

Division 8

Doors, Windows and Glass

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Section 8A

Hollow Metalwork (Interior)

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DIVISION 8

SECTION 8A

HOLLOW METALWORK (INTERIOR)

1.0 SCOPE

This Specification Section includes the furnishing and installation of interior hollow metalwork, all as indicated on the drawings and described in the specification.

2.0 GENERAL

2.1 Codes and Standards

The work shall conform to the latest edition and latest addenda thereto, as of date of award, of the following codes and standards

.1 Federal Specifications

TT-P-636

Primer Coating Alkyd, Wood and Ferrous Metal

.2 National Board of Fire Underwriters

Pamphlet No. 80

3.0 DETAILED REQUIREMENTS

3.1 Materials

3.1.1 Hollow Metal Doors

Hollow metal doors shall be flush type, 1-3/4 inches thick, constructed of two outer sheets of not thinner than 18-gage steel with edges welded and finished flush. The outer face sheets shall be reinforced with not thinner than 20-gage interlocking vertical channels or Z-members spaced not over six inches apart and spot-welded to face sheets. Tops and bottoms of doors shall have not thinner than 16-gage continuous reinforcing channels welded to face sheets. Sound-insulation fillers of cork, fiberboard, mineral-wool board or asbestos shall be placed full height in spaces between reinforcing channels. Metal moldings around glazed openings shall be not thinner than 20-gage metal. At Contractor's option, a continuous truss inner

core of sheet metal not thinner than 28-gage may be substituted for the reinforcing specified above providing it is spot-welded to the face sheets every 2-3/4 inches, horizontally and vertically, over the entire surface of both sides.

3.1.2 Fire Doors

Fire doors shall be flush type, of sizes and thickness shown on drawings. Construction of fire doors and hardware shall meet the applicable requirements of the Underwriters' Laboratories, Inc. Certificates of such conformance shall be submitted. The label of the above laboratory will be accepted as evidence of conformance with this requirement. In lieu of such label, written certificates may be submitted from any nationally recognized testing agency adequately equipped and competent to perform such service, that similar doors have been tested and conform to the standards, including the method of test, of the Underwriters' Laboratories, Inc. Installation, including hardware and operational characteristics, shall be in accordance with NBFU pamphlet No. 80.

3.2 Door Fabrication

Doors shall be of open-hearth, full-pickled, coldrolled, annealed, furniture steel, free from visible waves or other surface defects.

Door clearances shall be not more than the following: 3/32. inch at jambs and heads, 1/8 inch at meeting stiles of pairs of doors, and 3/16 inch at bottoms.

The lockedges of stiles shall be beveled 1/8 inch in 2 inches for doors 1-3/4 inches thick.

Doors shall be mortised, reinforced, and drilled and tapped to receive template hinges and locks. Bore size for lock cylinders shall be 1-5/32 inch diameter (standard size). Hardware shall be located as follows:

- a. Door knobs, centered 38 inches above floor.
- b. Door pulls, centered 40 inches above floor.
- c. Push plates, centered 45 inches above floor.
- d. Cylinder deadlocks 52 inches above floor.
- e. Extension lever flush bolts shall be installed in the edge of the door and located so that the

trip mechanism will be about six feet from the floor for the top bolt, and twelve inches from the floor for the bottom bolt.

- f. Top hinge, top edge five inches below head of frame.
- g. Bottom hinge, lower edge ten inches above floor.
- h. Intermediate hinges, equi-distant from top and bottom.

Louvers for interior metal doors shall be stationary sight-proof type of manufacturer's stock design. Blades shall be welded or tenoned to frame, and the entire assembly shall be built into the door as specified for solid panels. Louvers shall be formed of not thinner than 18-gage steel. Louver shall be of size shown on drawings.

Moldings around glazed or louvered panels shall be fitted to the panels, and mitered and welded at corners to form a continuous frame around the panel. Moldings on the inside of glass and louvered panels shall be secured with oval-head countersunk machine screws having small heads. Snap-on molds may be used on the inside of glazed panels.

3.3 Frame Fabrication

Frames shall be of open-hearth, pickled, cold-rolled and annealed steel and shall have clean, smooth surfaces. Concealed reinforcing members shall be structural shapes of sizes required to prevent permanent distortion of frames by movement of the walls and doors in which the frames are located.

Door frames shall be of the combination buck, frame and trim type of sizes and details indicated on drawings.

