unless any changes to the vessel or its operations have occurred that change the information on the SOLAS Exemption or Passenger Ship Safety Certificates, in which case the Commandant will authorize the cognizant OCMI to reissue the certificate. A SOLAS Exemption Certificate is not valid for longer than the period of the SOLAS Passenger Ship Safety Certificate to which it refers.

[CGD 85–080, 61 FR 892, Jan. 10, 1996, as amended by CGD 97–057, 62 FR 51047, Sept. 30, 1997; USCG–2007–0030, 75 FR 78082, Dec. 14, 2010]

§ 115.925 Safety Management Certificate.

(a) All vessels that carry more than 12 passengers on an international voyage must have a valid Safety Management Certificate and a copy of their company's valid Document of Compliance certificate on board.

(b) All such vessels must meet the applicable requirements of 33 CFR part 96.

(c) A Safety Management Certificate is issued for a period of not more than 60 months.

[CGD 95–073, 62 FR 67515, Dec. 24, 1997]

§ 115.930 Equivalents.

In accordance with Chapter I (General Provisions) Regulation 5, of SOLAS, the Commandant may accept an equivalent to a particular fitting, material, appliance, apparatus, or any particular provision required by the SOLAS regulations if satisfied that such equivalent is at least as effective as that required by the regulations. An owner or managing operator of a vessel may submit a request for the acceptance of an equivalent following the procedures in §114.540 of this subchapter. The acceptance of an equivalent must be indicated on the vessel's SOLAS Passenger Ship Safety Certificate.

[CGD 85–080, 61 FR 892, Jan. 10, 1996, as amended by CGD 97–057, 62 FR 51047, Sept. 30, 1997; USCG–2007–0030, 75 FR 78082, Dec. 14, 2010]

PART 116—CONSTRUCTION AND ARRANGEMENT

Subpart A—General Provisions

Subpart B—Plans

Subpart C—Hull Structure

Subpart D—Fire Protection

Subpart E—Escape and Embarkation Station Requirements

Subpart F—Ventilation

Subpart G—Crew Spaces

AUTHORITY: 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277, DHS Delegation 00170.1, Revision No. 01.2, paragraph (II)(92)(a).

EFFECTIVE DATE NOTE: By 89 FR 76701, Sept. 18, 2024, the authority citation for part 116 was revised, effective Oct 18, 2024. For the convenience of the user, the revised text is set forth as follows:

AUTHORITY: 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277, DHS Delegation 00170.1, Revision No. 01.4.

SOURCE: CGD 85–080, 61 FR 900, Jan. 10, 1996, unless otherwise noted.

Subpart A—General Provisions

§ 116.100 General requirements.

(a) The construction and arrangement of a vessel must allow the safe operation of the vessel in accordance with the terms of its Certificate of Inspection giving consideration to provisions for a seaworthy hull, protection against fire, means of escape in case of a sudden unexpected casualty, guards and rails in hazardous places, ventilation of enclosed spaces, and necessary facilities for passengers and crew.

(b) Vessels to which this subchapter applies must meet the applicable provisions in subchapter S (Subdivision and Stability) of this chapter, except that the requirements in subpart K of this part may be met in lieu of the requirements of §§171.124 through 171.155 in subchapter S of this chapter.

§ 116.115 Applicability to existing vessels.

(a) Except as otherwise required by paragraph (b) of this section, an existing vessel must comply with the construction and arrangement regulations that were applicable to the vessel on March 10, 1996, or, as an alternative, the vessel may comply with the regulations in this part.

(b) Alterations or modifications made to the structure or arrangements of an existing vessel regulated by this part, that are a major conversion, on or after March 11, 1996, must comply with the regulations of this part. Repairs or maintenance conducted on an existing vessel, resulting in no significant changes to the original structure or arrangement of the vessel, must comply with the regulations applicable to the vessel on March 10, 1996, or, as an alternative, with the regulations in this part. However, when outfit items such as furnishings and mattresses are renewed, they must comply with the regulations in this part.

(c) Vessels described by 46 CFR 114.110(f) must comply with the regulations in §116.500.

[CGD 85–080, 61 FR 900, Jan. 10, 1996, as amended by USCG–2021–0306, 86 FR 73171, Dec. 27, 2021]

Subpart B—Plans

§ 116.202 Plans and information required.

(a) Except as provided in §116.210, the owner of a vessel requesting initial inspection for certification must, prior to the start of construction, submit for approval three copies of the following plans. The plans may be delivered by visitors to the Commanding Officer, Marine Safety Center, U.S. Coast Guard, 2703 Martin Luther King Jr. Avenue SE., Washington, DC 20593, or transmitted by mail to: Commanding Officer (MSC), Attn: Marine Safety Center, U.S. Coast Guard Stop 7430, 2703 Martin Luther King Jr. Avenue SE., Washington, DC 20593–7430, in a

written or electronic format. Information for submitting the VSP electronically can be found at *http://www.uscg.mil/HQ/MSC*.

(1) Outboard profile;

(2) Inboard profile; and

(3) Arrangement of decks.

(b) In addition, the owner shall, prior to receiving a Certificate of Inspection, submit for approval to the Marine Safety Center, three copies of the following plans, manuals, analyses, and calculations that are applicable to the vessel as determined by the Commanding Officer, Marine Safety Center:

(1) Midship section;

(2) Structural fire protection details;

(3) Fire load calculations of accommodations and service spaces, if required in §116.427 of this part;

(4) Emergency evacuation plan required in §116.520, of this part with drawings showing embarkation stations, areas of refuge, and escape routes;

(5) Machinery installation, including but not limited to:

(i) Propulsion and propulsion control, including shaft details;

(ii) Steering and steering control, including rudder details;

(iii) Ventilation diagrams; and

(iv) Engine exhaust diagram;

(6) Electrical installation including, but not limited to:

(i) Elementary one-line diagram of the power system;

(ii) Cable lists;

(iii) Bills of materials;

(iv) Type and size of generators and prime movers;

(v) Type and size of generator cables, bus-tie cables, feeders, and branch circuit cables;

(vi) Power, lighting, and interior communication panelboards with number of circuits and rating of energy consuming devices;

(vii) Type and capacity of storage batteries;

(viii) Rating of circuit breakers and switches, interrupting capacity of circuit breakers, and rating and setting of overcurrent devices;

(ix) Electrical plant load analysis; and

(x) For a vessel of more than 19.8 meters (65 feet) in length with overnight accommodations for more than 49 passengers, an overcurrent protective device coordination analysis if the information required by paragraph (a)(8)(i) through (a)(8)(ix) of this section is not considered adequate by the Commanding Officer, Marine Safety Center to review the electrical system of the vessel;

(7) Lifesaving equipment locations and installation;

(8) Fire protection equipment installation including, but not limited to:

(i) Fire main system plans and calculations;

(ii) Fixed gas fire extinguishing system plans and calculations;

(iii) Fire detecting system and smoke detecting system plans;

(iv) Sprinkler system diagram and calculations; and

(v) Portable fire extinguisher types, sizes and locations;

(9) Fuel tanks;

(10) Piping systems including: bilge, ballast, hydraulic, sanitary, compressed air, combustible and flammable liquids, vents, soundings, and overflows;

(11) Hull penetrations and shell connections;

(12) Marine sanitation device model number, approval number, connecting wiring and piping:

(13) Lines and offsets, curves of form, cross curves of stability, and tank capacities including size and location on vessel; and

(14) On sailing vessels;

(i) Masts, including integration into the ship's structure; and

(ii) Rigging plan showing sail areas and centers of effort as well as the arrangement, dimensions, and connections of the standing rigging.

(c) For a vessel, the construction of which was begun prior to approval of the plans and information required by paragraphs (a) and (b) of this section, the cognizant OCMI may require any additional plans and information, manufacturers' certifications of construction, testing including reasonable destructive testing, and inspections,

which the OCMI determines are necessary to verify that the vessel complies with the requirements of this subchapter.

