



Designation: ~~F821/F821M – 01 (Reapproved 2012)~~ **F821/F821M – 01 (Reapproved 2018)** Standard

Standard Specification for Domestic Use Doors and Frames, Steel, Interior, Marine¹

This standard is issued under the fixed designation F821/F821M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers the construction of standard and custom-built interior steel doors and frames for ships including U.S. Coast Guard certificated vessels with domestic routes.

1.2 Doors and frames are to be hollow metal construction with the door insulated for sound or fire.

1.3 The doors are intended for use in staterooms, lavatories, passageways, and other areas protected from weather.

1.4 The values stated in either inch-pound units or SI units are to be regarded separately as standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other.

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[A240/A240M Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications](#)

[A582/A582M Specification for Free-Machining Stainless Steel Bars](#)

[A1008/A1008M Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable](#)

[E136 Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C](#)

2.2 *Code of Federal Regulations (CFR) Title 46—Shipping:*³

[Subchapter D—Tank Vessels; Vessels Subpart 32.57—Structural Fire Protection](#)

[Subchapter H—Passenger Vessels; Vessels Subpart 72.05—Structural Fire Protection](#)

[Subchapter I—Cargo and Miscellaneous Vessels; Vessels Subpart 92.07—Structural Fire Protection](#)

[Subchapter T—Small Passenger Vessels; Vessels Subpart 177.300—Hull Structure](#)

[Subchapter U—Oceanographic Vessels; Vessels Subpart 190.07—Structural Fire Protection](#)

[Structural Insulations; Insulations Subpart 164.007](#)

[Structural Insulations; Insulations Subpart 164.107](#)

[Noncombustible Materials for Merchant Vessels; Vessels Subpart 164.009](#)

[Noncombustible Materials; Materials Subpart 164.109](#)

2.3 *Builders Hardware Manufacturers Association, Inc.—Association (BHMA):*⁴

[A 156.18 Materials and Finishes](#)

¹ This specification is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.03 on Outfitting and Deck Machinery.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Superintendent of Documents, 732 N. Capitol St., NW, Washington, DC 20401-0001, <http://www.access.gpo.gov>.

⁴ Available from BHMA, Inc., Builders Hardware Manufacturers Association (BHMA), 355 Lexington Ave., 47th Floor, New York, NY 10017-10017, <https://www.buildershardware.com>.

2.4 U.S. Public Health Service:⁵

Publication No. 393,393 Handbook on Sanitation of Vessel Construction

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

- 3.1.1 *hands of doors*—a term used to describe a door from the outside or key side of the door.
- 3.1.2 *right-hand regular door*—a door having hinges on the right side when swinging door away from the individual opening it.
- 3.1.3 *left-hand regular door*—a door having hinges on the left side when swinging door away from the individual opening it.
- 3.1.4 *right-hand reverse bevel door*—a door having hinges on right side when swinging door towards the individual opening it.
- 3.1.5 *left-hand reverse bevel door*—a door having hinges on left side when swinging door towards the individual opening it.
- 3.1.6 *face plates*—the exterior metal skins that enclose the internal supporting structure of the door.
- 3.1.7 *latch*—a device normally installed in the vertical edge of door, opposite hinge edge, that when latched retains door in closed position.
- 3.1.8 *throw*—the extension, or reach, of the latch bolt. This throw is measured from latch face plate to extreme outer edge of latch bolt with latch bolt in fully extended position.
- 3.1.9 *padlock eye*—a means for securing door in closed position by the use of a padlock.

4. Classification

4.1 Classes of doors and frames shall be as indicated in the ordering information. (See Annex A1 for definition of various class divisions.)

- 4.1.1 Class A-O for installation in Class A-O divisions.
- 4.1.2 Class A for installation in Class A-15, A-30, and A-60 divisions.
- 4.1.3 Class B for installation in Class B divisions.
- 4.1.4 Class C for installation in Class C divisions.

