(b) Each level of a space containing a balcony must have two independent means of escape that meet the requirements of §116.500 of this part.

(c) For the purpose of main vertical zone bulkhead spacing requirements, the length of the space to which the balcony opens is considered to be increased by an amount equal to the gross area of the balcony divided by the average width of the space. If this equivalent main vertical zone length exceeds 40 meters (131 feet), the space must meet the requirements of paragraph (d) of this section. The actual length of the space may not exceed 40 meters (131 feet).

(d) If the equivalent main vertical zone length under paragraph (c) of this section exceeds 40 meters (131 feet), both decks connected by the balcony must be protected with an automatic sprinkler system meeting NFPA 13.

(e) If the unobstructed balcony opening area is less than 93 square meters (1,000 square feet), the opening must be protected in accordance with NFPA 13 or other standard specified by the Commandant. The horizontal projection area of stairs, escalators, statues, or other obstructions must be subtracted from the total balcony opening area for purposes of computation of unobstructed balcony opening area.

[CGD 85–080, 61 FR 900, Jan. 10, 1996, as amended at 62 FR 51350, Sept. 30, 1997; 62 FR 64305, Dec. 5, 1997]

§116.440 Atriums.

(a) The atrium opening area must be a minimum of 93 square meters (1000 square feet) or 20% of the gross deck area of the largest deck within the accommodation space containing the atrium, whichever is smaller.

(1) Each side of an atrium opening must be a minimum of 6.1 meters (20 feet) in length. If the opening is circular or ellipsoid, it must measure at least 6.1 meters (20 feet) across in any direction.

(2) Any deck opening within an atrium must fit wholly within the horizontal projection of any deck opening of an upper deck.

(3) The horizontal projection area of stairs, escalators, statues, etc. within the atrium shall not be included for purposes of computation of atrium opening area.

(b) The entire main vertical zone containing an atrium must be protected throughout with a smoke detection system of an approved type which is installed in accordance with §76.33 in subchapter H of this chapter. However, on vessels with no overnight passenger accommodations, smoke detectors may be omitted from the accommodation space containing the atrium.

(c) The entire main vertical zone containing an atrium must be protected with an automatic sprinkler system meeting NFPA 13.

(d) The atrium must be provided with a smoke extraction system that complies with either:

(1) The smoke extraction system must be capable of exhausting the entire volume of the space within 10 minutes. The smoke extraction system must be capable of being activated by both the smoke detection system and by manual control, and designed with sufficient plenum air openings to prevent excessive negative air pressure in the atrium; or,

(2) The smoke extraction system may be designed in accordance with the principles of NFPA 92B ''Smoke Management Systems in Malls, Atria, and Large Areas.''

(e) Each level within the atrium must have two independent means of escape that comply with §116.500 of this part. At least one of the means of escape must be a stairtower.

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

Subpart E—Escape and Embarkation Station Requirements

§116.500 Means of escape.

(a) Except as otherwise provided in this section, each space accessible to passengers or used by the crew on a regular basis, must have at least two means of escape, one of which must not be a watertight door.

(b) The two required means of escape must be widely separated and, if possible, at opposite ends or sides of the space to minimize the possibility of one incident blocking both escapes.

(c) Subject to the restrictions of this section, means of escape may include normal exits and emergency exits, passageways, stairways, ladders, deck scuttles, and windows.

(d) The number and dimensions of the means of escape from each space must be sufficient for rapid evacuation in an emergency for the number of persons served as determined using §116.438(n)(2) of this part.

(e) The dimensions of a means of escape must be such as to allow easy movement of persons when wearing life jackets. There must be no protrusions in means of escape that could cause injury, ensnare clothing, or damage life jackets.

(f) The minimum clear opening of a door or passageway used as a means of escape must not be less than 810 millimeters (32 inches) in width, however, doors or passageways used solely by crew members must have a clear opening not less than 710 millimeters (28 inches). The sum of the width of all doors and passageways used as means of escape from a space must not be less than 8.4 millimeters (0.333 inches) multiplied by the number of passengers for which the space is designed.

(g) A dead end passageway, or the equivalent, of more than 6.1 meters (20 feet) in length is prohibited.

(h) The maximum allowable travel distance, measured as actual walking distance from the most remote point in a space to the nearest exit, must not be more than 46 meters (150 feet).

(i) Each door, hatch, or scuttle, used as a means of escape, must be capable of being opened by one person, from either side, in both light and dark conditions. The method of opening a means of escape must be obvious, rapid, and of adequate strength. Handles and securing devices must be permanently installed and not capable of being easily removed. With the exception of individual staterooms, a door, hatch or scuttle must open towards the expected direction of escape from the space served.

(j) A means of escape that is not readily apparent to a person from both inside and outside the space must be adequately marked in accordance with §122.606 of this subchapter.