[CGD 85–080, 61 FR 900, Jan. 10, 1996; 61 FR 24464, May 15, 1996; USCG–2007–29018, 72 FR 53966, Sept. 21, 2007; USCG–2009–0702, 74 FR 49234, Sept. 25, 2009; USCG–2013–0671, 78 FR 60153, Sept. 30, 2013; USCG–2016–0498, 82 FR 35091, July 28, 2017]

§ 116.210 Plans for sister vessels.

(a) Plans are not required for a vessel that is a sister vessel, provided:

(1) Approved plans for the original vessel are on file at the Marine Safety Center or in the files of the cognizant OCMI;

(2) The owner of the plans authorizes their use for the new construction of the sister vessel;

(3) The regulations used for the original plan approval have not changed since the original approval; and

(4) There are no major modifications to any of the systems to be used.

(b) If approved plans for original vessel are not on file at the Marine Safety Center (MSC) or with the cognizant OCMI, the vessel owner shall submit plans as described in §116.202 of this part.

Subpart C—Hull Structure

§ 116.300 Structural design.

Except as otherwise allowed by this subpart, a vessel must comply with the structural design requirements of one of the standards listed below for the hull material of the vessel.

(a) Steel hull vessels:

(1) Rules and Regulations for the Classification of Yachts and Small Craft, Lloyd's Register of Shipping (Lloyd's); or

(2) Rules for Building and Classing Steel Vessels Under 61 Meters (200 Feet) in Length, American Bureau of Shipping (ABS);

(b) Aluminum hull vessels:

(1) Rules and Regulations for the Classification of Yachts and Small Craft, Lloyd's; or

(i) For a vessel of more than 30.5 meters (100 feet) in length—Rules for Building and Classing Aluminum Vessels, ABS; or

(ii) For a vessel of not more than 30.5 meters (100 feet) in length—Rules for Building and Classing Steel Vessels Under 61 Meters (200 Feet) in Length, ABS, with the appropriate conversions from the ABS Rules for Building and Classing Aluminum Vessels; or

(2) ABS Guide for High Speed Craft.

(c) Steel hull vessels operating in protected waters—Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways, ABS.

[CGD 85–080, 61 FR 900, Jan. 10, 1996, as amended at 62 FR 51348, Sept. 30, 1997]

§ 116.330 Sailing vessels.

The design, materials, and construction of masts, posts, yards, booms, bowsprits, and standing rigging on a sailing vessel must be suitable for the intended service. The hull structure must be adequately reinforced to ensure sufficient strength and resistance to plate buckling. The cognizant OCMI may require the owner to submit detailed calculations on the strength of the mast, post, yards, booms, bowsprits, and standing rigging.

[CGD 85–080, 61 FR 900, Jan. 10, 1996; 61 FR 20556, May 7, 1996]

§ 116.340 Alternate design considerations.

The Commanding Officer, Marine Safety Center, may approve the structure of a vessel of novel design, unusual form, or special materials, which does not meet the requirements of §116.300, if it is shown by systematic analysis based on engineering principles that the vessel structure provides adequate safety and strength. An owner seeking approval of an alternate design shall submit detailed plans, material component specifications, and design criteria, including the expected operating environment, resulting loads on the vessel, and design limitations for such a vessel, to the Marine Safety Center.

Subpart D—Fire Protection

§ 116.400 Application.

(a) This subpart applies to:

(1) Vessels carrying more than 150 passengers; or

(2) Vessels with overnight accommodations for more than 49 passengers but not more than 150 passengers.

(b) A vessel with overnight accommodations for more than 150 passengers must comply with § 72.05 in subchapter H of this chapter.

(c) Vessels meeting the structural fire protection requirements of SOLAS, Chapter II–2, Regulations 5, 6, 8, 9, and 11 (incorporated by reference, see § 114.600), may be considered equivalent to the provisions of this subpart.

