SECTION 08110

STEEL DOORS AND FRAMES

PART 1 GENERAL

1.1 SECTION INCLUDES
A. Steel doors.

B. Steel frames.

1.2 RELATED SECTIONS
A. Section 08210 - Wood Doors.

B. Section 08220 - Plastic Doors.

C. Section 08710 - Door Hardware.

D. Section 08800 - Glazing.

E. Section 09900 - Paints and Coatings.

F. Section 13095 - X-Ray Radiation Protection.

1.3 REFERENCES
A. ANSI/SDI 100-91 - Recommended Specifications for Standard Steel Doors & Frames; Steel Door Institute.

B. SDI 105 - Recommended Erection Instructions for Steel frames.

C. SDI 111 - Recommended Standard Details for Steel Doors & Frames.

D. SDI 113 - Test Procedure and Acceptance Criteria for Acoustical Performance for Steel Door and Frame Assemblies.

E. ASTM A 366/A 366M - Standard Specification for Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality.

F. ASTM A 568/A 568M - Standard Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements For.

G. ASTM A 569/A 569M - Standard Specification for Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality.

H. ASTM A 591/A 591M - Standard Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Mass Applications.

I. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

J. ASTM A 924/A 924M - Standard Specification for General Requirements for Sheet Steel, Metallic-Coated by the Hot-Dip Process.

K. NFPA 80 - Standard for Fire Doors and Windows.

L. Building Materials Directory; Underwriters Laboratories Inc.

M. Certification Listings; Warnock Hersey International Inc.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Provide manufacturer's standard details and catalog data demonstrating compliance with referenced standards. Provide installation instructions.

C. Certificates:
1. Provide manufacturer's certification that products comply with referenced standards.
2. Provide evidence of manufacturer's membership in the Steel Door Institute.

D. Shop Drawings: Submit for approval the following:
1. Door, frame, and hardware schedule in accordance with SDI 111D.

E. Samples: Submit for approval the following:
1. 6 x 6 inch samples of each color of factory finish specified.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide all products from a single manufacturer who is a member of the Steel Door Institute.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect products from moisture, construction traffic, and damage.
   1. Store under cover.
   2. Place units on 4-inch high wood sills or in a manner that will prevent rust or damage.
   3. Do not use non-vented plastic or canvas shelters.
   4. Should wrappers become wet, remove immediately.
   5. Provide 1/4-inch space between doors to promote air circulation.

PART 2 PRODUCTS

2.1 MATERIALS

A. Steel Sheet for Doors and Frames:
   1. Cold rolled steel: ASTM A 366 and A 568.
   2. Hot rolled, pickled, and oiled steel: ASTM A 569 and A 568.
   3. Hot dipped zinc coated steel: ASTM A 924 and A 653; Class A40 for alloyed coatings or G60 for spangled coatings, minimum.

B. Steel Sheet for Anchors and Accessories:
   1. Electrolytically deposited zinc coated steel: ASTM A 591 and A 568; Class B (0.075 oz/sf), minimum.

2.2 MANUFACTURED UNITS

A. Comply with SDI 100.
B. Fire-rated openings: Comply with NFPA 80.
   1. Affix permanent labels attesting to fire resistance.
   2. At stairway enclosures, provide units listed for 450 degree F maximum temperature rise rating for 30 minutes of exposure.
   3. Provide manufacturer's certificate that oversized openings have been constructed in accordance with all other applicable requirements for labeled door construction.
C. Provide Grade and Model as indicated in the Door Schedule.

