PART ONE - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Steel doors.
2. Steel door frames.
3. Sidelight frames

B. Related Sections include the following:

1. Division 4 Section "Unit Masonry Assemblies" for installing anchors and grouting frames in masonry construction.
2. Division 5 Section "Formed-Metal Fabrications" for customized hollow-metal work other than doors, panels, and frames.
3. Division 8 Section "Flush Wood Doors" for wood doors installed in steel frames.
4. Division 8 Section "Door Hardware (Scheduled by Naming Products)" for door hardware and weather stripping.
5. Division 8 Section "Door Hardware (Scheduled by Describing Products)" for door hardware and weather stripping.
6. Division 8 Section "Glazing" for glass in glazed openings in doors and frames.
7. Division 9 Section "Gypsum Board Assemblies" for spot-grouting frames installed in steel-framed gypsum board partitions.
8. Division 9 Section "Painting" for field painting factory-primed doors and frames.

1.3 DEFINITIONS

A. Steel Sheet Thicknesses: Thickness dimensions, including those referenced in ANSI A250.8, are minimums as defined in referenced ASTM standards for both uncoated steel sheet and the uncoated base metal of metallic-coated steel sheets.

1.4 SUBMITTALS

A. Product Data: For each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details, label compliance, sound and fire-resistance ratings, and finishes.

B. Shop Drawings: Show the following:

1. Elevations of each door design.
2. Details of doors including vertical and horizontal edge details.
3. Frame details for each frame type including dimensioned profiles.

4. Details and locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, accessories, joints, and connections.
7. Coordination of glazing frames and stops with glass and glazing requirements.

C. Samples for Verification: For each type of exposed finish required, prepare a sample not less than 3 by 5 inches and of same thickness and material indicated for final unit of Work.

D. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors and frames.

E. Oversize Construction Certificates: For door assemblies required to be fire-protection rated and exceeding size limitations of labeled assemblies.

1.5 QUALITY ASSURANCE

A. Steel Door and Frame Standard: Comply with ANSI A 250.8, unless more stringent requirements are indicated.

B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage.

B. Inspect doors and frames on delivery for damage, and notify shipper and supplier if damage is found. Remove and replace damaged items.

C. Store doors and frames at building site under cover. Place units on minimum 4-inch- high wood blocking. Provide minimum 1/4-inch spaces between stacked doors to permit air circulation and ventilation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Steel Doors and Frames:

a. Amweld Building Products.
b. Ceco Door Products.
c. Curries Company.
d. Republic Builders Products.

2.2 MATERIALS

A. Hot-Rolled Steel Sheets: ASTM A 569/A 569M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

B. Cold-Rolled Steel Sheets: ASTM A 366/A 366M, Commercial Steel (CS), or ASTM A 620/A 620M, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness.

C. Metallic-Coated Steel Sheets: ASTM A 653/A 653M, Commercial Steel (CS), Type B, with an A40 zinc-iron-alloy (galvannealed) coating; stretcher-leveled standard of flatness.

D. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591/A 591M, Commercial Steel (CS), Class B coating; mill phosphatized; suitable for unexposed applications; stretcher-leveled standard of flatness where used for face sheets.

2.3 DOORS

A. General: Provide doors of sizes, thicknesses, and designs indicated with the following criteria:
1. Flush galvanized top cap x inverted galvanized bottom channel.
2. Continuous welded edge seams.
3. lifetime warranty on welded edge seams.

B. Interior Doors: Provide doors complying with requirements indicated below by referencing ANSI 250.8 for level and model and ANSI A250.4 for physical-endurance level:

1. Level II and Physical Performance Level B (Heavy Duty), Model 2 (Full Flush seamless).
2. Steel thickness: 18 gauge Cold Rolled Steel.

C. Exterior Doors: Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:

1. Level III and Physical Performance Level A (Extra Heavy Duty), Model 2 (Full Flush seamless).
2. Steel thickness: 16 gauge Galvanealed.

D. Vision Lite Systems: Manufacturer's standard kits consisting of glass lite moldings to accommodate glass thickness and size of vision lite indicated.

1. All vision lites shall be full flush type. No overlapping face edge accepted.

2.4 FRAMES

A. General: Provide steel frames for doors, transoms, sidelights, borrowed lights, and other openings that comply with ANSI A250.8 and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.

B. Frames 16 gauge for:

1. Level II & Level III steel doors.
2. Wood doors.

C. Door Silencers: Except on weather-stripped frames, fabricate stops to receive three silencers on strike jambs of single-door frames and two silencers on heads of double-door frames.

D. Plaster Guards: Provide 0.016-inch- thick, steel sheet plaster guards or mortar boxes to close off interior of openings; place at back of hardware cutouts where mortar or other materials might obstruct hardware operation.