[CGD 85–080, 61 FR 900, Jan. 10, 1996, as amended by USCG–2012–0196, 81 FR 48269, July 22, 2016]

EFFECTIVE DATE NOTE: By 89 FR 76701, Sept. 18, 2024, § 116.400 was amended by revising paragraph (c), effective Oct. 18, 2024. For the convenience of the user, the revised text is set forth as follows:

§ 116.400 Application.

* * * * *

(c) Vessels meeting the structural fire protection requirements of SOLAS, Chapter II–2, Regulations 5, 6, 8, 9, and 11 (incorporated by reference, see § 114.600 of this chapter), when combined with the requirements in § 116.438, may be considered equivalent to the provisions of this subpart.

§ 116.405 General arrangement and outfitting.

(a) *Fire hazards to be minimized.* The general construction of the vessel must be such as to minimize fire hazards insofar as it is reasonable and practicable.

(b) *Combustible materials to be limited.* Limited amounts of combustible materials such as wiring insulation, pipe hanger linings, nonmetallic (plastic) pipe, and cable ties are permitted in concealed spaces except as otherwise prohibited by this subpart.

(c) *Combustibles insulated from heated surfaces.* Internal combustion engine exhausts, boiler and galley uptakes, and similar sources of ignition must be kept clear of and suitably insulated from combustible material.

(d) *Separation of machinery and fuel tank spaces from accommodation spaces.* Machinery and fuel tank spaces must be separated from accommodation spaces by boundaries that prevent the passage of vapors.

(e) *Paint and flammable liquid lockers.* Paint and flammable liquid lockers must be constructed of steel or equivalent material, or wholly lined with steel or equivalent material.

(f) *Nonmetallic piping in concealed spaces.* The use of nonmetallic (plastic) pipe within a concealed space in a control space, accommodation space, or service space is permitted in nonvital service only if the piping material has a flame spread rating of not more than 20 and a smoke developed rating of not more than 10 when tested in accordance with ASTM E 84 (incorporated by reference, see § 114.600) or UL 723 by an independent laboratory.

(g) *Vapor barriers.* Vapor barriers must be provided where insulation of any type is used in spaces where flammable and combustible liquids or vapors are present, such as machinery spaces and paint lockers.

(h) *Interior finishes.* Combustible interior finishes allowed by § 116.422(d) of this part must not extend into hidden spaces, such as behind linings, above ceilings, or between bulkheads.

(i) *Waste Receptacles.* Unless other means are provided to ensure that a potential waste receptacle fire would be limited to the receptacle, waste receptacles must be constructed of noncombustible materials with no openings in the sides or bottom.

(j) *Mattresses.* All mattresses must comply with either:

(1) The U.S. Department of Commerce Standard for Mattress Flammability (FF 4–72.16), 16 CFR Part 1632, Subpart A and not contain polyurethane foam; or,

(2) International Maritime Organization Resolution A.688(17) ''Fire Test Procedures For Ignitability of Bedding Components.'' Mattresses that are tested to this standard may contain polyurethane foam.

[CGD 85–080, 61 FR 900, Jan. 10, 1996, as amended at 62 FR 51348, Sept. 30, 1997; USCG–2000–7790, 65 FR 58462, Sept. 29, 2000]

EFFECTIVE DATE NOTE: By 89 FR 76701, Sept. 18, 2024, § 116.405 was amended by revising paragraph (f), effective Oct. 18, 2024. For the convenience of the user, the revised text is set forth as follows:

§ 116.405 General arrangement and outfitting.

* * * * *

(f) *Nonmetallic piping in concealed spaces.* The use of nonmetallic (plastic) pipe within a concealed space in a control space, accommodation space, or service space is permitted in nonvital service only if the piping material has been approved under §164.141 of this chapter and meets both low flame spread rating and toxicity requirements.

§ 116.415 Fire control boundaries.

