

SECTION 08110
STEEL DOORS AND FRAMES

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes doors in the South elevation of the guard shack.
- B. Related Sections:
 - 1. Section 01300 - Submittals
 - 2. Section 01600 - Product Requirements
 - 3. Section 04810 - Unit Masonry Assemblies: Masonry grout fill of metal frames and placement of anchors into masonry wall construction.
 - 4. Section 08700 - Door Hardware: Hardware, silencers, and weatherstripping.
 - 5. Section 08800 - Glazing.
 - 6. Section 09900 Paints and Coatings, for field finish.

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
- B. ASTM International:
 - 1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process(AGO).
- C. National Fire Protection Association:
 - 1. NFPA 80 - Standard for Fire Doors, Fire Windows.
 - 2. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.
- D. Underwriters Laboratories Inc.:
 - 1. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
- E. Uniform Building Code:
 - 1. UBC Standard 7-2 - Fire Tests of Door Assemblies.

1.3 PERFORMANCE REQUIREMENTS FOR ANTI-TERRORISM

- A. The following criterion applies to new construction. Existing glazing w will remain as is.
- B. Department of Defense Minimum Antiterrorism Standards for Building (UFC 4-010-01, current edition) window frame requirements including frames, anchorage, and glazing pockets. Contractor shall demonstrate by calculations or tests that the window provided comply with the follow requirements:
 - 1. Frame Member design: Steel member may be designed using ultimate yield stress and aluminum members may be designed based on a 0.2% offset yield strength. Equivalent stress design loads for the window, skylight and door members shall be 7 kilopascals (1 lb per square in) applied to the surface of the glazing and frame. Deformations shall not exceed 1/60 of the unsupported member lengths.

2. Glazing Frame Bite: The glazing shall have a minimum frame bite of 9.5 mm (3/8 inch) for structurally glazed systems and 25 CM (1 inch) for window systems that are not structurally glazed.
 3. Connection design: Equivalent Static design loads for connections to the window, skylight, or door frame the surrounding walls or roof, hardware and associated connections, and glazing stop connections shall be 75 kilopascals, (10.8 lbs per square inch) for glazing panels with a vision area less than or equal to 1.0 square meters (10.8 square feet) and 30 kilopascals (4.4 lbs per square inch) for glazing panels with a vision area greater than 1.0 square meters (10.8 square feet) but less than or equal to 3.0 square meters (32 Square feet) Loads shall be applied to the surface of the glazing and frame. Connections and hardware may be designed based on ultimate strength for steel and 0.2% offset yield strength for aluminum.
- C. Glazing: Use a minimum of two 6 mm (1/4 inch) nominal laminated glass for all exterior windows, skylights and glazed doors. The 6 mm (1/4 inch) laminated glass consists of two nominal 3-mm 1(1/8 inch) glass panes bonded together with a minimum of a 0.75 mm (0.030 inch polyvinyl-butryal (PVB) interlayer. For insulating glass units, use 6 mm (1/4 inch) laminated glass inner pane as a minimum. For glazing alternatives to the 6 mm (1/4 in) laminated glass that provide equivalent levels of protection, refer to the DOD Security Engineering Design Manual.
- D. Frame Member Design: Steel members may be designed using ultimate yield stresses and aluminum members may be designed based on 0.2% offset yield strength. Equivalent static design loads for the window, skylight, and door members shall be 7 kilopascals (1 lb per square inch) applied to the surface of the glazing and frame. Deformations shall not exceed 1/60 of the unsupported member lengths.
- E. Glazing Frame Bite: The glazing shall have a minim frame bite of 9.5 mm (3/8 in) for structurally glazed system and 25-mm (1-in) for window systems that are not structurally glazed.
- F. Connection Design: Equivalent static design loads for connections of the window, skylight or door fame to the surrounding walls of roof, hardware and associated connections, and glazing stop connections shall be 75 kilopascals (10.8 lbs per square inch) for glazing panels with a vision area less than or equal to 1.0 square meters (10.8 square feet) and 30 kilopascals (4.4 lbs per square inch for glazing panels with a vision area greater than 1.0 square meters (10.8 square feet) but less than or equal to 3.0 square meters (32 square feet). Loads shall be applied to the surface of the glazing and frame. Connections and hardware may be designed based on ultimate strength of steel and 0.2% offset yield strength for aluminum.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Demonstrate compliance with DoD Antiterrorism standards.
 1. Indicate frame elevations, reinforcement, anchor types and spacing, location of cut-outs for hardware, and finish.
 2. Indicate door elevations, internal reinforcement, closure method, and cut-outs for glazing, and louvers
- C. Product Data:
 1. Submit frame configuration and finishes.
 2. Submit door configurations, location of cut-outs for hardware reinforcement.

