HOLLOW METAL DOOR AND FRAME SPECIFICATION

PART 1: GENERAL

1.1 Scope of Work

a. The work required under this Section shall consist of furnishing custom hollow metal doors, panels, frames and sidelights as shown on the Architect's drawings and herein specified.

1.2 Qualifications

a. Custom hollow metal doors, panels, frames and sidelights shall be manufactured according to MPI standard manufacturing procedures or approved equal.

1.3 Work Not Included

a. The following work is specified elsewhere and is not included in the work of this Section:
Installation of frames and/or doors
Furnishing and installation of door hardware or rough hardware of any kind
Glass and glazing
Furnishing and installation of weatherstripping, thresholds, and gasketing
Structural steel framing or bracing
Installation into doors or frames of items furnished by others
Field painting
Protection at the building site of items furnished under this Section
Field assembly of spliced frames

1.4 Shop Drawings

a. (Indicate Quantity) copies of all necessary shop drawings shall be submitted to the Architect for his approval. These drawings shall fully describe and locate all items being furnished and shall include details of principal construction features. Approved shop drawings shall constitute final contract requirements, and no work shall be fabricated until shop drawings for that work have been approved by the Architect.

PART 2: PRODUCTS

2.1 Hardware Locations

a. The location of hardware on doors and frames shall be as follows:
Hinges:
top..... 5" from head of frame to top of hinge.
bottom..... 10" from finished floor* to bottom of hinge.
intermediate..... centered between top and bottom hinges.

on dutch doors..... 5” from head of frame to top of hinge 10” from finished floor to bottom of bottom hinge.
5” from split line to top and bottom respectively of lower and upper intermediate hinges.
*Finished floor is defined as the top surface of the floor except when resilient tile or carpet is used, when it is the top of the floor on which the tile or carpet is laid.
Unit and integral type locks and latches..... 40 5/16” to centerline of strike from finished floor
Deadlocks..... 48” to centerline of strike from finished floor

2.2 Clearances

a. Edge clearances shall be provided as follows:
Between doors and frame, at head and jambs..... 1/8”
At door sills: where no threshold is used..... 5/8”
At door sills: where threshold is used..... 1/8” above threshold
Between meeting edges of pairs of doors..... 3/16” maximum

2.3 Hollow Metal Doors

a. Materials:
Doors shall be made of commercial quality, level, cold rolled steel conforming to ASTM Designation A1008 and free of scale, pitting or other surface defects. Face sheets for interior doors shall be not less than _____ thick. Face sheets for exterior doors shall be not less than _____ thick, and shall have a zinc coating conforming to ASTM Designation A653.
b. Design and Construction
All doors shall be custom made, of the types and sizes shown on approved shop drawings, and shall have no visible seams or joints on their faces or edges. Lock and hinge edges shall have vertical mechanical interlocking seams.
All doors shall be strong, rigid and neat in appearance, free from warpage or buckle. Corner beads shall be true and straight and of minimum radius for the gauge of metal used.
Face sheets shall be stiffened by continuous vertical formed steel sections spanning the full thickness of the interior space between door faces. These stiffeners shall be not less than .026 thick, spaced not more than 6” apart and securely attached to face sheets by spot welds. Spaces between stiffeners shall be sound-deadened and insulated the full height of the door with thermal fiber industrial insulation.
Door faces shall be joined by mechanical interlocking edges extending the full height of the door.
Top and bottom edges of all doors shall be closed with a continuous steel channel not less than .053 thick, extending the full width of the door and projection welded to both faces. Exterior doors shall have flush closing channel at their top edges and, where required for attachment of weatherstripping, a flush closure also at their bottom edges. Openings

shall be provided in the bottom closure of exterior doors to permit the escape of entrapped moisture.
Edge profiles shall be provided on both vertical edges of doors as follows:
Single-acting swing doors..... beveled 1/8” in 2”
Double-acting swing doors..... rounded on 2 1/8” radius
All hardware furnished by the hardware contractor for single-acting doors shall be designed for beveled edges as specified in subparagraph 6 above.
Hardware reinforcements:
Doors shall be mortised, reinforced, drilled and tapped at the factory for fully templated hardware only, in accord with the approved hardware schedule and templates provided by the hardware contractor. Hardware contractor shall furnish hollow metal door and frame manufacturer with physical hardware samples as requested. Where surface-mounted hardware is to be applied, doors shall have reinforcing plates only; all drilling and tapping shall be done in the field by erector.
Minimum thickness for hardware reinforcing plates shall be as follows:
Hinge and pivot reinforcements..... .167
Reinforcements for lock face and flush bolts..... .108
Reinforcements for concealed holders and concealed closers..... .093
Reinforcements for all other surface mounted hardware..... .067
Glass moldings and stops (if applicable):
Where specified or scheduled, doors shall be provided with hollow metal moldings to secure glazing by others in accordance with glass opening sizes shown on approved shop drawings.
Fixed moldings shall be securely welded to the door on the security side. Loose stops shall be not less than .042 thick, with butted corner joints, secured to the framed opening by cadmium or zinc-coated countersunk screws.

C. Finish:

After fabrication, all tool marks and surface imperfections shall be dressed, filled and sanded as required to make all faces and vertical edges smooth, level and free of all irregularities. Doors shall then be chemically treated to insure maximum paint adhesion and shall be coated, on all exposed surfaces, with a rust inhibitive primer which is fully cured before shipment.

2.4 Hollow Metal Panels

a. Hollow metal panels shall be made of the same materials and construction and finished in the same way as specified for hollow metal doors.

