

### § 116.433

box if the refrigerator box was purchased with the insulation already installed.

(b) Except as allowed by paragraph (a) of this section, any insulation installed for purposes other than structural fire protection and all material incidental to its installation must be noncombustible or approved under § 164.009 in subchapter Q of this chapter. Surfacing material applied to such insulation must be noncombustible or may meet the requirements of § 116.422(c) of this part.

### § 116.433 Windows and air ports in fire control boundaries.

(a) Windows or air ports must be of tempered or laminated glass of at least 6.5 millimeters (0.25 inches) in thickness. The use of other glazing material such as polycarbonate sheets may be approved by the Commandant for specific installations.

(b) Windows or air ports in bulkheads adjacent to passageways must not extend below a point 910 millimeters (36 inches) above the deck unless storm rails, that are structurally independent of the glass, are fitted in the passageway.

(c) Windows or air ports in A-Class bulkheads must be fitted with frames of steel or equivalent material. Glazing beads or angles of steel or equivalent material must be installed to hold glass in place in windows or air ports in a fire control boundary in event of a fire if:

(1) Where a steel frame is used, it is not arranged to retain the glass in place; or

(2) A frame of aluminum or other material with low melting point is used.

(d) A window or air port that is adjacent to an embarkation station, escape route, or survival craft stowage must be:

(1) Of A-Class construction; or

(2) Fitted with shutters, operable from outside the space, of steel or equivalent material.

(e) A window installed in an internal fire control boundary must comply with the requirements of § 72.05-30 in subchapter H of this chapter, except that fire window frames and glazing material listed by Underwriters Lab-

### 46 CFR Ch. I (10-1-06 Edition)

oratories may be used in B-Class bulkheads.

(f) Windows in doors in fire control boundaries must comply with the requirements of paragraphs (a) through (e) of this section.

(g) Windows complying with paragraphs (a) through (d) of this section may be installed in the external boundaries of stairtowers if there are no unprotected openings in the side of the vessel below the windows and if the windows are not exposed to any other parts of the vessel at an angle of less than 180 degrees.

[CGD 85-080, 61 FR 900, Jan. 10, 1996, as amended at 62 FR 51350, Sept. 30, 1997]

### § 116.435 Doors.

(a) A door, other than a watertight door, must meet the requirements of this section.

(b) A door in a fire control boundary must meet the following requirements:

(1) A door in an accommodation space, stairway, stairtower, or corridor must be oriented vertically;

(2) A door must be capable of operation from either side by one person;

(3) With the exception of staterooms, a door in an accommodation space, stairway, stairtower, passageway, or control space must open in the direction of escape, where practicable;

(4) Combustible veneers may be used on doors subject to the same restrictions as the fire control boundary in which the doors are fitted;

(5) Door frames must be of rigid construction and provide at least a 12.7 millimeter (0.5 inch) overlap at the sides and top, except:

(i) Double doors capable of independent operation and latching may have a clearance between the doors of not more than 3.2 millimeters (0.125 inches). However, if one door must always be closed first, means shall be provided to ensure that the doors close in the proper order; and

(ii) A double swing door, may have a clearance of not more than 3.2 millimeters (0.125 inches) at the top and sides;

(6) The maximum width of an individual door must not exceed 1200 millimeters (48 inches); and

(7) Hose ports, if fitted, must be in the lower corner of the door opposite the hinge so a hose may pass through

the doorway when the door is open and still allow the door to close over the hose. The hose port should be approximately 152 millimeters (6 inches) square. A self-closing hinged or pivoted steel or equivalent material cover must be fitted in the opening.

(c) Doors in A-Class fire control boundaries must meet the following additional requirements:

(1) A door in a bulkhead required to be A-60, A-30, or A-15 Class must be of hollow steel or equivalent material construction, solidly filled with approved structural insulation, and capable of meeting the requirements of an A-15 Class bulkhead;

(2) A door in a bulkhead required to be A-0 Class must be of solid or hollow steel or equivalent material construction, and capable of meeting the requirements of an A-0 Class bulkhead;

(3) A door must have a latch with a minimum throw of 20 millimeters (0.75 inches);

(4) A door must not have vent grilles or louvers;

(5) A door must not be undercut more than 12.7 millimeters (0.5 inches) above the door sill or deck covering. Rugs and carpets must not pass through doorways, but linoleum and similar deck coverings may;

(6) A door in a stairtower, stairway, and main vertical zone bulkhead must meet the following additional requirements:

(i) A door must be of the self-closing type capable of closing against a 3.5 list of the vessel; and

(ii) Holdback hooks are not allowed. If installed, a hold back mechanism for a door must allow the door to be released:

(A) Locally;

(B) Upon a signal from a control space; and

(C) Upon disruption of the power system.

(7) Horizontal doors (doors installed in decks) are allowed only for access to spaces that are accessible only to crew members and are used only by crew members, subject to the following requirements:

(i) The door must be self-closing with a closure time of not less than 5 seconds and not more than 10 seconds, and

be capable of closing against a 3.5 list of the vessel;

(ii) Holdback hooks are not allowed. If installed, a holdback mechanism for a door must allow the door to be released:

(A) Locally;

(B) Upon a signal from a control space; and

(C) Upon disruption of the power system.