1.5 QUALITY ASSURANCE

- A. Conform to requirements of ANSI A250.8.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Refer to Section 01600 for product storage and handling requirements.
- B. Accept frames on site in manufacturer's packaging. Inspect for damage.
- C. Break seal on-site to permit ventilation.

1.7 COORDINATION

- A. Coordinate Work with frame opening construction, door, and hardware installation.
- B. Sequence installation to accommodate required door hardware electric wire connections.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Provide one of the following:
 - 1. Amweld Building Products, Inc.
 - 2. Ceco Door Products.
 - 3. Kewanee Corp.
 - 4. Republic Builders Products.
 - 5. Steelcraft.

2.2 FRAMES

- A. Frames: Standard shop fabricated steel frames, fire rated and non-rated types.
 - 1. Exterior Frames:
 - a. Level 3 for Door Models 1, nominal 16 gage/0.053 inch thick material, base metal thickness.
 - 2. Interior Frames:
 - a. Level 2 for Door Models 1, nominal 16 gage/0.053 inch thick material, base metal thickness.
- B. Accessories For Frames
 - 1. Removable Stops: Rolled steel channel shape, butted mitered corners; prepared for countersink style tamper proof screws.
 - 2. Bituminous Coating: Non-asbestos fibered asphalt emulsion.
 - 3. Primer: ANSI A250.10 rust inhibitive type.
 - 4. Silencers: Resilient rubber fitted into drilled hole.
 - 5. Weatherstripping: Specified in Section 08710.

2.3 FINISHING OF FRAMES

- A. Shop Primer: Baked.
- B. Finish coat paint. See Section 09900 Paints and Coatings. Color SW 7523 Burnished Brandy

2.4 STEEL DOORS

- A. Provide the following:
 - 1. Exterior Doors (Insulated): 8, SDI 108, 1-3/4 inch thick.
 - a. Level 3 - Extra heavy Duty, Model 1, full flush design.
- B. Face: Steel sheet in accordance with. SDI 108.
- C. End Closure: Channel, 0.04 inches thick, flush. inverted.
- D. Core:
 - 1. Exterior doors, polyurethane core.
- E. Primer: ANSI A250.10 rust inhibitive type.
- F. Finish coat paint. See Section 09900 Paints and Coatings. Color SW 7523 Burnished Brandy

2.5 FABRICATION OF FRAMES

- A. Fabricate frames as welded unit.
- B. Mullions for Double Doors: Fixed type, of same profiles as jambs.
- C. Fabricate frames with hardware reinforcement plates welded in place. Provide mortar guard boxes.
- D. Prepare frames for silencers. Provide three single silencers for single doors and mullions of double doors on strike side. Provide two single silencers on frame head at double doors without mullions.
- E. Configure exterior frames with special profile to receive recessed weatherstripping.
- F. Fabricate frames to suit masonry wall coursing with 4 inch head member.

2.6 FABRICATION OF DOORS

- A. Fabricate doors with hardware reinforcement welded in place.
- B. Configure exterior doors with edge profile to receive recessed weatherstripping.

2.7 SHOP FINISHING

- A. Steel Sheet: Galvanized to ASTM A653/A653M A60.
- B. Primer: Baked.
- C. Coat inside of frame profile with bituminous coating to minimum thickness of 1/16 inch.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify opening sizes and tolerances are acceptable.

3.2 INSTALLATION OF FRAMES

- A. Install frames in accordance with ANSI A250.8.
- B. Coordinate with masonry wall construction for anchor placement.
- C. Coordinate installation of glass and glazing specified in Section 08800.
- D. Coordinate installation of frames with installation of hardware specified in Section 08710 and doors in Section 08114.
- E. Install roll formed steel reinforcement channels between two abutting frames. Anchor to structure and floor.

3.3 INSTALLATION OF DOORS

- A. Install doors in accordance with ANSI A250.8.
- B. Coordinate installation of glass and glazing specified in Section 08800.
- C. Coordinate installation of doors with installation of frames specified in Section 08115 and hardware specified in Section 08710.
- D. Touch-up damaged shop finishes.

3.4 ERECTION TOLERANCES

- A. Maximum Diagonal Distortion: 1/16 inch measured with straight edges, crossed corner to corner.

3.5 ADJUSTING

- A. Adjust door for smooth and balanced door movement.

END OF SECTION