or zinc chromate paint on the contact surfaces.

8. CAULKING:

Caulking is specified in Section 07900.

END OF SECTION

SECTION 08710
FINISH HARDWARE

1. SCOPE:

Under this heading shall be included the furnishing and delivering of all finish hardware required for the completion of the work in accordance with the plans and specifications. If the hardware for any location (or locations) is not described herein, such hardware shall be furnished and shall be like that for a similar locations; if no similar locations are specified, such hardware shall be suitable and consistent with the intent of the specifications.

Note that hardware for the power-operated four-fold doors is specified with the doors in Section 08350.

2. MANUFACTURERS:

Hardware shall be by the following manufacturers:

Locksets & Latchsets: Yale, Corbin, Sargent, or equal.
Butts: Stanley, Hager, McKinney, or equal.
Stops, Bolts & Holders: Glynn-Johnson, Ives, or equal.
Thresholds: Pemko, Reese, or equal.
Closers: Sargent, LCN, or equal.

Numbers in the Schedule refer to specific manufacturers, and the style and function shall be equal to those specified.

3. MATERIALS, FINISHES AND DESIGNS:

Where finishes are shown in the Hardware Schedule hereinafter, they shall govern; if no finishes are shown, hardware shall be stainless steel, dull, except as follows: Wallmounted bumpers shall be aluminum, US28. Closers shall be sprayed aluminum. Overhead holders (and similar) shall be bronze, with dull chrome, US26D finish. Thresholds shall be of aluminum. All butts shall have flat bottom tips. All locksets and latchsets shall be the design shown, or equal.

4. DOOR CLOSERS:

The hardware subcontractor shall assume full responsibility for the successful operation of each door. Furnish proper size closed for each required location. Brackets, plates, top jamb mounting, etc., shall be provided where necessary for proper operation and installation. Closers for interior doors shall be designed for maximum possible swing of doors, except as otherwise directed.

Provide adjustable spring tension and back check features for all closers.

5. ACCESSORIES:

Accessories necessary for proper and complete installation, such as screws, bolts, nuts, machine screws, grommets, brackets, etc., shall be furnished. These shall be of proper kind, size and finish.

6. STRIKES:

Lock strikes shall have wrought boxes. Furnish suitable strikes for all bolts, latches, lock strikes, etc.

7. KICK PLATES:

Kick plates shall be No. 18 U.S. Standard gauge stainless steel, 10 inches high and full width of door less 2 inches.

8. THRESHOLDS:

Thresholds shall be extruded aluminum, Pemko No. 179, unless otherwise shown.

9. KEYING:

All locks shall be masterkeyed. Where not otherwise specified, key all locks different so as to be operable by its change key and the master key only.

Furnish one master key. Furnish three change keys for each lock.

10. TEMPLATE HARDWARE:

Template hardware shall be used on hollow metal doors, hollow metal frames and plastic laminate doors. A complete list of template hardware and template drawings shall be furnished promptly to the respective subcontractors for these.

11. DELIVERY:

All hardware shall be delivered properly boxed and labeled for the opening on which it is to be used and as to contents.

Hardware for the hollow metal doors, hollow metal frames, and plastic laminate doors shall be delivered and transportation prepaid to the respective manufacturers of these.

12. SCHEDULES:

The Contractor shall prepare a schedule of the hardware required, which shall list the hardware for each door, etc., and shall submit two copies of the schedule to the Engineer for review. Changes shall be made in the schedule as necessary to obtain approval. Five copies of the final schedule shall be delivered to the Engineer, two for his use, two for the General Contractor, and one for the hardware supplier.

The Contractor shall check the suitability of each item specified in relation to the details and surrounding conditions and shall notify the Engineer as to any discrepancies and errors. Corrections shall then be made before hardware is furnished.

Hardware schedules shall show the manufacturers' names for all items.

13. WEATHERSTRIPPING:

All doors from the buildings to the exterior shall be weatherstripped. Use spring bronze at the heads and jambs and neoprene-aluminum sweep strip at the sill.

14. PADLOCKS:

Provide six padlocks for the fence gates and other uses, as directed and/or specified. Extra padlocks shall be delivered to the Owners. Padlocks shall be masterkeyed.

END OF SECTION

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SECTION 08800
GLASS AND GLAZING

1. SCOPE:

Under this heading shall be included the furnishing and installation of glass and glazing throughout, including also neoprene glazing gaskets, aluminum mullions and aluminum channels, all fasteners, and all sealants, mastics and tapes and accessories as required to complete the glass installation.