Door frames shall be not thinner than 16 U.S. gage steel. Reinforcements for hardware shall be not thinner than 10 U.S. gage for hinges and 14-gage for locks, strikes and closers.

Door frames shall be factory assembled, with joints continuously welded or secured with spot welded splice plates. Welds on exposed surfaces shall be dressed flush and smooth and shall present a neat appearance. Frames shall have

temporary steel spreaders welded at the bottoms of frames, or shall be strapped together in pairs, with heads inverted for bracing during shipment.

Door frames shall be prepared at the factory for installation of hardware. Frames shall be mortised, reinforced, drilled and tapped to templates to receive mortised template hinges and lock strikes. Location of hardware shall be as hereinafter specified.

Not less than six metal jamb anchors spaced not over 24 inches apart, shall be provided on each door frame. One (1) 12 U.S. gage metal clip angle shall be welded to the bottom of each door jamb member for anchoring to floor construction. Jamb anchors shall be corrugated, adjustable type, and shall extend not less than twelve inches into masonry joint.

Fire door frames shall conform to the requirements of the Underwriters' Laboratories, Inc., and certificates of such conformance shall be submitted. The label of the above laboratory will be accepted as evidence of conformance to this requirement. In lieu of such label, written certificates may be submitted from any nationally recognized testing agency adequately equipped and competent to perform such services, certifying that the frames for fire doors have been tested and conform to the standards, including method of test, of the Underwriters' Laboratories, Inc.

3.4 Door and Frame Shop Finish

Before delivery, steel surfaces of the doors and frames shall be thoroughly cleaned, and exposed surfaces shall be filled and ground smooth. Doors, frames and metal trim shall be given a prime coat of rust inhibitive primer conforming to Federal Specification TT-P-636. Insofar as possible, fitting, construction and fabrication of all material shall be executed in the shop ready for delivery and erection at the building. Provide all holes, connections and fastenings for and to work of other trades abutting, adjoining and intersecting work of this section. The finished work shall be rigid, neat in appearance, free from defects, warp or buckle. Molded members shall be sharp in detail, straight and true. Corner joints shall be coped or mitred, well formed and in true alignment.

4.0 INSTALLATION

4.1 Doors and Frames

Doors shall be accurately hung with proper clearances, and the hardware specified shall be installed. After erection and glazing, hardware shall be adjusted for smooth and proper operation.

Door frames shall be installed plumb, straight and true, rigidly secured in place and braced. Where construction will permit, the spreaders used for bracing frame during shipment shall be left in place and concealed. Spreaders that cannot be concealed shall be left in place until the frames are set and anchored. Frames shall be anchored to concrete floors with expansion bolts in lead sleeves or with powder-actuated bolts. Backs of frames in masonry shall be filled solid with mortar.

4.2 Field Measurements

All measurements shall be verified at the building site for dimensions, fitting, and attachment of all items directly connected with the door and frame installation.

5.0 TESTING

No additional tests beyond those normally employed either in manufacturing, installation or construction processes or as called for by the specified codes and standards are required under this article.

6.0 INFORMATION TO BE SUBMITTED

The following information and data shall be submitted within the time indicated:

6.1 Drawings

Shop drawings for doors and frames shall show a scheduled tabulation of doors and frames to be supplied; elevation details of construction; method of assembling sections; location of hardware, size, shape and thickness of materials; joints and connections.

45 Days
After Award

6.2 Certificates

Contractor shall submit a written certificate from any nationally recognized testing agency, adequately equipped and competent to perform such service, that fire doors and frames have been tested and conform to the standards, including the method of test, of the Underwriters' Laboratories, Inc.

45 Days
After Award

Section 8B

Builders' Hardware (Interior)

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DIVISION 8

SECTION 8B

BUILDERS' HARDWARE (INTERIOR)

1.0 SCOPE

This Specification Section includes the furnishing and installation of builder's hardware (interior) all as indicated on the drawings and described in the specification.

2.0 GENERAL

2.1 Codes and Standards

The Work shall conform to the latest edition and latest addenda thereto, as of date of award, of the following codes and standards.

.1 Federal Specifications

FF-H-106	Hardware, Builders'; Locks and Door Trim
FF-H-111	Hardware, Builders'; Shelf and Miscellaneous
FF-H-116	Hinges, Hardware, Builders'
FF-H-121	Hardware, Builders'; Door-Closing Devices

3.0 DETAILED REQUIREMENTS

3.1 Materials

Unless otherwise specified herein, hardware shall conform to Federal Specifications FF-H-106, FF-H-111, FF-H-116 and FF-H-121. All modifications in hardware, required by reason of construction characteristics, shall be such as to provide the specified operative or functional features.

