

SECTION 08 11 13

HOLLOW METAL DOORS AND FRAMES

SPECIFIER NOTE: This editable master specification contains bracketed options. Delete requirements not applicable to the Project, coordinate selections with the Door and Frame Schedule and Section 08 71 00, and verify current listing limitations before issue. Optional specialty assemblies are not included unless expressly selected.

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Standard and custom hollow metal doors.
2. Standard and custom hollow metal frames.
3. Fire-rated hollow metal door and frame assemblies.
4. Hollow metal sidelights, transoms, borrowed-light frames, and panels.
5. [Embossed steel doors.]
6. [Sound-control hollow metal door and frame assemblies.]
7. [Bullet-resistant hollow metal door and frame assemblies.]
8. [Florida Building Code and Miami-Dade approved exterior door and frame assemblies.]
9. Factory preparation for door hardware and electrical access.

B. Related Requirements:

1. Section 04 20 00 - Unit Masonry: Grouting of frames in masonry.
2. Section 07 92 00 - Joint Sealants: Perimeter sealants.
3. Section 08 31 00 - Access Doors and Panels.
4. Section 08 71 00 - Door Hardware.
5. Section 08 80 00 - Glazing.
6. Section 08 91 00 - Louvers and Vents.
7. Section 09 91 00 - Painting: Field-applied finish coatings.
8. Section 13 49 00 - Radiation Protection: Lead-lined assemblies.

1.2 REFERENCES

- A. Comply with the latest adopted editions of referenced standards unless a specific edition is required by the Contract Documents.
- B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, and Frame Anchors.
- C. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
- D. ANSI/SDI A250.8 (SDI-100) - Specifications for Standard Steel Doors and Frames.
- E. ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames.
- F. ANSI/SDI A250.14 - Hardware Preparation in Steel Doors and Steel Frames.
- G. ASTM A1008/A1008M - Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability.
- H. ASTM A653/A653M - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed).
- I. HMMA 805 – Recommended Selection and Usage Guide for Hollow Metal Doors and Frames

SECTION 08 11 13

- J. HMMA 810 - Hollow Metal Doors.
- K. HMMA 820 - Hollow Metal Frames.
- L. HMMA 840 - Guide Specification for Receipt, Storage, and Installation of Hollow Metal Doors and Frames.
- M. HMMA 841 - Tolerances and Clearances for Hollow Metal Doors and Frames.
- N. HMMA 850 - Fire-Rated Hollow Metal Doors and Frames.
- O. HMMA 862 - Guide Specifications for Forced-Entry/Bullet-Resistant Security Hollow Metal Doors and Frames.
- P. HMMA 865 - Guide Specifications for Sound-Control Hollow Metal Door and Frame Assemblies.
- Q. NFPA 80 - Standard for Fire Doors and Other Opening Protectives.
- R. UL 10B - Fire Tests of Door Assemblies.
- S. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
- T. UL 752 - Bullet-Resisting Equipment.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum steel thickness, uncoated, as permitted by the referenced product standard.
- B. Hollow Metal: Steel doors, frames, panels, and related components formed from sheet steel and reinforced for the scheduled service condition.

1.4 COORDINATION

- A. Coordinate door and frame sizes, profiles, handing, swing, wall construction, anchors, glazing, louvers, and fire-protection ratings with Drawings and schedules.
- B. Coordinate factory preparations with approved door-hardware submittals and templates. Furnish templates and wiring diagrams to manufacturer in time to avoid fabrication delay.
- C. Coordinate access-control components, raceways, junction boxes, power transfers, door-position switches, and other electrical provisions with Divisions 26 and 28.
- D. For fire-rated, sound-control, bullet-resistant, and windstorm assemblies, provide only combinations of doors, frames, glazing, louvers, hardware, seals, anchors, and installation methods permitted by the applicable tested or listed assembly.

1.5 PREINSTALLATION MEETINGS

- A. [Conduct preinstallation conference at Project site for specialty, labeled, or complex multi-opening assemblies.]