E. Supports and Anchors: Fabricated from not less than 0.042-inch- thick, electrolytic zinc-coated or metallic-coated steel sheet.

1. Wall Anchors in Masonry Construction: 0.177-inch- diameter, steel wire complying with ASTM A 510 may be used in place of steel sheet.

F. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A 153/A 153M, Class C or D as applicable.

G. Frame minimum steel thickness: 16 gauge.

H. Provide ½" thick by 1-3/4" wide full height filler strip of styrofoam behind hinge jamb to allow for drilling and topping for continuous hinge in field.

2.5 FABRICATION

A. General: Fabricate steel door and frame units to comply with ANSI A250.8 and to be rigid, neat in appearance, and free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site.

B. Exterior Door Construction: For exterior locations and elsewhere as indicated, fabricate doors, panels, and frames from metallic-coated, Galvanealed steel sheet. Close top and bottom edges of doors flush as an integral part of door construction or by addition of 0.053-inch- thick, metallic-coated steel channels with channel webs placed even with top and bottom edges.

C. Interior Door and Panel Faces: Fabricate exposed faces of doors and panels, including stiles and rails of non-flush units, from the following material:

1. Cold-rolled steel sheet, unless otherwise indicated.
2. Metallic-coated steel sheet where indicated.

D. Core Construction: Manufacturer's standard core construction that produces a door complying with SDI standards.

E. Core Construction: One of the following manufacturer's standard core materials that produce a door complying with SDI standards:

1. Polystyrene.
2. Polyurethane.

F. Clearances for Non-Fire-Rated Doors: Not more than 1/8 inch at jambs and heads, except not more than 1/4 inch between pairs of doors. Not more than 1/4 inch at bottom to flooring or thresholds. Coordinate with other trades.

G. Clearances for Fire-Rated Doors: As required by NFPA 80.

H. Single-Acting, Door-Edge Profile: Beveled edge, unless square edge is indicated.

I. Double-Acting, Door-Edge Profile: Round vertical edges with 2-1/8-inch radius.

J. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

K. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.

L. Exposed Fasteners: Provide countersunk flat or oval heads for exposed screws and bolts where acceptable by the Architect.

M. Thermal-Rated (Insulating) Assemblies: At exterior locations and elsewhere as shown or scheduled, provide doors fabricated as thermal-insulating door and frame assemblies and tested according to ASTM C 236 or ASTM C 976 on fully operable door assemblies.

1. Unless otherwise indicated, provide thermal-rated assemblies with U-value of 0.41 Btu/sq. ft. x h x deg F or better.

N. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.

1. For concealed overhead door closers, provide space, cutouts, reinforcement, and provisions for fastening in top rail of doors or head of frames, as applicable.

O. Frame Construction: Fabricate frames to shape shown.

1. Fabricate frames with mitered or coped and continuously welded corners and seamless face joints.
2. For exterior applications, fabricate frames with mitered or coped and continuously welded corners and seamless face joints.
3. Provide welded frames with temporary spreader bars.
4. Provide terminated stops where indicated.

P. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.

Q. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

R. Glazing Stops: Manufacturer's standard, formed from 0.032-inch- thick steel sheet.

1. Provide nonremovable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
2. Provide screw-applied, removable, glazing stops on inside of glass, louvers, and other panels in doors.

S. Astragals: As required by NFPA 80 to provide fire ratings indicated.

2.6 FINISHES

A. Prime Finish: Manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

B. Factory-Applied Paint Finish: Manufacturer's standard, factory-applied paint finish complying with ANSI A250.3 for performance and acceptance criteria.

1. Finished paint coat will be field applied unless otherwise noted.
2. Refer to drawing schedules for color and finish.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.

B. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.

1. Except for frames located in existing walls or partitions, place frames before construction of enclosing walls and ceilings.
2. In masonry construction, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Acceptable anchors include masonry wire anchors and masonry T-shaped anchors.
3. In existing concrete or masonry construction, provide at least three completed opening anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with bolts and masonry anchorage devices.
4. In metal-stud partitions, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Attach wall anchors to studs with screws.
5. For existing gypsum board partitions, knock-down, drywall slip-on frames are acceptable.
6. Install fire-rated frames according to NFPA 80.
7. For openings 90 inches or more in height, install an additional anchor at hinge and strike jambs.

C. Door Installation: Comply with ANSI A250.8. Fit hollow-metal doors accurately in frames, within clearances specified in ANSI A250.8. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G.

1. Fire-Rated Doors: Install within clearances specified in NFPA 80.
2. Smoke-Control Doors: Install to comply with NFPA 105.

3.2 ADJUSTING AND CLEANING

A. Prime-Coat Touchup: Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.

B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION