

linings or ceilings or in the matter of double bulkheads.

(e) Nothing in this subpart shall be construed as prohibiting the covering of any surface with a reasonable number of coats of paint or with a Marine Finish meeting the requirements of subpart 164.012 of subchapter Q (Specifications) of this chapter. This includes corridors, stairway enclosures, and hidden spaces.

(f) Partial bulkheads or decks used to subdivide a space for artistic treatment, privacy, etc., shall meet the requirements of Class C bulkheads.

**§ 72.05–20 Stairways, ladders, and elevators.**

(a)(1) Except as further noted the provisions of this section apply to all vessels.

(2) For small vessels, special consideration for relief may be given where it is shown to be unreasonable or impracticable to meet the detailed requirements for stairway size, slope, dimensioning, and landing area.

(3) Stairways, ladders, and elevators within main machinery spaces or cargo holds are not covered by the general provisions of this section, but shall meet the requirements of paragraph (b) of this section.

(b) Stairways, ladders, and elevators within main machinery spaces and cargo holds shall meet the following requirements:

(1) All stairways, ladders, and elevators shall be of steel.

(2) [Reserved]

(c) Deck penetrations shall meet the following requirements:

(1) Where a continuous vertical deck penetration for a stairway or elevator exceeds one deck, the integrity of all decks involved shall be assured by enclosure bulkheads and decks meeting the applicable requirements of § 72.05–10 (d) through (g), and by doors at all levels meeting the requirements of § 72.05–25(b)(9).

(2) Where only two decks are served by a stairway or elevator, the integrity of the deck involved may be assured as noted in the preceding paragraph. Alternately, the integrity may be maintained at one level only by means of bulkheads and by doors meeting the requirements of § 72.05–25(b)(9). If the lat-

ter method is used, it should be noted that the integrity of a deck is involved, and accordingly, the bulkhead classifications should be selected from tables 72.05–10(f) or 72.05–10(g), the spaces above or below being assumed to extend to the bulkheads and doors.

(3) Stairways or elevators to a balcony within a space need not be enclosed, provided the stairway or elevator serves only the space and the balcony within the space.

(d) For the purpose of this section, stairways are identified as follows:

Type 1—Main Vertical Zone enclosed stair towers.

Type 2—Enclosed stairways other than Type 1.

Type 3—Interior stairway not enclosed.

Type 4—Exterior stairways or exterior inclined ladders.

(e) Each Main Vertical Zone shall be served by at least one Type 1 stairway, so that independent of adjoining Main Vertical Zones, escape may be effected 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 stair tower enclosure. Each Type 1 stairway shall give access to the Embarkation Deck or, if the Embarkation Deck does not extend to the portion of the vessel in question, to at least one weather deck from which convenient communication to the Embarkation Deck is provided by means of Type 4 stairways. In cases where a Type 1 stairway is accessible from two Main Vertical Zones, it may be considered as the required Type 1 stairway for both zones provided all boundaries of the stairway meet Main Vertical Zone requirements.

(f) Insofar as is reasonable and practicable, Types 1 and 2 stairways, and all elevator enclosures, should not give direct access to accommodations or other enclosed spaces in which a fire may originate.

(g) The furnishings for Types 1 and 2 stairways, and all elevator enclosures, shall be as set forth in § 72.05–55(c).

(h) In general, curved, spiral, or winding stairways will not be permitted. Relaxation from this requirement may be permitted, provided, in the opinion of the Commandant, the

proposed stairway is equivalent with respect to safety and dimensions to the stairways covered by this section.

(i) For all types of stairways, the stairs, platforms, and landings shall be of sufficient strength to sustain a load of 100 pounds per square foot with a factor of safety of 4 based on the ultimate strength.

(j) The stringers, treads, and all platforms and landings of all Types 1, 2, and 3 stairways shall be of solid steel construction. Risers shall be of approved incombustible material.

(k) For all types of stairways, handrails shall be fitted on both sides of the stairs. For stairways in excess of 66 inches in width, additional center handrails shall be provided. All handrails shall be fitted at a vertical height above the tread at its nosing of between 33 and 36 inches.

(l) For all types of stairways, the stair width shall be clear of all obstructions other than the handrails.

(m) Handrails and trim for all Types 1, 2, and 3 stairways shall be of approved “incombustible materials.”

(n) For all types of stairways, there shall be no variation in the width of the stairs, the depth of the tread, or the height of the risers in any flight. Where variation in height of riser or depth of tread in different flights is necessary, such variations shall be minimized.

(o) For all types of stairways, the sum of the riser height and tread depth shall be at least 17 inches and not more than 18 inches. Types 1, 2, and 3 stairways having treads less than 10 inches in depth shall have a nosing of one inch or other means to provide additional room on the tread.

(p) All stairways shall be dimensioned in accordance with table 72.05–20(p), depending upon the type of stairway and the number of persons served.

