



SECTION 08110

STEEL DOORS AND FRAMES

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Steel doors and steel frames.

1.2 RELATED SECTIONS

- A. Section 04800 - Masonry Assemblies.
- B. Section 08210 - Wood Doors.
- C. Section 08710 - Door Hardware.
- D. Section 08800 - Glazing: Glass for door lights and borrow lights.
- E. Section 09250 - Gypsum Board.
- F. Section 09900 - Painting: Field painting of doors and frames.

1.3 REFERENCES

- A. ANSI A250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Painted Steel Surfaces for Steel Doors and Frames.
- B. ANSI A250.6 – Recommend Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
- C. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 1998.
- D. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1998.
- E. ANSI A250.11, Recommended Erection Instructions for Steel Frames.
- F. ASTM A 568/A 568M – Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for.
- G. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-coated (Galvannealed) by the Hot-Dip Process; 1998.

- H. ASTM A 924/A 924M – Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
- I. ASTM A 1008/A 1008M – Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
- J. ASTM E-90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- K. NFPA 80 - Standard for Fire Doors and Windows; 1999.
- L. NFPA 252 - Standard Methods of Fire Tests for Door Assemblies; 1995.
- M. UL 10B - Standard for Fire Tests of Door Assemblies; 1997.
- N. UL 10C - Positive Pressure Fire Tests of Door Assemblies.

1.4 SUBMITTALS

- A. Submit shop drawings under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets and specifications.
- C. Shop Drawings: Include schedule identifying each unit, with door marks or numbers referencing drawings. Show layout, profiles, product components and anchorages.
- D. Certificates: Product certificates signed by the manufacturer certifying material compliance with ANSI A250.8, specified performance characteristics and criteria, and physical requirements.
- E. Installation Instructions: Manufacturer's printed installation instructions.
- F. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
 1. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
 2. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.
 3. List of proposed materials demonstrating that each material was extracted, harvested or recovered, as well as manufactured within 500 miles of the project site.

1.5 QUALITY ASSURANCE

- A. All products shall conform to the requirements of ANSI A250.8, "SDI 100 Recommended Specifications for Standard Steel Doors and Frames".
- B. Fire Rated Doors:
 1. Doors shall be tested in accordance with UL 10B, "Fire Tests of Door Assemblies", NFPA 252, "Fire Tests of Door Assemblies", and UL 10C, "Positive Pressure Fire Tests of Door Assemblies".
 2. Doors must have an approved marking or physical label, applied by an authorized facility, in accordance with the procedure set forth by an independent certification agency.

- C. All products shall comply with quality assurance standards, control plans, work instructions, and flow diagrams established within ProVia's quality manual.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames packaged in cardboard for protection while in transit. If delivered via common carrier doors must be palletized and protected.
- B. Handle all packages with care as doors typically contain glass and are prefinished.
- C. Protect all materials from the weather while storing. Avoid use of non-vented plastic or canvas shelters to prevent forming of humidity chambers that cause rust. Store in the upright position.
- D. If cardboard wrapping becomes wet, remove contents immediately.
- E. Provide 1/4 inch (6 mm) spacing between doors to provide air circulation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Supplier: Lansing Housing Products, PO Box 385, Lansing, IA 52151
Tel: 800-331-8200; Tel: 563-538-4224; Web: www.lansinghp.net
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 MATERIALS

- A. All steels used to manufacture doors must meet at least one or more of the following requirements:
 - 1. Cold rolled steel shall comply with ASTM A1008 and A 568.
 - 2. Galvannealed steel shall comply with ASTM A 653 and A 924.

2.3 DOOR CONSTRUCTION

- A. Doors: Interior or Exterior; complying with ANSI 250.8 and as indicated.
 - 1. Available Performance Classes
 - a. Level 1 (standard duty); 20 gage (0.032 in) faces.
 - 2. Door Faces and Edge: Model 1 full flush design with visible edge seams. Faces available in flush, embossed, and textured.
 - 3. Thickness: 1-3/4 inches (44.5 mm).
 - 4. Face Material: Galvannealed steel sheet.
 - 5. Door top & bottom reinforcements: Continuous steel channel bonded to face sheets extending full width of door. Minimum thickness of .058 inches (16 gauge).
 - 6. Hinge Reinforcements: Minimum thickness of .123 inches (10 gauge) and fully threaded.
 - 7. Lockset and deadbolt reinforcement: Minimum thickness of .067 inches (14 gauge).
 - 8. Door Core: Polyurethane foam filled and fully bonded to face sheets. Total product U-factor as low as 0.20.
- B. Fire Rated Doors: Ratings as indicated on Door Schedule, when tested in accordance with NFPA 252 or UL 10B.
 - 1. Labeled by UL, WH, or other agency acceptable to the authorities having

jurisdiction.