Hardware, latchsets, and locksets for labeled doors shall conform to Underwriter's requirements for the label specified. Hardware for application on metal shall be made to standard templates. Metal reinforcing units for installation of cylindrical and tubular type locks shall be provided.

All items of hardware performing the same function shall be by the same manufacturer.

All hardware items in toilets, except butt hinges and door closers, shall be furnished in wrought aluminum equivalent in weight and thickness to same hardware items hereinafter specified to be of wrought or cast bronze.

Hardware shall have the following standard finishes:

Aluminum US28
 Bronze US10
 Steel and Iron as hereinafter specified.

3.2 Hardware Types

3.2.1 Butt Hinges

Butt hinges for interior doors with or without closers, shall be Type T2107, USP.

<u>Butt Hinges per Door</u>		
<u>Height of Door</u>	<u>Butts Required</u>	
Over 60 and not	3 over 90 inches	

<u>Butt Hinge Sizes</u>		
<u>Door Thickness</u> <u>(Inches)</u>	<u>Door</u> <u>Width</u>	<u>Butt Size</u> <u>(Inches)</u>
1-3/4	3 feet and less	4-1/2 x 4-1/2 (T2107)

3.2.2 Door Closers

All closers shall be surface Type 3001. Where there is less than 7 inches clearance between a closer-equipped door and intersecting wall when the door is opened 90 degrees, the closer shall also be provided with parallel arms. Closers shall have brown lacquer finish. Door Closers for Class A and Class B doors shall bear the approval of the National Board of Fire Underwriters. Closers shall be provided with hold-open feature. Closers shall be sized as follows:

<u>Door Type</u>	<u>Width</u>	<u>Closer Size</u>
Interior Doors	3 feet and less	III
Interior Doors	Over 3 feet	IV

3.2.3 Door Silencers

Door silencers shall be Type 1337A. Three silencers shall be provided for each pressed steel frame for single doors, and two silencers for each pressed steel frame for pairs of doors.

3.2.4 Door Stops

Door stops Type 1320 E of cast bronze, shall be supplied wherever an item of hardware on an opened door, or the door itself, might contact a wall or other part of the building construction, including ducts, pipes, and radiators. Where the wall-type stop cannot be used to practical advantage, Type 1330 or 1330A cast bronze floor stops, as applicable, shall be supplied.

3.2.5 Extension-Lever Flush Bolts

Extension lever flush bolts shall be Type 1045, cast bronze. The bottom bolt shall be provided with dustproof strike Type 1048, bronze. Flush bolts shall be provided for the inactive leaf of all pairs of doors required to be locked. Strikes located in metal thresholds shall be furnished with machine screws.

3.2.6 Kick Plates

Kick plates shall be Type 1224, of 16 gage, wrought bronze. The plates shall have beveled edges and countersunk holes for screws. Kick plates shall be 10 inches high. Their width shall be 1-1/2 inches less than the width of the door.

3.2.7 Locksets and Latchsets

Locksets and latchsets shall be of wrought bronze and the equivalent to Federal Specification series 161 for heavy duty.

All strikes for application in pressed steel frames shall be complete with boxes.

Locks shall be of the types approved by the Underwriters Laboratories, Inc. for labeled doors.

3.2.8 Metal Thresholds

Metal thresholds of extruded aluminum, shall be furnished and installed at all doors where charges in flooring material occurs.

3.3 Keys and Keying

3.3.1 Keys

Keys shall be furnished as follows:

Cylinder locks	2 keys each
Master keys	6 keys

3.3.2 Locks

Locks shall be individually keyed and master-keyed into one set. After all locks have been installed, keys shall be shown to operate their respective locks, and shall be tagged and delivered to the owner.

3.4 Schedule of Hardware

Hardware sets for doors shall be as follows:

HW-1 Butts as required
Lockset 161R Closer
2 kick plates
Extension lever flush bolts

HW-2 Butts as required
Lockset 161R
Closer
1 kick plate

HW-3 Butts as required
Lockset 161G
Closer
1 kick plate

HW-4 Butts as required
Lockset 161A
Closer
1 kick plate

4.0 INSTALLATION

4.1.1 Butt hinges required on doors shall be installed as follows:

1. Top hinge 5 inches from jamb rabbet to top edge of barrel.

2. Bottom hinge 10 inches from bottom edge of barrel to finished floor.
3. Third hinge where required, centered between top and bottom hinges.