2.5 Hollow Metal Frames

a. Materials

Frames for exterior openings shall be made of commercial grade zinc coated steel conforming to ASTM Designation A653, not less than _____ thick.

Frames for interior openings shall be commercial grade cold rolled steel conforming to ASTM Designation A1008. Metal thickness shall be not less than _____ .

b. Design and Construction

All frames shall be custom made welded units with integral trim, of the sizes and shapes shown on approved shop drawings.

All finished work shall be strong and rigid, neat in appearance, square, true and free of defects, warp or buckle. Molded members shall be clean cut, straight and of uniform profile throughout their lengths.

Jamb depths, trim, profile and backbends shall be as scheduled by the Architect and shown on approved shop drawings.

Corner joints shall have all contact edges closed tight, with trim faces mitered and continuously welded, and stops butted.

Minimum depth of stops shall be 5/8". Hospital cutoff stops, where scheduled, shall be capped at 45 deg at heights shown on approved shop drawings, and all jamb joints below cutoff stops shall be welded and ground smooth making them imperceptible.

When shipping limitations so dictate, frames for large openings shall be fabricated in sections designed for splicing in the field by erector.

Frames for multiple or special openings shall have mullion and/or rail members which are closed tubular shapes. All joints between faces of abutting members shall be securely welded and finished smooth.

Hardware reinforcements:

Frames shall be mortised, reinforced, drilled and tapped at the factory for fully templated mortised hardware only, in accord with approved hardware schedule and templates provided by the hardware contractor. Hardware contractor shall furnish hollow metal door and frame manufacturer with physical hardware samples as requested. Where surface-mounted hardware is to be applied, frames shall have reinforcing plates only; all drilling and tapping shall be done by erector.

Minimum thickness of hardware reinforcing plates shall be as follows:

Hinge and pivot reinforcement..... .167
Strike reinforcement..... .108
Flush bolt reinforcements..... .108
Closer reinforcement..... .093
Reinforcements for:
surface-mounted hardware..... .093
hold-open arms..... .093
surface panic devices..... .093

Floor anchors:

Floor anchors shall be securely welded inside each jamb, with two holes provided at each jamb for floor anchorage.

Where so scheduled or specified, adjustable floor anchors, providing not less than 2" height adjustment, shall be provided.

Minimum thickness of floor anchors shall be _____.

Jamb anchors:

Frames for installation in masonry walls shall be provided with adjustable jamb anchors of the stirrup and strap type. Anchors shall be not less than .053 thick. Stirrup straps shall be not less than 2”x10” in size corrugated. The number of anchors provided on each jamb shall be as follows:
Frames up to 7'6” height..... 3 anchors
Frames 7’6” to 8'0” height..... 4 anchors
Frames over 8’0” height..... 1 anchor for each 2’ or fraction thereof in height
(b) Frames for installation in stud partitions
shall be provided with steel anchors of suitable design, not less than .053 thick, securely welded inside each jamb as follows:
Frames up to 7’6” height..... 3 anchors Frames 7’6” to 8’0” height..... 4 anchors Frames over 8’0” height..... 5 anchors plus one additional for each 2’ fraction thereof over 8'1”
(c) Frames to be anchored to previously placed concrete, masonry or structural steel shall be provided with anchors of suitable design as shown on approved shop drawings. Fasteners for such anchors shall be provided by others.
Dust cover boxes (or mortar guards) of not thinner than .016 steel shall be provided at all hardware mortises on frames to be set in masonry or plaster partitions.
All frames shall be provided with a steel spreader temporarily attached to the feet of both jambs to serve as a brace during shipping and handling.
Applied glazing stops shall be of cold rolled steel, not less than .042 thick, butted at corner joints and secured to the frame with countersunk cadmium or zinc plated screws.
Finish: After fabrication, all tool marks and surface imperfections shall be removed, and exposed faces of all welded joints shall be dressed smooth. Frames shall then be chemically treated to insure maximum paint adhesion and shall be coated on all accessible surfaces with a rust inhibitive primer which is fully cured before shipment.

2.6 Fire-rated Doors and Frames

All fire labeled doors and frames shall be manufactured in strict accordance with the specifications and procedures of Underwriters Laboratories. Construction of labeled doors shall vary from standard door construction to meet Underwriters requirements. All labeled doors shall have labels attached, designating the Underwriters Laboratories label classification of the door.
If any door or frame specified by the Architect to be fire-rated cannot qualify for appropriate labeling because of its design, hardware, or any other reason, the Architect shall be so advised before fabricating work on that item is started.

PART 3: EXECUTION

3.1 Site Storage and Protection of Materials

It shall be the responsibility of the General Contractor to see that any scratches caused in shipping or handling are promptly cleaned and touched up with rust-inhibitive primer, and that materials are properly stored in a dry location, and covered to protect them from damage. Doors shall have their wrappings or coverings removed upon delivery at the building site and shall be in a vertical position, spaced by blocking to permit air circulation between them.

Note to Architect: In that section of the specification where installation of the work is specified, it should be required that:

Prior to installation, all frames must be checked and corrected for rack, twist, and out-of-square. Frames must be set true and plumb and remain in alignment until permanently built into the wall.

Proper door clearance must be maintained in accordance with part 2, section 2.2 of the Specifications for Custom Hollow Metal Doors and Frames, except for special conditions otherwise noted. Where necessary, metal hinge shims are acceptable to maintain clearances. Hardware must be applied in accordance with hardware manufacturer's templates and instructions.

It is important to recognize that work of this kind is not the responsibility of the hollow metal manufacturer.