1.6 ACTION SUBMITTALS

- A. Product Data: Manufacturer technical data for each product type, including materials, construction, cores, profiles, finishes, anchors, and limitations.
- B. Shop Drawings: Include the following:
 - 1. Opening identification and location.
 - 2. Door and frame elevations, profiles, sizes, handing, swings, and construction.
 - 3. Steel thicknesses; door edge and top/bottom construction; frame assembly method.
 - 4. Core type, glazing and louver cutouts, panels, astragals, and removable stops.
 - 5. Wall conditions, jamb depths, frame anchors, floor anchors, and field splices.
 - 6. Hardware preparations, reinforcements, locations, and electrical access provisions.

- 7. Fire, smoke, sound, bullet-resistance, and windstorm labels or ratings where applicable.
- 8. Installation details for welded, knockdown, slip-on, pocket, and field-spliced frames.
- C. Samples: On request, submit representative frame profile/corner and door edge/core samples.

1.7 INFORMATIONAL SUBMITTALS

- A. Product certificates for specified performance and material requirements.
- B. Current listing or approval documentation for fire-rated, sound-control, bullet-resistant, or windstorm assemblies.
- C. Manufacturer installation instructions.
- D. Sample warranty.

1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer specializing in hollow metal doors and frames with products of the types specified.
- B. Installer Qualifications: Experienced installer regularly engaged in installation of commercial hollow metal work.
- C. Fire-Rated Assemblies: Labeled by a qualified testing agency acceptable to authorities having jurisdiction.
- D. Source Limitations: Obtain doors and frames for each rated or specialty assembly from a single manufacturer to maintain tested or listed assembly compatibility.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer packaging, identified with opening numbers corresponding to approved Shop Drawings.
- B. Inspect materials upon delivery. Record visible damage and shortages on freight documentation and promptly notify manufacturer.
- C. Store and handle in accordance with HMMA 840. Store vertically under cover in a dry, ventilated location; protect from weather, ground moisture, construction damage, and sustained contact with dissimilar materials.
- D. Provide minimum 1/4-inch (6-mm) airspace between stored doors and frames. Do not use nonvented plastic or canvas shelters that create condensation.
- E. Remove temporary shipping bars only immediately before installation. Shipping bars are for shipping and handling and are not installation braces.

1.10 WARRANTY

- A. Manufacturer Warranty: Provide manufacturer's limited warranty against defects in materials and workmanship.
- B. Warranty Period: One year from date of delivery unless otherwise agreed in writing by manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Basis-of-Design Manufacturer: HMF Express, a Senneca company.
- B. Substitutions: Comply with Section 01 25 00. Proposed substitutions shall demonstrate compliance with every specified material, construction, performance, listing, dimensional, and warranty requirement.

2.2 PERFORMANCE REQUIREMENTS

- A. General: Provide assemblies suitable for locations, opening sizes, wall conditions, exposures, and usage indicated.
- B. Door Performance Levels: ANSI/SDI A250.8, as scheduled:
 - 1. [Level 1 - Light Duty; Model 1 or 2; minimum 0.032-inch (0.8-mm) face sheet.]
 - 2. [Level 2 - Heavy Duty; Model 1 or 2; minimum 0.042-inch (1.0-mm) face sheet.]
 - 3. [Level 3 - Extra Heavy Duty; Model 1 or 2; minimum 0.053-inch (1.3-mm) face sheet.]
 - 4. [Level 4 - Maximum Duty; Model 1; minimum 0.067-inch (1.7-mm) face sheet.]
- C. Fire-Rated Assemblies: Ratings indicated, tested to UL 10B or UL 10C as required by code, and labeled for use with scheduled wall construction and hardware. Comply with NFPA 80.
- D. [Temperature-Rise Rating: Where indicated, provide doors with temperature-rise rating shown on schedules.]
- E. [Smoke and Draft Control: Where indicated, provide assemblies labeled for leakage performance and coordinate gasketing and hardware.]
- F. [Sound Control: Provide complete assembly with laboratory STC rating [____], tested and installed using the components and details of the tested assembly. Do not infer assembly STC from an unrated door leaf.]
- G. [Bullet Resistance: Provide complete assembly rated UL 752 Level [3] [____]. Coordinate door, frame, glazing, hardware, anchors, wall interface, and protection of penetrations.]
- H. [Windstorm: Provide complete door and frame assembly carrying current Florida Product Approval [and Miami-Dade Notice of Acceptance] for the scheduled design pressures, impact zone, opening size, swing, wall construction, anchors, and hardware.]

2.3 STEEL MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, commercial steel, suitable for exposed applications.
- B. Metallic-Coated Steel Sheet: ASTM A653/A653M, A60 zinc-iron-alloy (galvannealed) coating unless a different coating is required by the selected tested or listed assembly.
- C. Steel Selection:
 - 1. Interior, Noncorrosive Locations: [Cold-rolled steel] [A60 galvannealed steel][G90 Galvanized].
 - 2. Exterior, Humid, or Corrosive Locations: [A60 galvannealed steel].
 - 3. Fire-rated and specialty assemblies: Steel type and thickness permitted by the applicable listing or approval.

2.4 EXTERIOR HOLLOW METAL DOORS AND FRAMES

- A. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Hollow Metal Doors and Frames

1. Physical performance: [Level 3 – Extra Heavy Duty][Level 4- Maximum Duty] according to ANSI/SDI A250.8
2. Doors:
 - a. Type: As indicated in the Door and Frame Schedule on Drawings
 - b. Door Thickness: [1-3/4 inches (44 mm)] [as scheduled]. Specialty thicknesses from 1-3/8 to 3-1/4 inches are available where coordinated with manufacturer and hardware.
 - b. Face Material: [Cold-rolled steel] [A60 galvanized steel], minimum thickness required for selected performance level; Manufacturer available range 0.048 to 0.093 inch for standard custom fabrication, subject to configuration and listing.
 - c. Door Cores: Provide one of the following as scheduled and as permitted by ratings:
 1. Polystyrene core.
 2. Steel-stiffened core.
 3. Mineral-fiber core for fire-rated construction where required by listing.
 4. [Proprietary sound-control composite core.]
 5. [Proprietary bullet-resistant core.]
 6. [Lead-lined construction coordinated with Section 13 49 00.]
 - d. Edge Construction: [Mechanically interlocked, adhesive-filled hemmed edges] [welded butt edges], with 5/64-inch bevel at hinge and lock stiles unless square edges are scheduled or required by hardware.
 - e. Top and Bottom: Close with steel channels or caps; provide flush top caps at exterior doors and where indicated. Seal joints at exterior doors in accordance with listing and manufacturer instructions.
 - f. Openings: Factory cut, reinforce, and cap vision and louver openings. Provide removable glazing stops where indicated; coordinate glass and louver thickness.
 - g. Astragals: Provide applied or formed astragals where scheduled and as required by fire or security listing.
3. Frames
 - a. Materials: [Cold-rolled steel] [A60 galvanized steel], available minimum thickness range 0.055 to 0.093 inch, selected for opening size, wall condition, exposure, anchorage, and performance requirements.
 - b. Construction: [Full profile welded] [knockdown] [Face welded] as indicated. Provide welded frames with continuously welded and finished face joints unless otherwise scheduled.

2.5 INTERIOR HOLLOW METAL DOORS AND FRAMES

- A. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Physical Performance: [Level 1 – Standard/Light Duty] [Level 2 – Heavy Duty] [Level 3 – Extra Heavy Duty] [Level 4- Maximum Duty] according to ANSI/SDI A250.8
 1. Doors:
 - a. Type: As indicated on the Door and Frame Schedule
 - b. Thickness: [1-3/4 inches (44 mm)] [as scheduled]. Specialty thicknesses from 1-3/8 to 3-1/4 inches are available where coordinated with manufacturer and hardware.

