

SECTION 08 3455 - BULLET-RESISTANT AND FORCED ENTRY DOOR ASSEMBLIES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Bullet-resistant and Forced Entry steel door and steel frame systems, where shown on the plans, as specified herein, and as needed for complete and proper Installation.
- B. Door hardware for bullet-resistant / forced entry steel door and frame systems to be supplied by door manufacturer.

1.2 RELATED SECTIONS

- A. Section 087100 - Door Hardware.
- B. Section 099123 - Interior Painting.

1.3 REFERENCES

- A. AISC Manual of Steel Construction; American Institute of Steel Construction.
- B. AISI Cold Formed Steel Design Manual; American Iron and Steel Institute.
- C. ASTM A 1008 - Standard Specification for Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
- D. ASTM A 569 - Standard Specification for Steel, Carbon, (0.15 Maximum Percent), Hot-Rolled Sheet and Strip, Commercial Quality.
- E. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot Dip Process.
- F. HMMA 840 – 99, Installation and Storage of Hollow Metal Doors and Frames; Hollow Metal Manufacturers Association.
- I. TM5-855-1 - Fundamentals of Design for Conventional Weapons; Department of the Army.
- L. UL 752 – 00, 10th Edition, Bullet Resistant Equipment.
- M. ANSI/NWWDA I.S.1. - Wood Flush Doors.
- N. ISO 4586-2 - High Pressure Decorative Laminates; International Standards Organization.
- O. NEMA LD 3-1995 - High Pressure Decorative Laminates; National Electrical Manufacturers Association.

P. SD-STD-01.01- REV G – Forced Entry and Ballistic Resistance of Structural Systems

1.4 SYSTEM DESCRIPTION

- A. Design requirements: Comply with applicable recommendations of the following:
1. AISC Manual of Steel Construction.
 2. AISI Cold Formed Steel Design Manual.
 3. TM5-855-1.
- B. Performance requirements:
1. Bullet resistance requirements: Withstand bullet resistance level as follows, in accordance with and tested by UL 752, and consistent with ASTM F1450, Section 7.1, “Bullet Penetration”:
 - a. Level 3: .44 magnum lead semi-wadcutter gas checked.
 2. Bullet resistance ratings: Test assemblies in accordance with UL 752 for specified ratings, assemblies bearing labels of that agency.
 3. Force Entry requirements:
 - a. 5-minute FE rating per KSP CA testing.

1.5 QUALITY ASSURANCE

- A. Qualifications:
1. Manufacturer: Minimum five (5) years documented experience producing products specified in this section.
 2. Installer: Minimum five (5) years documented experience installing products specified in this section.

1.6 SUBMITTALS

- A. Submit under provisions of Section 010000.
- B. Shop drawings: Indicate capability of door and frame assemblies to meet requirements of design data; include the following:
1. Door and frame elevations and sections.
 2. Location and details of all openings; include door hanging and latching hardware in a schedule.
 3. Material types, gages, locations, and fabrication details of system components; include all reinforcements.
 4. Product data: Indicate door materials and construction;.
 5. Selection samples: Two (2) sets samples of available door finishes, representing manufacturer's full range.
 6. Verification samples: Two (2) samples of door construction, 12 inches square in size, cut from corner of door.

C. Quality assurance submittals:

1. Design data: Bullet resistance for specific project conditions, certifying system conformance to specified performance requirements; bullet resistance system to bear the label of the recognized testing agency having a factory classification inspection services.
2. Certificates: Contractor's certification that:
 - a. Products of this section, as provided, meet or exceed specified requirements.
 - b. Manufacturer of products of this section meets specified qualifications.
 - c. Installer of products of this section meets specified qualifications.
3. Manufacturer's instructions: Printed installation instructions for systems and components, as applicable.

