Preparing Activity: NAVFAC Superseding
UFGS-08 34 63 (April 2006)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated July 2023
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05/11

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SECTION 08 34 63

DETENTION HOLLOW METAL FRAMES, DOORS, AND DOOR FRAMES
05/11

NOTE: This guide specification covers the requirements for detention hollow frames, metal doors and door frames for use in brigs and detention facilities in locations where prisoners may have access.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).

NOTE: The following information shall be shown on the project drawings:

1. Sizes of door or view window, speaking port, louver, view port and food pass, if any, openings, thicknesses of doors, swings, and travels of doors.

2. Indicate detention hollow metal doors as "Sec. Holl. Mtl." or "SHM" and show that the term means "Detention Hollow Metal Doors and Frames," in a schedule of abbreviations.

3. The size of wall or partition where door is to be located.

4. Type and thickness of glazing required.

5. Method, type, and spacing required for anchoring frames to adjoining construction.

6. Include a complete door schedule. The door schedule should assign a separate number for each opening and should indicate the door type and style, material, design, size, thickness, hardware set number, threshold material, if any.

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PART 1 GENERAL

1.1 REFERENCES

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NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a Reference Identifier (RID) outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

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The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM A653/A653M	(2023) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A1008/A1008M	(2021a) 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
ASTM A1011/A1011M	(2023) Standard Specification for Steel Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved

Formability, and Ultra-High Strength

ASTM G60 (2001; R 2018) Standard Practice for Conducting Cyclic Humidity Exposures

NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)

NAAMM HMMA 863 (2014) Guide Specifications for Detention Security Hollow Metal Doors and Frames

1.2 SUBMITTALS

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NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G". Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a "G" to an item if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification, with a code of up to three characters to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

The "S" classification indicates submittals required as proof of compliance for sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

Choose the first bracketed item for Navy, Air Force, and NASA projects, or choose the second bracketed item for Army projects.

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Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are [for Contractor Quality Control approval.][for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Detention hollow metal doors and frames

Submit details at not less than 1/4 full size for each frame type, and elevations of door design type at 1:50 3/8 inch equals one footminimum, show conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections. Indicate fabrication, erection, anchorage, and accessory items.

Submit a schedule listing the location of each door and frame using indicated reference numbers for details and openings shown.

SD-03 Product Data

Detention hollow metal doors and frames

Submit manufacturer's material and fabrication specifications.

SD-06 Test Reports

Door fabrication

Prior to fabrication, submit test report for reinforced flush door of the type to be provided on this project.

1.3 DELIVERY, STORAGE, AND HANDLING

Deliver hollow metal work with packaging to provide protection during transit and job storage as recommended by the manufacturer. Door frames shall be provided with steel spreader angles, temporarily attached to the bottom of both jambs, one on each side of the opening to serve as a brace during shipping and handling. Inspect hollow metal work upon delivery for damage. Store hollow metal units on raised platforms in vertical positions with blocking between units to allow air circulation. Keep stored material covered and protected from damage and rust. Do not cover with plastic or unvented canvas.

1.4 HARDWARE COORDINATION CONFERENCE

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NOTE: The conference is to ensure that the coordination takes place.

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Conduct a conference for hardware and hollow metal work prior to submittals for the purpose of coordinating the interface of materials that are furnished by the participants listed. Require that a representative of the entity responsible for each of the following functions attend the conference. Notify the following participants a minimum of 5 working days before the conference:

a. Contractor

b. Hollow metal supplier and installer

c. Detention hollow metal supplier and installer

d. Hardware supplier

e. Hardware installer

f. Detention hardware supplier

g. Detention hardware installer

h. Remote control operator and locking device supplier and installer

i. Electrical contractor.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Hot-Rolled Carbon Steel

ASTM A1011/A1011M, commercial quality, 14 gage and thicker.

2.1.2 Cold-Rolled Carbon Steel

ASTM A1008/A1008M, commercial quality, stretcher level sheets, 12 gage.