4.2 Doors and frames shall be of the following types as indicated in ordering information.

4.2.1 Type I standard doors are of the following widths. Height and details shall conform to Tables 1-6 and Figs. 1-3.

Size 1—22-in. (559-mm) clear jamb width

Size 2—24-in. (610-mm) clear jamb width

Size 3—26-in. (660-mm) clear jamb width

Size 4—30-in. (762-mm) clear jamb width

Size 5—36-in. (914-mm) clear jamb width

4.2.2 Type II doors conforming generally to specifications but requiring special requirements as indicated in the ordering information (see also 6.7.9).

4.2.3 Type III double doors using two of Type I doors.

4.2.4 Type IV double doors using two of Type II doors.

NOTE 1—Door widths are *approximately* 1¼ in. (approximately 32 mm) greater than clear jamb width.

**TABLE 1 Class A-O and Class A Door Dimension
Table of Dimensions—Door**

Designation		in.	mm
Thickness	A	1¼	45
Clear height from structural deck	B	78½	1994
Clear height from finished deck	C	approximately 78	approximately 1981
Height from structural deck to center line of vision light	D	64	1626
Height from structural deck to center line of cutout for switch	E	48	1219
Height from structural deck to center line of knob	F	38	965
Undercut	G	see Table 2	see Table 2
Sill height	H	see Table 2	see Table 2

⁵ Available from United States U.S. Public Health Services, Division of Engineering Services, Parklawn Library, Room 1315, 5600 Fishers Lane, Rockville, MD 20857, Attention: Ms. Bonnie Scott <https://www.usphs.gov>.

TABLE 2 Class A-O and A Sill Details

Sill Height (H)		Maximum Door Undercut (G)	
in.	mm	in.	mm
0	0	½ max above finished floor	13 max above finished floor
1½	38	½	13
6 ^A	152	½	13

^AMax coaming height under sill is 5 in. (127 mm).

**TABLE 3 Class B Door and Frame Dimensions
Table of Dimensions—Door**

Designation		in.	mm
Thickness	A	1¾	45
Clear height from structural deck	B	78½	1994
Clear height from finished deck	C	Approximately 78	Approximately 1981
Height from structural deck to center line of cutout for switch	D	48	1219
Height from structural deck to center line of knob	E	38	965
Undercut	F	See Table 4	See Table 4
Sill height	G	See Table 4	See Table 4

TABLE 4 Class B Sill Details

Sill Height (G)		Maximum Door Undercut (F) ^A	
in.	mm	in.	mm
0	0	1 max above finished floor	25 max above finished floor
1½	38	1	25
6 ^B	152	1	25

^AIn passageways and areas in which ratproofing requirements are invoked, the height of the door undercut shall not exceed ½ in. (13 mm).

^BMax coaming height under sill is 5 in. (127 mm).

5. Ordering Information

5.1 Orders for items under this specification shall include the following information by the purchaser:

5.1.1 Class A-O, A, B, or C.

5.1.2 Type, hand, clear jamb width, and sill height.

5.1.3 Options such as vent grills, louvers, vision lights, and hose ports.

5.1.4 Hardware, sill caps, lock sets, latches, door closers, and hold backs if other than manufacturer's standard. Master keying of door locks will not be provided unless required and defined by ordering documents. Instead, each door lock will be keyed differently.

5.1.5 Color chip and desired painting specifications or other commercial designation for final finish. If not specified, doors will have manufacturer's prime coat applied.

5.1.6 For Type II and III doors, sizes and any other supplementary requirements.

5.1.7 *Sill Heights*—0 in. (0 mm), 1½ in. (38 mm), or 6 in. (152 mm). See Figs. 1-3.

5.1.8 Cut out for light switch; if not requested in ordering data, no provisions will be made.

6. Materials and Manufacture

6.1 For typical design, see Figs. 1-3.

6.2 Steel for doors and frames shall be cold-rolled sheet, commercial quality in accordance with Specification A1008/A1008M. Other materials shall be as indicated.

6.3 Class A-O Doors (See Fig. 1 and Table 1 and Table 2):

6.3.1 Door shall be 1¾-in. (45-mm) thick hollow steel with 0.055-in. (1.4-mm) minimum face plates or equivalent metal construction.