4.1.2 Extension Lever Flush Bolts

Extension lever flush bolts shall be installed in the edge of the door located so that the trip mechanism will be about 6 feet from the floor for the top bolt, and 12 inches from the floor from the bottom bolt. Strikes located on metal thresholds shall be secured with machine screws, or by welding or brazing, as applicable.

4.1.3 Kick Plates

Kick plates shall be installed on the push side of the door.

4.1.4 Locks and Latch Strikes

Locks and latch strikes shall be installed on doors and door frames at the same height from the floor throughout the building. The center of door knobs shall be 38 inches above the finished floor.

4.1.5 Thresholds

Thresholds shall be scribed to jambs, drilled and countersunk for attachment to floor.

5.0 TESTING

No additional tests beyond those normally employed either in manufacturing, installation or construction processes or as called for by the specified codes and standards are required under this article.

6.0 INFORMATION TO BE SUBMITTED

6.1 Sample Schedule and Samples

A sample schedule, listing each of the different items of builder's hardware required, shall be submitted with the following column headings:

ITEM NO.	SPECIFICATION REFERENCE, TYPE, OR CATALOG NUMBER	NAME OF ITEM	MANUFACTURER'S NAME AND CATALOG NO. OF <u>ITEM SUPPLIED</u>
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Opposite each listed item number, insert the specification reference, the name of the item and the manufacturer's name and catalog number of the item to be supplied. Where the listed item is not a Federal Specification type, and is not illustrated in the manufacturer's catalog a cut and description, or shop drawing shall be submitted with the hardware schedule. Following approval of the sample schedule, a permanent schedule of hardware, showing the quantities, types and locations of the various items of builders' hardware required for the project shall be submitted. The permanent schedule shall contain inly the catalog numbers of the items appearing on the approved sample schedule.

Sample Schedule required
Permanent Schedule required

30 days after award
15 days after award

Section 8C

Glass and Glazing (Interior)

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DIVISION 8

SECTION 8C

GLASS AND GLAZING (INTERIOR)

1.0 SCOPE

This Specification Section includes the furnishing and installation of interior glass all as indicated on the drawings and described on the specification.

2.0 GENERAL

2.1 Codes and Standards

The Work shall conform to the latest edition and latest addenda thereto, as of date of award, of the following codes and standards:

.1 Federal Specifications

DD-G-451

Glass, Plate, Sheet Figured (float, . flat, for Glazing, Corrugated, Mirrors and other uses.)

TT-P-781

Putty and Elastic Compound; (for) Metal-Sash-Glazing

3.0 DETAILED REQUIREMENTS

3.1 Materials

3.1.1 Glass

Glass for interior metal doors and movable metal partition shall be clear wire glass, flat, 4 inch thick, polished both sides. Wire incorporated in the glass shall be welded square mesh.

Glass shall be "Crossweld" polished wire glass manufactured by Mississippi Glass Company; "Neuweld" polished wire glass manufactured by American Saint Gobain Corporation; or equal approved by Engineer.

3.1.2 Neoprene Gaskets

Neoprene gaskets shall be extruded channel type, having a compressed thickness of not less than 1/16 inch.

3.1.3 Glazing Compound

Glazing compound shall conform to Federal Specification TT-P-781, and shall be manufactured by Tremco Manufacturing Co., Pecora Paint Co., or equal approved by Engineer.

4.0 INSTALLATION

Glass sizes and proper edge clearances shall be determined by measuring the actual unit to receive the glass. Manufacturer's labels shall not be removed until final approval is obtained.

Glass in interior hollow metal doors shall be firmly seated into the previously bedded and back bedded rabbet.

Glass in movable metal partition shall be set in neoprene gasket hereinbefore specified. Beads other than snap in types, shall be attached with applicable length countersunk flat-head screws set approximately 5 inches on centers. A positive seal shall be provided between the glass and the metal on both sides of the glass.

All openings shall be properly marked after glass has been installed to show_ that the openings have been glazed.

4.1 Replacement and Cleaning

Upon completion of the work, all glass surfaces shall be thoroughly cleaned, with all labels, paint spots, glazing compounds, and other defacements removed. Cracked, broken and imperfect glass shall be replaced at no additional cost to the Owner.

5.0 TESTING

No additional tests beyond those normally employed either in manufacturing, installation or construction processes or as called for by the specified codes and standards are required under this article.

6.0 INFORMATION TO BE SUBMITTED

There will be no technical information required.