2.1.3 Galvanized Steel

ASTM A653/A653M, CQ, mill phosphatized tested by ASTM G60.

2.2 DETENTION HOLLOW METAL DOORS AND FRAMES

2.2.1 Door Fabrication

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NOTE: Refer to architectural door schedule on drawing for all pertinent information about doors, door frames, and security hardware set numbers.

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a. Provide doors fabricated of cold rolled, pickled and oiled stretcher leveled steel sheets with clean smooth surfaces. Gages shall be as indicated for each type of door. Form molded members straight with joints coped or mitered, and in true alignment. Welded joints on exposed surfaces shall be dressed smooth, to be invisible. Doors shall be custom made full flush design, internally reinforced, sound deadened and insulated, 50 mm 2 inches thick to receive detention locks, of the elevations, types and sizes shown on the approved shop drawings and schedules.

b. Face sheets shall be mild steel fully welded on edges with continuous inner-reinforcements full height and width. Provide internally 10 gage steel channel banding around complete door perimeter, spot welded to face sheet 75 mm 3 inches on center. Inner reinforcements shall be truss design with triangular form, or interlocking channels with "Z" bar stiffeners, the shape of which cannot be altered without changing the length of the sides. Flat apexes shall be resistance spot welded on 70 mm 2 3/4 inches centers horizontally and 75 mm 3 inchescenters vertically. Insulate each flute of reinforcement with 96 kg/cubic meter 6 pound density rock wool.

c. Bevel vertical door edges 3 mm in 50 mm 1/8 inch in 2 inches and internally reinforced full length with 3 mm 1/8 inch thick steel

channels spot welded not over 75 mm 3 inches on center inside both door faces. Close top and bottom door edges with continuous recessed 10 gage channels extending the full width of the door and welded 75 mm 3 inches on center maximum to both faces and continuously welded to the vertical door edge channels to form a single perimeter frame inside the door. Top and bottom edges of doors shall be finished flush, except for provisions for weatherproofing. Mortise, reinforce, drill and tap door edges to receive templated specified hardware in accordance with the approved hardware schedule and the hardware manufacturer's recommendations for the proper installation of hardware and detention equipment.

d. Clearances shall be coordinated with frame and in accordance with NAAMM HMMA 863, Part 2, Section 2.02.

e. Doors shall be free from warpage, wind or buckle. Bends shall be of minimum radius for the gage of metal used.

f. The removable glass stop shall consist of 10 gage angle securely fastened to the frame using machine screws (6 mm 1/4 inch #20UNRC: 25 mm at 150 mm one inch at 6 inches on center and no more than 100 mm 4 inches from corners). Exposed screw heads shall be button head type, and shall be torx fitting tamperproof. The finished glass stop shall be tight fitting and mitered at the corner joints. There shall be a minimum 25 mm one inch glass engagement.

2.2.2 Door and View Window Frame Fabrication

a. Custom-made, fully assembled, factory-welded units of the size and shapes shown on the approved shop drawings. "Knock-down" frames will not be accepted. Coordinate frame dimension to thickness of door or glass.

b. Strong, rigid, neat in appearance, and free from defects. Frame members shall be clean cut, straight, and of uniform profile.

c. Form frames to provide mitered trim and butted stops. Join head and jamb members by continuous welds occupying the full depth and width of the frame. Grind exposed welds smooth and flush.

d. When frames are for door light or food pass, fabricate members as closed tubular shapes having no visible seams or joints on exposed surfaces. Grind exposed welds smooth and flush.

e. Frames over 1200 mm 4 feet wide installed in masonry partitions shall have a channel stiffener not less than 13 gage welded into the head at the factory.

f. Protect cutouts and reinforcements with pressed steel mortar guards on the inside of the frame.