- c. Face material: [Cold-rolled steel] [A60 galvanized steel] [G90 Galvanized] [Stainless Steel 304] [Stainless Steel 316], minimum thickness required for selected performance level; Manufacturer available range 0.048 to 0.093 inch for standard custom fabrication, subject to configuration and listing.
 - d. Edge Construction: [Mechanically interlocked, adhesive-filled hemmed edges] [welded butt edges], with 5/64-inch bevel at hinge and lock stiles unless square edges are scheduled or required by hardware.
 - e. Core: Door Cores: [Polystyrene or honeycomb] [steel-stiffened] [Proprietary sound-control composite core.] [Proprietary bullet-resistant core.] [Lead-lined construction coordinated with Section 13 49 00.] [Mineral-fiber core]
 - f. Top and Bottom: Close with steel channels or caps; provide flush top caps at exterior doors and where indicated. Seal joints at exterior doors in accordance with listing and manufacturer instructions.
 - g. Openings: Factory cut, reinforce, and cap vision and louver openings. Provide removable glazing stops where indicated; coordinate glass and louver thickness.
 - h. Astragals: Provide applied or formed astragals where scheduled and as required by fire or security listing.
2. Frames:
- a. Materials: [Cold-rolled steel] [A60 galvanized steel] [G90 Galvanized] [Stainless Steel 304] [Stainless Steel 316], Manufacturer available minimum thickness range 0.055 to 0.093 inch, selected for opening size, wall condition, exposure, anchorage, and performance requirements.
 - b. Construction: [Continuously welded] [knockdown] [Face welded drywall]
 - c. Frame Types:
 - 1. Three-sided frames.
 - 2. Four-sided frames.
 - 3. Double-egress frames.
 - 4. Pocket-door frames, with steel pocket cages where indicated.
 - 5. Sidelight and transom frames.
 - 6. Borrowed-light frames.
 - 7. Multi-opening and specialty-profile frames.
 - d. Stops and Glazing Beads: Formed integral stops unless removable stops are required. Provide screw-applied steel glazing beads at glazed openings.
 - e. Floor Anchors: Provide anchors at each jamb unless prohibited by the wall/floor condition or listing.
 - f. Jamb Anchors: Type and quantity appropriate for masonry, steel-stud, wood-stud, existing-wall, or other scheduled substrates and required by applicable listing. Provide head anchors where required by approval.
 - g. Field Splices: Locate only where approved. Provide internal sleeves and connections designed to maintain alignment and required performance.
 - h. Grout Guards: Provide mortar guards at hardware preparations in frames to be grouted.

3. Exposed Finish: Prime

2.6 SPECIALTY ASSEMBLIES

SPECIFIER NOTE: Retain only specialty paragraphs required by the Project. The opening schedule must identify each specialty rating and the complete assembly must remain within manufacturer listing or approval limits.

- A. [Sound-Control Assemblies: STC assembly, rating as scheduled, with proprietary door core, prepared frame, perimeter seals, automatic door bottom or threshold seals, glazing, and hardware matching the tested assembly.]
- B. [Bullet-Resistant Assemblies: UL 752 Level 3 assembly unless another listed level is scheduled; include proprietary door core, reinforced frame, protected vision glazing where indicated, hardware, and anchors compatible with the rating.]
- C. [Windstorm Assemblies: Florida Building Code and, where scheduled, Miami-Dade approved assembly. Provide exact approved door, frame, anchors, hardware, glazing, and installation method for design pressures indicated.]
- D. [Lead-Lined Assemblies: Sheet-lead thickness and coverage indicated in Section 13 49 00. Maintain continuous radiation protection at door, frame, hardware preparations, and wall interfaces.]

2.7 HARDWARE PREPARATION AND REINFORCEMENT

- A. Factory prepare doors and frames for mortised and concealed hardware using approved templates. Comply with ANSI/SDI A250.6 and ANSI/SDI A250.14.
- B. Reinforce for surface-applied hardware that is field drilled and tapped. Do not factory drill and tap for surface hardware unless indicated or required by template.
- C. Provide minimum reinforcement thicknesses required by ANSI/SDI A250.6 or the applicable tested/listed assembly.
- D. Provide steel reinforcing for hinges, pivots, locks, latches, strikes, exit devices, closers, coordinators, flush bolts, holders, stops, and other scheduled hardware.
- E. Coordinate nonstandard, heavy-duty, electrified, and specialty hardware preparations with manufacturer before fabrication.

2.8 ELECTRICAL PROVISIONS

- A. Provide factory preparations for electrified hardware, including raceways, conduit access, junction boxes, mortar guards, and reinforcing required by approved hardware templates.
- B. Provide continuous raceway from hinge or power-transfer location to electrified lock, exit device, or other device where scheduled and permitted by the door core and listing.
- C. Provide access plates where required for service and permitted by the assembly listing.
- D. Coordinate wiring responsibility and field connections with Divisions 26 and 28.

2.9 FABRICATION

- A. Fabricate accurately to profiles and dimensions indicated, square, rigid, and free of warp or buckle.
- B. Form exposed surfaces from single sheets where practical. Dress exposed welds and joints smooth, flush, and invisible after finishing.
- C. Provide clearances and manufacturing tolerances in accordance with ANSI/SDI 117 and HMMA 841.
- D. Fabricate labeled assemblies in strict accordance with listing requirements. Do not make field modifications that void labels.