- D. Closeout submittals: Warranty documents, issued and executed by manufacturer of systems, countersigned by Contractor.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store units in accordance with requirements of HMMA 840.
- B. Remove wraps or covers from doors and frames upon delivery at the building site; clean and touch-up scratches or disfigurement caused by shipping or handling promptly with rust inhibitive primer.
- C. Store units on planks or dunnage in a dry location; store doors in a vertical position spaced by blocking.
- D. Store units covered to protect them from damage, but permitting air circulation.

1.8 WARRANTY

- A. Manufacturer's warranty: Furnish system manufacturer's standard 2-year warranty against defects in product workmanship and materials.

1.9 SCHEDULING

- A. Furnish manufacturer's mounting templates for door hardware specified in Section 08710 to manufacturer of products of this section in time for factory preparation for door hardware.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. Krieger Specialty Products; Bullet Resistant Doors.
2. Mesker, dormakaba Group; BR Series Bullet-Resistant Doors and Frames

3. Titan Metal Products, Inc.; Ballistic Rated Doors and Frames.
4. Substitutions: See Section Section 01 0000 Request For Substitutions.

2.2 MATERIALS

- A. Steel sheet: One of the following:
 1. Cold-rolled steel sheet conforming to ASTM A 1008, commercial quality.
 2. Hot-rolled steel sheet conforming to ASTM A 569, pickled and oiled, commercial quality.
- B. Galvanized steel sheet: ASTM A 653/A 653M, minimum G90 zinc coating.
- C. Insulating material: One of the following:
 1. Glass fiber.
 2. Rock wool.
 3. Polyurethane foam.
- D. Doors shall be 2 1/2” bullet-resistant / forced entry hollow metal core.
- E. Primer: Manufacturer's standard.

2.3 COMPONENTS

- A. Doors: Fabricate in accordance with COTR-approved shop drawings, and as follows:
 1. Thickness:
 - a. 2-1/2 inches minimum. (HM)
 2. All doors shall be of the types and sizes shown on approved shop drawings and shall have a 2-1/2” thick bullet-resistant / forced entry core. All adhesives, as well as warp tolerances, shall be in accordance with ANSI / NWWD 1.S.1.
 - a. Factory finish, if required, bullet-resistant doors to match the control sample approved by the Contracting Officer. Finish is required on all exposed surfaces of door including top and bottom edges.
 3. Face sheets:
 - a. Doors for interior use: Steel sheet.
 - b. Visible seams on face sheets not permitted.
 4. Core:
 - a. Stiffen face sheets with continuous vertical sections, formed of steel sheet, which, upon assembly, span full thickness of interior space between door faces.
 - b. Spot-weld stiffeners to both face sheets.
 - c. Fill spaces between stiffeners with insulating material.
 5. Vertical edges:

- a. Join face sheets at vertical edges by continuous welding:
 - 1) Join door faces by continuous weld on each edge, extending full door height.
 - 2) Grind, fill, and dress welds to provide smooth flush surface.
 - b. Form edge profiles both vertical edges of doors as follows:
 - 1) Single acting swing doors: Bevel 1/8 inch in 2 inches (3.17 mm in 50 mm).
 - 2) Double acting swing doors: Radius 2-1/8 inches (54 mm).
 - c. Visible seams on vertical edges not permitted.
6. Horizontal edges:
- a. Close top and bottom edges of doors with inverted continuous recessed steel channels, 12 gage minimum; spot-weld channels to both door faces.
 - b. Provide openings in bottom closure of exterior doors to permit escape of entrapped moisture.
 - c. Provide additional flush closing channel at top edge of exterior doors; spot-weld channel to both door faces.
 - d. Provide additional flush closing channel at bottom edge of doors to receive weather stripping; spot-weld channel to both door faces.
7. Hardware preparation:
- a. Mortise, reinforce, drill, and tap doors at factory for fully templated mortised hardware only, in accordance with approved hardware.
 - b. Provide reinforcing plates at surface-mounted or non-templated hardware locations.
- B. Frames: Fabricate in accordance with COTR-approved shop drawings, and as follows:
3. Frames for interior use: Fabricate from steel sheet, minimum 14 gage thickness.
 4. Form frame members straight, and of uniform profile through lengths in accordance with frame schedule and approved shop drawings.
 5. Stops: Form integral stops minimum 5/8 inch (15.8 mm) in depth.
 6. Fabricate frames as welded units with integral trim, of sizes and profiles indicated on approved shop drawings.
 - c. Weld contact edges of joints closed tight.
 - d. Miter perimeter trim faces and weld continuously.
 7. When shipping limitations so dictate, fabricate frames for large openings in sections designed for assembly in the field; install alignment plates or angles, of same material and gage as frame, at each joint.
 8. Hardware preparation:
 - a. Mortise, reinforce, drill, and tap frames at factory for fully templated mortised hardware only, in accordance with approved hardware.
 - b. Provide reinforcing plates at surface-mounted or non-templated hardware locations.
 9. Floor anchors:
 - a. Fabricate of material indicated on COTR-approved shop drawings; minimum 18 gage.
 - b. Weld anchors inside each jamb for floor anchorage.
 10. Jamb anchors:
 - a. Fabricate of material indicated on COTR-approved shop drawings; weld anchors inside each jamb for wall anchorage.
 - b. Provide anchor types for indicated adjacent wall construction.

11. Plaster guards: Fabricate from minimum 26 gage galvanized steel; weld in place at hardware mortises on frames to be set in masonry or concrete openings.
12. Provide welded frames with temporary steel spreader welded to jamb feet for bracing during shipping and handling.

C. Door hardware:

1. Supply door hardware in accordance with COTR-approved shop drawings, and as follows:
 - a. Hinges: Security Hinges (Provided by door manufacturer)
 - b. Locksets and latchsets: 3-Point Latching Device (Provided by door manufacturer)
 - c. For balance of specified hardware refer to 087100.

2.4 FINISHES

A. Shop priming:

1. After fabrication, fill and sand tool marks and surface blemishes on both faces and both vertical edges smooth and free from irregularities.
2. Treat for paint adhesion, then apply primer to all accessible surfaces; allow to cure prior to shipment.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verification of conditions:

1. Prior to installation, check and correct frames for size, swing, squareness, alignment, twist and plumb.
2. Verify openings are in accordance with approved shop drawings.

B. Installer's examination:

1. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.
2. Transmit two copies of installer's report to COTR within 24 hours of receipt.
3. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.
4. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.2 PREPARATION

- A. Remove steel spreaders from welded frames prior to installation; use of spreaders for installation purposes not permitted.

3.3 INSTALLATION

- A. Install units in accordance with COTR-approved shop drawings, manufacturer's printed installation instructions, requirements of HMMA 840, and requirements of UL 752.

- B. Finish surfaces having abrasion damage smooth; touch-up with rust inhibitive primer.
- C. Field painting is specified in Section 099123.
- D. Site tolerances: Do not exceed the following installation tolerances:
 - 1. Squareness: Plus or minus 1/16 inch (1.6 mm) measured on a line, 90 degrees from one jamb, at the upper corner of the frame at the other jamb.
 - 2. Alignment: Plus or minus 1/16 inch (1.6 mm) measured on jambs on a horizontal line parallel to the plane of the wall.
 - 3. Twist: Plus or minus 1/16 inch (1.6 mm) measured at face corners of jambs on parallel lines perpendicular to the plane of the wall.
 - 4. Plumb: Plus or minus 1/16 inch (1.6 mm) measured on the jamb at the floor.

3.4 FIELD QUALITY CONTROL

- A. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.
- B. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.
- C. Prepare and submit separate inspection report for each fire-rated door assembly indicating compliance with each item listed in NFPA 80 and NFPA 101.

3.5 REPAIR

- A. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- B. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 08 3455