D. Provide Grade and Model as follows:
   1. ____: Grade I, Model 1 (standard-duty, full flush design).
      a. Frames: 18 gage.
      b. Frames: 16 gage.
   2. ____: Grade I, Model 2 (standard-duty, seamless design).
      a. Frames: 18 gage.
      b. Frames: 16 gage.
   3. ____: Grade II, Model 1 (heavy-duty, full flush design).
   4. ____: Grade II, Model 2 (heavy-duty, seamless design).
   5. ____: Grade III, Model 1 (extra heavy-duty, full flush design).
      a. Frames: 16 gage.
      b. Frames: 14 gage.
   6. ____: Grade III, Model 1A (extra heavy-duty, full flush design).
      a. Frames: 14 gage.
      b. Frames: 12 gage.
   7. ____: Grade III, Model 2 (extra heavy-duty, seamless design).
   8. ____: Grade III, Model 2A (extra heavy-duty, seamless design).
      a. Frames: 14 gage.
      b. Frames: 12 gage.
   9. ____: Grade III, Model 3 (extra heavy-duty, stile and rail - flush panel design).
      a. Frames: 16 gage.
      b. Frames: 14 gage.
   10. Wood or plastic doors specified elsewhere: Provide 18 gage, Grade I steel frames.
   11. Wood or plastic doors specified elsewhere: Provide 16 gage, Grade I steel frames.
   12. Wood or plastic doors specified elsewhere: Provide Grade II steel frames.
   13. Wood or plastic doors specified elsewhere: Provide 16 gage, Grade III steel frames.
   14. Wood or plastic doors specified elsewhere: Provide 14 gage, Grade III steel frames.

E. Provide units of galvanized steel where indicated on the door schedule.

F. Provide units of galvanized steel in the following locations:

1. Exterior openings.
2. Kitchens.
3. Toilets.
4. Washrooms.
5. Locker rooms.
6. Showers.
7. Laboratories.

G. Provide glazing stops and beads where glazed lights are indicated.

2.3 DOORS

A. Construct doors in accordance with SDI 100.
B. Exterior doors:
1. Provide insulated construction with U-value of at least 0.48 when tested in accordance with SDI 113.
2. Provide manufacturer's standard foam insulated core.
3. Steel stiffened grid core and stile and rail units are exempt from thermal rating requirements.
C. Construct full flush and seamless door cores as follows:
1. Fire-rated doors: In accordance with listed construction.
2. Honeycomb core.
3. Polyurethane foam core.
4. Polystyrene foam core.
5. Unitized grid core.
6. Steel stiffeners core.
D. Provide inserted louvers in accordance with SDI 111C where indicated. Type:
1. Inverted "V" blade.
2. "Z" blade.
3. Inverted "Y" blade.
4. Light proof.
5. Adjustable.
6. Fusible link.
7. Grille.

2.4 FRAMES

A. Provide either knockdown field assembled or welded unit type frames unless otherwise indicated.

B. Provide welded unit type frames.
C. Provide drywall slip-on type frames for installation after drywall partition are erected

D. Lights and Transoms: Provide tubular mullions and transom bars with heads and jambs.

E. Terminate stops at a 45 degree angle, 6 inches above floor; cover stop with welded metal filler plate.
   1. Exception: Light-proof doors, sound-rated, doors, lead-lined doors, and double egress doors.

2.5 FINISHES

A. Provide factory-finished units.
   1. Color: As indicated on the color schedule.
   2. Color: _____.

PART 3 EXECUTION

3.1 EXAMINATION

A. The installer shall verify that project conditions are suitable before beginning installation of frames.
   1. Verify that completed openings to receive knock-down wrap-around frames are of correct size and thickness.
   2. Verify that completed concrete or masonry openings to receive butt type frames are of correct size.

B. Correct unsatisfactory condition before preceding with installation.

3.2 INSTALLATION

A. Install frames in accordance with SDI 105.

B. Install doors plumb and in true alignment and fasten to achieve the maximum operational effectiveness and appearance of the unit. Maintain clearances specified in SDI 100 or NFPA 80.

C. Fill welded wrap-around frames in masonry construction with mortar as masonry is laid-up.

D. Fill welded wrap-around frames in plaster construction with plaster as work progresses.

E. If additives are used in masonry or plaster work during cold weather, field coat the inside of steel frames with a bituminous compound to prevent corrosion.

3.3 ADJUST AND CLEAN

A. Adjust doors for proper operation, free from binding or other defects.

B. Clean and restore soiled surfaces. Remove scraps and debris, and leave site and a clean condition.

END OF SECTION