(iii) The forces required to fully open the door must not exceed 17.8 Newtons (5 pounds) to release the latch, 44.5 Newtons (10 pounds) to set the door in motion, and 17.8 Newtons (5 pounds) to open the door to the width of the stairway; and

(iv) The door latch must be capable of keeping the door closed when a pressure of 0.07 kPa (0.01 psi) is applied to the underside of the door.

(8) Double swing doors must not be used in any bulkhead except between a food preparation space, such as a galley or pantry, and a messroom or dining room; and

(9) A door opening onto weather decks must meet the requirements of paragraphs (c)(1) or (c)(2) of this section or may be composed of hardwood of not less than 45 millimeters (1.75 inches) in thickness. In any case, no restriction as to the area of glass will be made for the doors insofar as this subpart is concerned. Only glass of the wire-inserted type may be fitted in the doors.

(10) Except as noted in paragraph (c)(9) of this section, doors may be fitted with not more than 0.065 square meters (100 square inches) of glass, which must be of the wire-inserted type.

(d) Doors in B-Class fire control boundaries must meet the following requirements in addition to those in paragraph (b) of this section:

(1) A door must be of solid or hollow steel or equivalent material construction, or must be of noncombustible material and be specifically approved by the Commandant;

(2) A door must have a latch with a minimum throw of 9.5 millimeters (0.375 inches); and

(3) A door must not be undercut more than 25 millimeters (1 inch) above the door sill or deck covering. Rugs and

carpets must not pass through doorways but linoleum and similar coverings may.

(e) A door in a C-Class bulkhead must be of noncombustible material.

(f) A door used for decorative purposes, and that is not required to comply with paragraphs (b) through (e) of this section, must be constructed of noncombustible material or hardwood, must not interfere with the normal operation of the required doors, and must open in the same direction as the required doors. Decorative doors must not be used in stairways or stairtowers.

[CGD 85-080, 61 FR 900, Jan. 10, 1996, as amended at 62 FR 51350, Sept. 30, 1997]

**§ 116.438 Stairtowers, stairways, ladders, and elevators.**

(a) A vessel carrying more than 600 passengers or with overnight accommodations for more than 49 passengers must meet the requirements for stairways, ladders, and elevators in § 72.05-20 of this chapter.

(b) *Materials.* (1) Stairways, stairtowers, ladders, elevators, and landings must be designed with sufficient strength to sustain a load of 4.8 kPa (100 pounds per square foot) with a safety factor of 4, based on ultimate strength of the material;

(2) All stairways, ladders, elevators, and landings within machinery spaces and cargo holds must be composed of steel; and

(3) All stringers, treads, and all platforms and landings of all stairways shall be composed of steel, and risers must be of approved incombustible material, except that:

(i) Stairways, ladders, elevators, stringers, treads, platforms, and landings protected from potential fire exposure by being in either exterior locations or within protective enclosure bulkheads, decks and doors as described in the requirements of paragraph (j), may be constructed of approved incombustible material; and

(ii) All stairways, ladders, elevators, stringers, treads, platforms, and landings subject to potential fire exposure and not within a protective enclosure must be composed of steel unless their failure will not hinder fire fighter access or debarkation.

(c) A stairway or stairtower must be fitted with handrails on both sides at a vertical height above the tread at its nosing of between 840 and 910 millimeters (33 and 36 inches). A stairway or stairtower of more than 1,680 millimeters (66 inches) in width must also be fitted with a center handrail.

(d) A handrail fitted in a stairtower, stairway, landing, ladder, or elevator must be constructed of noncombustible material.

(e) A stairway or stairtower must be clear of all obstructions other than handrails.

(f) Curved, spiral, or winding stairways are permitted only with the specific approval of the Commandant.

(g) Differences in the depth of tread or height of riser of stairs in different flights of stairs in a stairway or stairtower must be minimized. In an individual flight of stairs in a stairway or stairtower, the depth of the tread and the height of riser shall not have a variance exceeding 5 millimeters (0.19685 inches).

(h) In a stairway or stairtower, the sum of the riser height and tread depth must be at least 432 millimeters (17 inches) and not more than 455 millimeters (18 inches). A stairway or stairtower having treads less than 254 millimeters (10 inches) in depth must have a nosing of 12.7 millimeters (0.5 inches) in width.

(i) Landings for stairways and stairtowers must meet the following requirements:

(1) A clear landing having an area at least equal to the square of the tread width must be provided at the top and bottom of each stairway; and

(2) Any interruption or change of direction in a stairway must be accomplished by means of an intermediate landing of a width and length at least equal to the tread width of the stairway.

(j) A stairway or stairtower must not have an angle of inclination from the horizontal of more than 40 degrees. However, stairways accessing spaces visited solely by crew members must not have an angle of inclination from the horizontal of more than 50 degrees. The Commanding Officer, Marine Safety Center may approve higher angles of