- E. At exterior openings, close and seal construction to prevent water entry while maintaining approved drainage and listing requirements.
- F. Mark each product with opening number corresponding to approved Shop Drawings.

2.10 FACTORY FINISH

- A. Prime Finish: Clean, chemically treat, and apply manufacturer standard rust-inhibitive primer. Primer is a preparatory coating and shall receive field finish paint unless manufacturer expressly identifies it as a finish coating.
- B. Primer Color: Manufacturer standard [gray]
- C. [No factory primer: Where expressly indicated and appropriate for field-applied coating system, provide unprimed steel prepared as required by coating manufacturer.]

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, wall openings, floor conditions, and embedded anchors for compliance with approved Shop Drawings and installation tolerances.
- B. Verify opening dimensions, wall thicknesses, floor elevations, and locations of utilities and concealed reinforcement before installation.
- C. Do not begin installation until unsatisfactory conditions have been corrected. Beginning installation constitutes acceptance of substrate conditions.

3.2 PREPARATION

- A. Remove debris and obstructions from installation areas. Protect adjacent construction.
- B. Coordinate setting drawings, templates, and installation instructions with trades constructing walls and installing hardware, glazing, and electrical work.
- C. Field apply compatible primer to welded, ground, or damaged areas promptly after fabrication or installation work.

3.3 INSTALLATION

- A. General: Install in accordance with approved Shop Drawings, manufacturer instructions, HMMA 840, and ANSI/SDI A250.11. Install fire-rated assemblies in accordance with NFPA 80 and the listing.
- B. Frames:
 - 1. Set accurately in position; plumb, align, level, and brace securely until permanent anchors and adjacent wall construction are complete.
 - 2. Install anchors for each wall condition at locations and quantities shown on approved Shop Drawings and required by applicable listing or approval.
 - 3. Maintain frame geometry and door clearances during wall construction and grouting.
 - 4. Where frames are grouted, use hand-troweled grout with suitable consistency; do not pump grout unless frame and anchors are designed for that pressure. Provide temporary bottom and intermediate spreaders as required.
 - 5. Install field-spliced and pocket frames in accordance with manufacturer details.
 - 6. Remove shipping spreaders after frames are anchored and braced; do not use shipping spreaders to establish installation tolerances.
- C. Doors:
 - 1. Install doors plumb and aligned, without twist or bind.

SECTION 08 11 13

2. Provide clearances permitted by ANSI/SDI A250.8, HMMA 841, NFPA 80, and the applicable listing.
 3. Do not trim, grind, drill, or otherwise modify labeled or specialty doors except as permitted by manufacturer and listing agency.
- D. Hardware: Install and adjust in accordance with Section 08 71 00 and hardware manufacturer instructions.
- E. Glazing: Install in accordance with Section 08 80 00 and requirements of the tested or listed assembly.

3.4 FIELD QUALITY CONTROL

- A. Inspect installed work for alignment, anchorage, clearances, operation, finish damage, and compliance with labels and approved Shop Drawings.
- B. Correct nonconforming work. Replace components that cannot be corrected without impairing appearance, operation, rating, or warranty.
- C. [Arrange inspection of fire-rated openings as required by authorities having jurisdiction.]

3.5 ADJUSTING

- A. Adjust doors, frames, and hardware for smooth, quiet operation without binding. Verify positive latching and closing at fire-rated openings.
- B. Make field adjustments only as permitted by manufacturer, hardware manufacturer, and applicable listing. Unauthorized alteration may void labels and warranty.

3.6 CLEANING AND TOUCHUP

- A. Clean exposed surfaces using nonabrasive materials and methods recommended by manufacturer. Remove dirt, labels, and residue without damaging primer or labels.
- B. Immediately clean, prepare, and touch up scratches, welds, and abraded areas with compatible rust-inhibitive primer.
- C. Leave work clean, operational, and ready for field finishing.

3.7 PROTECTION

- A. Protect installed products from damage, corrosion, and contamination during remaining construction. Repair or replace damaged work before Substantial Completion.

3.8 SCHEDULES

- A. Refer to Door and Frame Schedule and Drawings for opening-specific requirements.

END OF SECTION 08 11 13