2. SHOP DRAWINGS:

Shop drawings shall be submitted. See the General Conditions and Special Conditions. Show full details of neoprene glazing gaskets. Coordinate dimensions and details.

3. SAMPLES:

Samples shall be submitted for approval. Provide samples of neoprene glazing gaskets and colored glass.

4. MATERIALS:

a. Glass.

Glass shall be 1/2 inch float glass by PPG, LOF, or equal. All windows shall be double glazed in the factory.

b. Neoprene Gaskets.

Neoprene gaskets shall be "Stanlock" as made by the Standard Products Company, Port Clinton, Ohio, or "Lock Strip" as made by the F. H. Maloney Company, Houston, Texas, or equal. The neoprene gaskets shall include factory fabricated corners, and complete window units shall be fabricated in one piece, except where overall size requires two or more pieces for practicable handling. The neoprene gaskets shall be suitable for the glass being used and for the surrounding conditions as occur when the glass is being installed. The neoprene gasket units shall fit each respective opening.

c. Aluminum Mullions.

Aluminum mullions shall be extruded aluminum, section as shown, and suitable to withstand 30 pounds psf wind loading. Mullions shall be black anodized. Include all anchors as necessary for solid anchorage at top and bottom.

d. Aluminum Channels.

Aluminum channels shall be extruded aluminum section as shown and suitable for proper interlock with the neoprene gaskets being used.

e. Sealants.

Sealants shall conform to Federal Specification TT-S-230, shall be black in

color, and shall be compatible with all materials with which it will be in contact.

f. Fasteners.

Fasteners shall be stainless steel or other non-corrosive metal suitable for the use intended.

g. Tape.

Tape shall be a synthetic polymer-based, non-shrinking, 100 percent solids compound suitable for the uses intended.

h. Accessories.

Accessories such as setting blocks and other items shall be first quality and suitable for the purpose intended.

5. GLAZING:

a. With Neoprene Gaskets.

Install aluminum channels at heads, jambs and sills of the openings straight and plumb and within tolerances suitable for the neoprene gasket installation. Anchor the channels to the concrete and masonry adequately to prevent defletions at the heads, jambs, and/or sills. Install the neoprene gaskets and glass in accordance with instructions of the glass manufacturer and as specified herein. Glass shall bear on setting blocks. The gaskets and/or aluminum channels shall be provided with weep holes to carry any condensation or penetrating moisture to the exterior. Install aluminum mullions as shown at all 6 feet high windows.

b. Other Glazing.

Glass, where held in place by metal stops, shall be embedded in glazing compound before stops are set. There shall be glazing compound or glazing tape between the glass and the metal on all faces and edges. Stops will be furnished under other sections of the specifications.

Glazing of windows and doors shall be done after windows and doors have been installed. Glass shall be bedded in glazing compound or on glazing tape against the fixed stop and then glazing compound shall be applied on the other side of glass into or over which the glazing strips shall be pressed into place and secured. The space around the glass in the glazing rebate shall be filled with glazing compound, and the compound shall be finished smooth and flush with mouldings and glazing strips on both sides of the glass. Glazing beads or strips will be furnished with the doors and windows. Use resilient bearing blocks for support of glass and use spacer shims (not spring clips) for centering the glass.

Surfaces against which glazing compound and tape will be applied shall be cleaned of coatings or substances that would interfere with the adhesion of the glazing compound and tape.

All work shall be neatly done by mechanics skilled in glazing, and surfaces

shall be smooth, clean and true with neatly turned angles.

6. CLEANING:

Near the time of completion of the whole work, at a time approved by the Architect, all glass shall be cleaned and polished.

7. GUARANTEE:

The glass and glazing work shall be subject to the guarantee specified in the General Conditions, and any water leakage to the interior shall be considered as evidence of defective material and/or workmanship and shall be remedied at no cost to the Owners. Also, the insulating glass shall be guaranteed for five years, and any film formation on the interior of the units, or dust collection on the interior glass surfaces, shall be considered the result of defective materials and/or workmanship, and affected units shall be replaced at no cost to the Owners.

Breaking of glass, not due to impact and/or excessive wind loading, which occurs during the General Conditions guarantee period, shall also be considered the results of defective materials and/or workmanship and shall be replaced at no cost to the Owner.

END OF SECTION

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