TABLE 72.05–20(p)

Type of stairway	Primary use	Maximum angle of inclination (degrees)	Minimum stair tread width, in inches, based upon number of persons served by the stairway—Number of persons						
			1–10	11–20	21–30	31–40	41–50	51–60	Over 60
1 .....	Passenger or crew .....	40	28	30	32	34	36	40	44
2 or 3 .....	Passenger .....	40	28	30	32	34	36	36	36
2 or 3 .....	Crew .....	50	28	30	30	30	30	30	30
4 .....	Passenger or embarkation route.	45	28	30	30	30	30	30	30
4 .....	Crew .....	55	24	24	24	24	24	24	24

(1) The maximum angle of inclination from the horizontal for any stairway shall be as given in table 72.05–20(p).

(2) For all types of stairways, the minimum width shall be determined on a deck-by-deck basis. Except as further noted, on any particular deck, only those persons on that deck using the stairway are involved in the width determination. However, once a minimum required width has been established at any one level, that width may not be reduced at any subsequent deck level in the direction of normal escape. This does not prohibit the use of stair widths exceeding the required minimum for any particular flight or flights.

(3) The various spaces shall be considered to have the number of persons in them as follows:

(i) Passenger staterooms—designed capacity.

(ii) Crew staterooms—two-thirds designed capacity.

(iii) Theaters, dining halls, and similar spaces having fixed seating—maximum seating capacity.

(iv) Lounges, club rooms, etc.—1 person for every 20 square feet of deck area.

(v) Working spaces—normal operating capacity.

(4) Type 1 stairways shall be dimensioned on a deck-by-deck basis as described in the previous subparagraphs. In determining the number of persons using a Type 1 stairway, all persons within the Main Vertical Zone or Zones

in question are assumed to be using Type 1 stairways. No consideration is given to any Type 2 or 3 stairways that may be available. If more than one Type 1 stairway serves a particular Main Vertical Zone, the persons shall be distributed between the stairways dependent upon the arrangements, and the stairways shall be dimensioned accordingly. If in the normal operation of the vessel, a Type 1 stairway is intended for a greater number of persons than given by the foregoing, the larger number shall be used.

(5) Types 2, 3, and 4 stairways shall be dimensioned on a deck-by-deck basis as described in this paragraph. In determining the number of persons using the stairways, the normal operation of the vessel shall be the determining factor. In this respect, if any particular stairway forms part of a normal debarkation route, the number of persons using the stairway for that purpose shall be considered.

(q) All types of stairways designed with a broken flight between any two decks shall conform to the additional requirements of this paragraph.

(1) Any interruption of the slope or change of direction of the stairway shall be accomplished by means of an intermediate landing of rectangular or

nearly rectangular shape based on the actual dimensions of the stairs landing thereon.

(2) Each set of stairs of a broken flight shall be dimensioned independently, and shall conform to the minimum stair widths given in table 72.05-20(p).

(r) Landings for stairways shall be provided in accordance with the applicable requirements of this paragraph.

(1) For all types of stairways, at the top and bottom of each flight of stairs, there shall be a clear landing having an area at least equal to the square of the actual stair tread width.

(2) For Type 1 stairways, there shall be provided within the enclosure at each deck level a landing having a minimum clear area in square feet, exclusive of the stairs, equal to 1.2 times the number of persons from that deck using the stairway.

(3) Where an aisle around a stairway is required due to the relationship of the flights, such aisle shall have a clear width at all points at least equal to the actual stair tread width.

(s) The total clear width of doors to stairways shall be as set forth in table 72.05-20(s), and shall meet all of the other applicable requirements of this paragraph.

TABLE 72.05-20(s)

Type of stairway	Primary use	Minimum clear opening, in inches, of doors to stairways based on number of persons served by doors—Number of persons (N)					
		1-10	11-20	21-30	31-40	41-50	Over 50
1	Passenger or crew	28	30	32	34	36	$1.075N$
2 or 3	Passenger	28	30	32	34	36	36
2 or 3	Crew	28	30	30	30	30	30

<sup>1</sup> Obtain clear opening in inches by multiplying the number of persons served (N) by 0.75.

(1) The dimensioning of doors shall be based on the same fundamentals as described in paragraphs (p)(2) through (5) of this section for stairways. However, the number of people involved for a particular door shall be determined from the arrangements, each door being calculated independent of any other doors to the stairway at the same level.

(2) In no case shall a clear door width be less than 28 inches.

(3) On the Embarkation Deck, each Type 1 stairway shall provide at least

44 inches of exit door width to each side of the vessel. Exit may be provided directly to the weather or indirectly by passageways and/or corridors which lead to the weather.

**§ 72.05-25 Doors, other than watertight.**

(a) The general requirement for doors, other than watertight doors, are as follows:

(1) All doors shall be capable of operation from either side by 1 person.