(a) *Type and construction of fire control bulkheads and decks*—(1) *Major hull structure.* The hull, structural bulkheads, columns and stanchions, superstructures, and deckhouses must be composed of steel or equivalent material.

(2) Bulkheads and decks—Bulkheads and decks must be classed as A–60, A–30, A–15, A–0, B–15, B–0, C, or C' based on the following:

(i) A-Class bulkheads or decks must be composed of steel or equivalent material, suitably stiffened and made intact with the main structure of the vessel, such as the shell, structural bulkheads, and decks. They must be so constructed that, if subjected to the standard fire test, they are capable of preventing the passage of smoke and flame for 1 hour. In addition, they must be so insulated with approved structural insulation, bulkhead panels, or deck covering so that, if subjected to the standard fire test for the applicable time period listed below, the average temperature on the unexposed side does not rise more than 139 °C (250 °F) above the original temperature, nor does the temperature at any one point, including any joint, rise more than 181 °C (325 °F) above the original temperature:

A–60 Class	60 minutes
A–30 Class	30 minutes
A–15 Class	15 minutes
A–0 Class	0 minutes

(ii) Penetrations in A-Class fire control boundaries for electrical cables, pipes, trunks, ducts, etc. must be constructed to prevent the passage of flame and smoke for one hour. In addition, the penetration must be designed or insulated so that it will withstand the same temperature rise limits as the boundary penetrated.

(iii) B-Class bulkheads and decks must be constructed of noncombustible materials and made intact with the main structure of the vessel, such as shell, structural bulkheads, and decks, except that a B-Class bulkhead need not extend above an approved continuous B-Class ceiling. They must be so constructed that, if subjected to the standard fire test, they are capable of preventing the passage of flame for 30 minutes. In addition, their insulation value must be such that, if subjected to the standard fire test for the applicable time period listed below, the average temperature of the unexposed side does not rise more than 139 °C (250 °F) above the original temperature, nor does the temperature at any one point, including any joint, rise more than 225 °C (405 °F) above the original temperature:

B–15 Class	15 minutes
B–0 Class	0 minutes

(iv) Penetrations in B-Class fire control boundaries for electrical cables, pipes, trunks, ducts, etc. must be constructed to prevent the passage of flame for 30 minutes. In addition, the penetration must be designed or insulated so that it will withstand the same temperature rise limits as the boundary penetrated.

(v) C-Class bulkheads and decks must be composed of noncombustible materials.

(vi) C′-Class bulkheads and decks must be constructed of noncombustible materials and made intact with the main structure of the vessel, such as shell, structural bulkheads, and decks, except that a C′-Class bulkhead need not extend above a continuous B-Class or C′-Class ceiling. C′-Class bulkheads must be constructed to prevent the passage of smoke between adjacent areas. Penetrations in C′-Class boundaries for electrical cables, pipes, trunks, ducts, etc. must be constructed so as to preserve the smoke-tight integrity of the boundary.

(vii) Any sheathing, furring, or holding pieces incidental to the securing of structural insulation must be approved noncombustible material.

(b) *Bulkhead requirements.* Bulkheads between various spaces must meet the requirements of Table 116.415(b).

TABLE 116.415 (b)—BULKHEADS

Spaces	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Control Space (1)	B–0	A–0	A–0	A–0	A–15	A–60	A–60	A–0	A–60	A–60	A–60	A–0	A–0
Stairway (2)		A–0[4]	A–0	A–0	A–0	A–60	A–60	A–0	A–15	A–15	A–15	A–0	A–0
Corridor (3)			C	A–0	B–0	B–0	A–0	B–0	A–0	A–0	A–0	A–0	A–0
Embarkation Station (4)				C	A–0	A–0	A–0	A–0	A–0	A–0	A–0	C'[1]	C
Low Risk Accommodation (5).					B–0	B–15	B–15	B–0[2]	A–15	A–15	A–15	A–0	A–0
High Risk Accommodation (6) (≤50 sq. m.).						B–15	A–30	B–0[2]	A–60	A–60	A–60	A–0	A–0
High Risk Accommodation (7) (>50 sq. m.).							A–60	B–0[2]	A–60	A–60	A–60	A–0	A–0
Low Risk Service Spaces (8).								C	A–0	A–0	A–0	A–0	A–0
High Risk Service Spaces (9).									C[3]	A–0	A–0	A–0	A–0
Machinery Spaces (10)										C	A–0	A–0	A–0
Cargo Spaces (11)											A–0	A–0	A–0
Auxiliary Machinery spaces, voids, fuel and water tanks (12).												C'[1]	C'[1]
Open decks (not safety areas) (13).													C