2.4 FRAME CONSTRUCTION

- A. Variable Depth Frame, complying with ANSI A250.8
 - 1. Material: 16 gage galvanized steel sheet.
 - 2. 22 Gauge Closure Trim.
 - 3. Hinge reinforcement: 11 gage spot welded, 10 gage equivalent number of threads (ANSI A250.6).
 - 4. Lockset and deadbolt prep: 11 gage spot welded, 14 gage equivalent number of threads.
 - 5. Adjustable frame depth (throat) for varying wall sizes.
 - 6. Seal: Full perimeter weather stripping.
 - 7. Fire rating: 90 minute, positive and neutral pressure.
- B. Fixed Depth Frame, complying with ANSI A250.8.
 - 1. Material: 16 gage formed galvanized steel sheet.
 - 2. Hinge reinforcement: 10 gage spot welded fully threaded.
 - 3. Lockset and deadbolt prep: 14 gage spot welded.
 - 4. Frame Depth: Fixed, as indicated on drawings.
 - 5. Corners: Mitered; mechanically fastened.
 - 6. Seal: Full perimeter weatherstripping.
 - 7. Fire rating: 3 hour, positive and neutral pressure
- C. Full Wood Frame
 - 1. Material: Pine
 - 2. Depth: 4 9/16"
 - 3. All frame members to be protected with Pine Guard
- D. Additional frames borrowed from others.
- E. Frame Anchors: Per manufacturer's specifications.

2.5 FACTORY PRIMED DOORS FOR FIELD FINISHING

- A. Factory applied primer shall comply with ANSI A250.10.
- B. Doors and frames to be factory primed with a two component catalyzed polyurethane.
- C. Field Finish: All doors, frames, and components shall be cleaned and finished in accordance with the manufacturer's instructions.

2.6 FACTORY PREFINISHED DOORS

- A. Factory applied finish shall comply with ANSI A250.3.
- B. Primer: Doors and frames to be factory primed with a two component catalyzed polyurethane.
- C. Factory Applied Finish: Two component catalyzed polyurethane, heat cured.
 - 1. Available in manufacturer selected colors and stains.
 - 2. Factory stained products must include a protective clear coating containing UV inhibitors.
 - 3. Custom finishes available by request

PART 3 EXECUTION

3.1 EXAMINATION

- A. Before beginning installation, verify that substrate conditions previously installed under other sections are acceptable for installation of doors.
- B. Verify door frame openings are installed plumb, true, and level.
- C. Verify margins between door and frame are correct and check for any paint scratches.

3.2 INSTALLATION

- A. Install frames plumb, level, rigid and in true alignment in accordance with ANSI A250.11.
- B. Install doors per manufacturer's instructions.
- C. Install hardware in accordance with the hardware manufacturer's recommendations and templates.
- D. Install fire-rated doors and frames in accordance with NFPA 80 and local code authority requirements.
- E. Install doors to maintain alignment with frames to achieve maximum operational effectiveness and appearance. Adjust to maintain perimeter clearances as required. Shim as needed to assure the proper clearances are achieved.

3.3 CLEARANCES

- A. Clearance between the door and frame head and jambs for both single swing and pairs of doors shall be 1/8 inch (3.2 mm).
- B. Clearance between the meeting edges of pairs of doors shall be 3/16 inch plus or minus 1/16 inch (5 mm plus or minus 1.6 mm). For fire rated applications, the clearance between the meeting edges of pairs of doors shall be 1/8 inch plus or minus 1/16 inch (3.2 mm plus or minus 1.6 mm).
- C. Bottom clearance shall be 7/16 inch (19 mm).

3.4 ADJUSTING AND CLEANING

- A. Adjust hinges, locksets, and other hardware as necessary to ensure doors swing freely without binding and hardware is operating smoothly.
- B. Clean product and remove NFRC label from door & adhere to a sheet of paper. Warranty card, NFRC label, and touch-up paint must be submitted to customer.
- C. Adjust hinge sets, locksets, and other hardware. Lubricate using a suitable lubricant compatible with door and frame coatings-
- D. Inspect finish and check for scratches. Touch-up as necessary with touch-up paint included in installation kit.
- E. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products.

- F. Clean installed products in accordance with manufacturer's instructions before owner's acceptance.
- G.. Remove from project site and legally dispose of construction debris associated with this work.

3.5 PROTECTION

- A. Protect installed products and finished surfaces from damage during construction.

3.6 SCHEDULES

- A. Refer to Door and Frame Schedule appended to this section

END OF SECTION