g. Floor anchors formed of not less than 12 gage steel shall be securely welded to the bottom of each jamb. [Where scheduled, adjustable floor anchors extending not less than 50 mm 2 inches below the finish floor line shall be provided.]

h. Frames for installation in masonry walls shall be provided with non-removable adjustable jamb anchors constructed of not less than 14 gage material. Provide jamb anchors at 400 mm 16 inches on center.

i. Welded frames that are to be installed in previously prepared masonry openings shall be 12 mm 1/2 inch smaller in width and 6 mm 1/4 inch smaller in height than the masonry opening to provide 6 mm 1/4 inch clearance on all sides.

j. Removable glass stop for view window frame shall consist of 10 gage angle securely fastened to the frame using machine screws of 6 by 32 mm 1/4 by 1 1/4 inch spaced at 200 mm 8 inches on center maximum. Exposed screw heads shall be round, pan, or oval type, and shall be torx drive, tamperproof. The finished glass stop shall be tight fitting and mitered at the corner joints. There shall be a minimum of 25 mm one inch glass engagement. Install plaster guards covering the glass stop screws on masonry grouted frames.

k. When shipping limitations dictate, frames for large openings shall be fabricated in sections designed for field welded splicing. Welds shall be ground smooth and primed for painting. Sections shall be assembled at the factory to ensure proper fit and be clearly marked for field reassembly.

2.2.3 Door Reinforcement for Hardware

a. Mortise, reinforce, drill, and tap doors at the factory for mortised hardware in accordance with the approved hardware schedule and templates. Doors to receive surface-mounted hardware shall have inner reinforcing plates for drilling and tapping to be performed in the field.

b. For each mortised hinge, provide a reinforcing plate measuring 5 by 38 by 250 mm 3/16 by 1 1/2 by 10 inches that is continuously welded inside the edge channel. The top hinge preparation shall be additionally braced by a channel, welded to the back of the hinge reinforcing plate and inside the edge reinforcing channel.

c. Where detention locks are scheduled, provide reinforced pocket to receive locks. The secure side of the door shall be finished flush with a 5 mm 3/16 inch backup plate to protect lock. Form the pocket perimeter of 12 gage channels on three sides with the door edge channel completing the perimeter frame. Do not cut the door edge channel except for passage of the lock bolt. Provide a 5 mm 3/16 inch thick steel mounting and protection plate to cover the lock pocket and extend at least 20 mm 3/4 inch on three sides beyond the cutout. Secure the lock to the protection plate in accordance with the lock manufacturer's instructions. Secure the cover plate to the door by at least six 6 mm 1/4 inch security-type machine screws. Make provisions so that removal of the lock is impossible when the lock bolt is extended.

d. Reinforcements for door pulls shall be 5 mm 3/16 inch steel welded inside door. Reinforcement size shall be 38 by 250 mm 1 1/2 by 10 inches for loop type pull and 150 by 175 mm 6 by 7 inches for flush type pull. Minimum 12 gage reinforcing shall be welded inside the door for all other surface hardware items.

2.2.4 Frame Reinforcement for Hardware

a. Mortise, reinforce, drill, and tap frames at the factory for templated mortised hardware, in accordance with the approved hardware schedules

and templates. Where surface-mounted hardware is to be applied, frames shall have reinforcing plates completely drilled and tapped for installation in the field.

b. For each mortised hinge, provide a 7 gage, off-set reinforcing plate that is factory drilled and tapped and measures 38 by 250 mm 1 1/2 by 10 inches. Top hinge reinforcement shall be additionally braced by a 7 gage backup angle welded to the reinforcement and to the inside of the frame trim.

c. Where electrical frame-mounted locks are used, provide a special housing with a 7 gage backup for attachment of the lock and a lock cover plate of the same thickness. Provide a junction box or enclosure behind each item of electrical hardware on the frame. Conduit shall be factory installed between interconnecting electrical items within each frame.

d. All other mortised and surface-mounted hardware reinforcements shall be not less than 12 gage.