[1] Boundaries of fuel tanks, auxiliary machinery spaces, and voids that contain a fire load in excess of 2.5kg/m[2] (0.5 pounds per square foot) must be minimum A–0 Class construction.
[2] Toilet space boundaries may be reduced to C'-Class.
[3] C-Class bulkheads may be used between two similar spaces, such as between two storerooms; however, an A–0 Class bulkhead shall be used between two dissimilar spaces, such as a storeroom and a workshop.
[4] Separation is not required within a single stairtower. A–0 construction is required between two distinct stairtowers.

(c) *Deck requirements*. Decks between various spaces must meet the requirements of Table 116.415(c), except that where linings or bulkhead panels are framed away from the shell or structural bulkheads, the deck within the void space so formed need only meet A–0 Class requirements.

TABLE 116.415(c)—DECKS

Space Above	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Space Below:													
Control Space (1)	A–0	A–0	A–15	A–0	A–0	A–15	A–30	A–0	A–0	A–0	A–0	A–0	A–0
Stairway (2)	A–0	C	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0
Corridor (3)	A–0	A–0	A–0	A–0	A–0	A–0	A–15	A–0	A–0	A–0	A–0	A–0	A–0
Embarkation Station (4).	A–0	A–0	A–0	C	A–0	A–0	A–0	A–0	A–0	A–0	A–0	C'[1]	C
Low Risk Accommodation (5).	A–15	A–15	A–0	A–0	A–0	A–0	A–15	A–0	A–0	A–0	A–0	A–0	A–0
High Risk Accommodation(6) (≤50 sq. m.).	A–60	A–60	A–30	A–15	A–0	A–30	A–60	A–0	A–0	A–0	A–0	A–0	A–0
High Risk Accommodation (7) (>50 sq. m.).	A–60	A–60	A–60	A–30	A–15	A–60	A–60	A–0	A–0	A–0	A–0	A–0	A–0
Low Risk Service Spaces (8).	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0
High Risk Service Spaces (9).	A–60	A–30	A–30	A–30	A–15	A–60	A–60	A–0	A–0	A–0	A–0	A–0	A–0
Machinery Spaces (10).	A–60	A–60	A–60	A–30	A–15	A–60	A–60	A–0	A–0	C	A–0	A–0	A–0
Cargo Spaces (11)	A–60	A–30	A–30	A–30	A–15	A–60	A–60	A–0	A–0	A–0	A–0	A–0	A–0
Auxiliary Machinery Spaces, voids, fuel and water tanks (12).	A–0	A–0	A–0	C'[1]	A–0	A–0	A–0	A–0	A–0	A–0	A–0	C'[1]	A–0[1]
Open decks (not safety areas) (13).	A–0	A–0	A–0	C	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0[1]	C

[1] Boundaries of fuel tanks, auxiliary machinery spaces, and voids that contain a fire load in excess of 2.5 kg/m[2] (0.5 pounds per square foot) must be minimum A–0 Class construction.

