Coast Guard, DHS § 116.438

(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 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.

§ 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 inclination for spaces with severe space constraints.

(k) Where a continuous vertical deck penetration for a stairway or elevator involves only one deck, the integrity of the deck must be assured as required by paragraph (k) of this section. Alternatively the integrity of the deck may be maintained at one level only by means of bulkheads of the same fire control boundary rating as the deck penetrated. A door meeting the requirements of §§116.435(b) and 116.435(c) of this part must be fitted in the enclosure. In spaces containing a balcony, the integrity of the balcony deck in the way of stairways or elevators need not be assured. However, such stairways must not be considered to be a means of escape.

(m) Arrangements. (1) Each main vertical zone with more than two deck levels, each having enclosed or partially enclosed accommodation spaces, other than washroom or toilet spaces and open decks, must be served by at least one stairtower, so that a person may escape from any accommodation space or any other space where persons may be normally quartered or employed, to all other decks having any such spaces within the same main vertical zone, without coming out of the stairtower enclosure. Where a stairtower is accessible from two main vertical zones, it may be considered as the required stairtower for both main vertical zones provided all boundaries of the stairtower meet main vertical zone boundary requirements contained in §116.415 of this part.

2. Each stairtower must give access to an embarkation station or an area of refuge identified in the emergency escape plan required by §116.520.

3. Stairtowers must not give direct access to overnight accommodations or spaces of type 9, 10, 11, or 12.

4. A stairtower is not required to extend below deck to serve spaces in which a fire is likely to originate if one of the means of escape is:

(i) A stairway that leads directly to a weather deck; or

(ii) A stairway leading to a stairtower enclosure that includes self closing fire doors at both the top and bottom; or

(iii) An alternative stairtower arrangement providing an equivalent level of safety is acceptable to the
§ 116.439 Balconies.

(a) An accommodation space containing a balcony must meet the requirements of this section.