2.2.5 Factory Finishing

a. After fabrication, dress, fill, and sand tool marks and surface imperfections to make faces and vertical edges smooth, level, and free of irregularities.

b. Surfaces shall be chemically treated and cleansed of rust, oil, and impurities and given a phosphate treatment to ensure paint adhesion.

c. Paint exposed surfaces of doors, and both inside and outside of frames with a minimum of one-mil thickness of rust inhibitive primer which shall be dried and completely cured to develop hardness before shipment.

2.3 ACCESS PANELS

Provide steel access panels of sizes and locations as indicated and where required for access to utilities, equipment, and controls.

a. Doors shall be 10 gage steel, flanged 32 mm 1.25 inches on four sides, with welded corners.

b. Frame shall be composed of steel angles measuring 5 by 50 by 50 mm 3/16 by 2 by 2 inches. Weld and grind joints smooth.

c. Provide detention type hinges with nonremovable pin, three per frame. Weld to door and frames.

d. Weld steel stop angles measuring 3 by 25 by 25 mm 1/8 by one by one inch to frame on all four sides.

e. Masonry anchors shall be welded at factory, 3 by 25 by 150 mm 1/8 by one inch by 6 inches, minimum four per panel. [Provide expansion shields at concrete openings, factory countersunk for 10 mm 3/8 inch flathead machine screw, minimum two per jamb.]

f. Factory finish with prime coat of rust-inhibitive, baked-on enamel.

g. Provide locks at panels within the security perimeter [and points of

egress from ducts and tunnels terminating outside the security perimeter]. Lock case and cover shall be malleable iron and steel. Bolt shall be high strength bronze and project 20 mm 3/4 inch from case when retracted and have a throw of not less than 16 mm 5/8 inch. Locks shall have five tumblers, each actuated by phosphor bronze springs. Locks shall operate from one side only. Attach to panel with detention type screws. Locks shall be keyed alike. Enter coded keys into keying system as specified in Section 08 71 63 DETENTION HARDWARE.

2.4 OPENING PROVISION

[Speaking ports] [Louvers] [View ports] [Food passes] shall be manufactured as indicated.

2.5 SOURCE QUALITY CONTROL

Prior to fabrication, perform the following minimum performance test on a 12 gage reinforced flush door of the type to be provided on this project:

a. Test "A" - Static Load: Under centrally applied load of 62 kN 14,000 pounds (32 kPa 660 pounds per square foot) at quarter points, the maximum permitted deflection shall be 15 mm 0.58 inch with a rebound of 0.4 mm 0.015 inch after release of load.

b. Test "B" - Rack Test: Under a concentrated load of 33 kN 7,500 pounds on one unsupported corner of door, the maximum deflection shall not exceed 90 mm 3.5 inches without failure.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Door Schedule

Refer to door schedule on drawings for location of doors, door frames, and door hardware.

3.1.2 Frames

Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After completing wall construction, remove temporary braces and spreaders. Do not use any part of the frame as lintels or load-carrying members. Anchor frame to masonry with flat head security type machine screws into expansion shields or attached to a pre-set rough buck anchored to the masonry in the same way. Install five anchors on each jamb for doors up to and including 2250 mm 7 feet 6 inches in height and six on each jamb for taller doors.

3.1.3 Doors

Fit hollow metal doors accurately in frames. Provide metal shims where necessary.

3.1.4 Access Panels

Prepare openings as required to receive frame. Use fasteners as specified and required by type of surrounding construction. Ensure that frames are properly seated into opening with steel shims and that doors are true, in alignment, and completely flush in appearance. Maintain 3 mm 1/8 inch

maximum clearance between door and frame.

3.2 ADJUSTMENT AND CLEANING

Remove and replace defective work which is warped, bowed, or otherwise damaged. Adjust hollow metal work for smooth operation. Touch up scratches and bare edges in the field with a rust inhibiting primer prior to painting.

-- End of Section --