(k) A ladder leading to a deck scuttle may not be used as a means of escape except:

(1) On a vessel of not more than 19.8 meters (65 feet) in length, a vertical ladder and a deck scuttle may be used as not more than one of the means of escape from a passenger accommodation space; or

(2) As not more than one of the means of escape from any crew accommodation space or work space.

(l) Each ladder used as a means of escape must be mounted at least 180 millimeters (7 inches) from the nearest permanent object in back of the ladder. Rungs must be:

(1) At least 405 millimeters (16 inches) in width; and

(2) Not more than 305 millimeters (12 inches) apart, and uniformly spaced for the length of the ladder with at least 113 millimeters (4.5 inches) clearance above each rung.

(m) When a deck scuttle serves as a means of escape, it must not be less than 455 millimeters (18 inches) in diameter and must be fitted with a quick acting release and a holdback device to hold the scuttle in an open position.

(n) Footholds, handholds, ladders, and similar means provided to aid escape, must be suitable for use in emergency conditions, of rigid construction, and permanently fixed in position, unless they can be folded, yet brought into immediate service in an emergency.

(o) On a vessel of not more than 19.8 meters (65 feet) in length, a window or windshield of sufficient size and proper accessibility may be used as one of the required means of escape from an enclosed space, provided it:

(1) Does not lead directly overboard;

(2) Can be opened or is designed to be kicked or pushed out; and

(3) Is suitably marked.

(p) Only one means of escape is required from a space where:

(1) The space has a deck area less than 30 square meters (322 square feet);

(2) There is no stove, heater, or other source of fire in the space;

(3) The means of escape is located as far as possible from a machinery space or fuel tank; and

(4) If an accommodation space, the single means of escape does not include a deck scuttle or a ladder.

(q) Alternative means of escape from spaces may be provided if acceptable to the Commanding Officer, Marine Safety Center.

[CGD 85–080, 61 FR 900, Jan. 10, 1996; 61 FR 20556, May 7, 1996, as amended by CGD 97–057, 62 FR 51047, Sept. 30, 1997; CGD 85–080, 62 FR 51350, Sept. 30, 1997; 62 FR 64305, Dec. 5, 1997; USCG 1998–4442, 63 FR 52191, Sept. 30, 1998]

§ 116.510 Embarkation stations.

(a) A vessel must have a least two designated embarkation stations on the embarkation deck of each main vertical zone, and at least one on each side of the vessel.

(b) Embarkation stations and approaches thereto must:

(1) Be areas that are easily traversed;

(2) Be provided with handholds; and

(3) Be well illuminated.

(c) Each embarkation station must be arranged to allow the safe boarding of survival craft. They must not be located in areas where rolling of the vessel could cause contact between the propeller(s) and survival craft. Bulwarks, handrails, and lifelines must be fitted with openings that are normally closed but that may be opened while survival craft are being boarded, allowing passengers to pass through rather than climb over.

[CGD 85–080, 61 FR 900, Jan. 10, 1996, as amended by CGD 97–057, 62 FR 51047, Sept. 30, 1997]

§ 116.520 Emergency evacuation plan.

The owner or managing operator shall prepare an evacuation plan that must:

(a) Identify possible casualties involving fires or flooding, including a fire in the largest capacity passenger space in each main vertical zone;

(b) Provide procedures for evacuating all affected spaces for each casualty identified as required by paragraph (a) of this section without abandoning the vessel, including—

(1) Identify readily accessible areas of refuge for the maximum number of persons allowed aboard the vessel. The capacity for an area of refuge may not exceed the number of persons specified in §116.438(n)(2) of this part, except that one person may be permitted for each 0.28 square meters (3 square feet) of deck area; and

(2) Identify at least two means of escape complying with §114.400 from the space being evacuated; and

(c) Include procedures to evacuate passengers from the vessel using an abandon ship plan, considering the number of passengers and the vessel's route. The abandon ship plan must identify at least one escape route from each area of refuge to each embarkation station required by §116.510 of this part.

[CGD 85–080, 61 FR 900, Jan. 10, 1996, as amended at 62 FR 51350, Sept. 30, 1997; USCG 1998–4442, 63 FR 52191, Sept. 30, 1998]

§ 116.530 Fire control plan.

A fire control plan must be posted on the vessel in a location that is accessible and visible to all passengers. The plan must show escape routes, areas of refuge, embarkation stations, the location of fire protection/emergency equipment, compartment titles and hazard classification of accommodation and service spaces, and structural fire protection boundaries.

Subpart F—Ventilation

§ 116.600 Ventilation of enclosed and partially enclosed spaces.

(a) An enclosed or partially enclosed space within a vessel must be adequately ventilated in a manner suitable for the purpose of the space.

(b) A power ventilation system must be capable of being shut down from the pilot house.

(c) An enclosed passenger or crew accommodation space and any other space occupied by a crew member on a regular basis must be ventilated by a power ventilation system unless natural ventilation in all ordinary weather conditions is satisfactory to the OCMI.

(d) An exhaust duct over a frying vat or a grill must be at least 11 U.S. Standard Gauge (USSG) steel.

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