6.3.2 Doors shall have a latch with a minimum throw of ¾ in. (19 mm).

6.3.3 Door frames shall be of steel with a nominal thickness of 0.055 in. (1.4 mm) and shall be installed so that any flame penetration would be through at least two thicknesses of 0.055 in. (1.4 mm) or equivalent.

6.3.4 Door frames shall provide a stop of ⅝ in. (16 mm) minimum at the sides and top.

6.3.5 For undercut at bottom of door, see Fig. 1 and Table 2.

6.3.6 Doors other than those that are normally locked shall be self closing and capable of closing against a 3½° list.

TABLE 5 Class C Door Dimensions

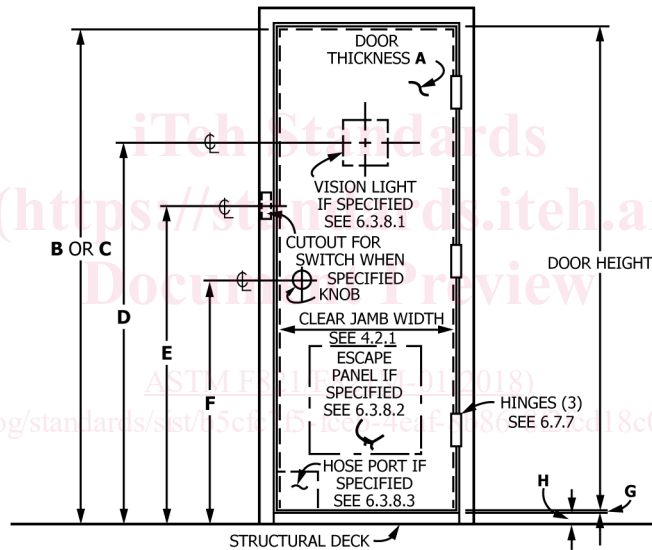
Designation		in.	mm
1	Thickness	A	1¾
	Clear height from structural deck	B	78½
	Clear height from finished deck	C	Approximately 78
	Height from structural deck to center line of cutout for switch	D	48
	Height from structural deck to center line of padlock eye	E	46
	Height from structural deck to center line of knob	F	38
	Undercut	G	See Table 6
	Sill height	H	See Table 6

TABLE 6 Class C Sill Details

Sill Height (H)		Maximum Door Undercut (G) ^A	
in.	mm	in.	mm
0	0	1 max above finished floor	25 max above finished floor
1½	38	1	25
6 ^B	152	1	25

^AIn passageways and areas in which ratproofing requirements are invoked, the height of the door undercut shall not exceed ½ in. (13 mm).

^BMax coaming height under sill is 5 in. (127 mm).



NOTE 1—For Class A-O and Class A door requirements, see 6.3 and 6.4, respectively.

FIG. 1 Class A-O and Class A Door and Frame

6.3.7 Doors shall be insulated with sufficient noncombustible fibrous insulation to sound dampen the door adequately. This insulation shall be selected from those listed under Section 164.007, Structural Insulations, or Section 164.009, Noncombustible Materials.

6.3.8 Options for Class A-O and A Doors:

6.3.8.1 Vision lights may be installed using wire-inserted glass of not more than 100 in.² (645 cm²) in size.

6.3.8.2 An escape panel of 16- by 18-in. (406- by 457-mm) minimum size in lower half of door.

6.3.8.3 Where hose ports are required, they shall be cut in the lower corner of the door on the side opposite the hinges so that when hose is passed through the door when the door is open, it may be closed over the hose. The cut for the host port should be approximately 8 by 8 in. (200 by 200 mm). A hinged or pivoted steel metal cover shall be fitted in the cut, equipped with a method of holding it in a closed position yet will permit easy and automatic operation of the hinged cover. See Fig. 1 for location.

6.4 Class A Doors (see Fig. 1 and Table 1 and Table 2):

6.4.1 Doors and frames shall follow the requirements of 6.3.1 – 6.3.6 and 6.3.8.

6.4.2 Doors shall be filled solidly with one half the thickness of structural insulation with USCG Approval Number 164.007. Insulation with USCG Approval Number 164.107 (A-15 rating) may also be used.

6.5 Class B doors (see Fig. 2 and Table 3 and Table 4):