(d) *Main vertical zones.* (1) The hull, superstructure, and deck houses of a vessel, except for a vehicle space on a vehicle ferry, must be subdivided by bulkheads into main vertical zones which:

(i) Are generally not more than 40 meters (131 feet) in mean length on any one deck;

(ii) Must be constructed to:

(A) The greater of A–30 Class or the requirements of paragraph (b) of this section, or;

(B) Minimum A–0 Class where there is a Type 8, 12 or 13 space on either side of the division; and

(iii) May have small horizontal steps, if the steps:

(A) Do not exceed 20% of the mean length of the main vertical zone or 8 meters (26 feet), whichever is smaller; and

(B) Must be constructed to A–60 Class, or minimum A–0 Class where there is a Type 8, 12 or 13 space on either side of the division.

(iv) May be extended to a maximum mean length of 44 meters (144 feet) on each deck by the Commanding Officer, Marine Safety Center provided the maximum distance between the furthermost points of the bulkheads bounding the main vertical zone also does not exceed 44 meters (144 feet).

(2) Vehicle decks on a vehicle ferry must be subdivided. Where main vertical zones are impractical due to the vehicle carrying configuration, main horizontal zones may be provided. The decks bounding such a zone must be of at least A–30 construction or meet the requirements of paragraph (c) of this section, whichever is greater.

(e) *Draft stops.* In concealed spaces above ceilings and between linings and the shell of a vessel, draft stops must be fitted not more than 13.7 meters (45 feet) apart in the horizontal direction and at each deck level in the vertical direction unless otherwise permitted in paragraph (f). Draft stops must be of at least B-Class construction and be fitted in a vertical position.

(f) On vessels with no overnight passenger accommodations, draft stops are not required above/around large public spaces provided all of the following conditions are met:

(1) The space in question is surrounded by A-Class divisions or extends to the outer shell of the vessel.

(2) The space in question is open and unobstructed such that a fire in any part of the space will quickly be discovered.

(3) The area above the ceiling is easily accessible from below for fire fighting purposes.

[CGD 85–080, 61 FR 900, Jan. 10, 1996; 61 FR 20556, May 7, 1996; 61 FR 24464, May 15, 1996, as amended at 62 FR 51348, Sept. 30, 1997; USCG–1998–4442, 63 FR 52191, Sept. 30, 1998]

§ 116.422 Ceilings, linings, trim, interior finish and decorations.

(a) Ceilings, linings, and any furring incidental to their installation in control spaces, passageways, stairways, accommodation spaces and service spaces must be of noncombustible material in accordance with §164.009 in subchapter Q of this chapter, or other standard specified by the Commandant.

(b) Bulkheads, linings and ceilings may be covered by a combustible interior finish provided that such a finish is:

(1) Approved under §164.012 in subchapter Q of this chapter, or other standard specified by the Commandant; or

(2) Listed by Underwriters Laboratories, does not exceed 2 millimeters (.075 inches) in thickness, and has a flame spread rating of not more than 20 and a smoke developed rating of not more than 10 when tested in accordance with ASTM E 84 (incorporated by reference, see §114.600) or UL 723 by an independent laboratory.

(c) Bulkheads, linings, and ceilings in high risk accommodation spaces may have a combustible veneer trim and decorations that do not meet the requirements of paragraph (b) of this section, provided:

(1) The overall thickness of the combustible veneer does not exceed 2 millimeters (.075 inches); and

(2) The total volume of the combustible face trim, moldings, and decorations, including veneers, in any space does not exceed a volume equivalent to a 2.5 millimeter (0.1 inch) veneer on the combined area of the bulkheads and ceiling of the space.

(d) Combustible veneers may not be used in passageways, stairway enclosures or in low risk accommodation spaces. Combustible veneers, trim and decorations may not be used in or extend into hidden spaces such as behind linings or ceilings.

(e) Partial bulkheads or decks used to subdivide a space for artistic treatment and privacy must meet the requirements of Class C bulkheads.

(f) Nothing in this subpart may be construed as prohibiting the covering of any surface, including the surfaces of corridors, stairway enclosures, and hidden spaces, with a reasonable number of coats of paint or with a marine finish meeting the requirements of §164.012 in subchapter Q of this chapter or other standard specified by the Commandant.

[CGD 85–080, 61 FR 900, Jan. 10, 1996, as amended at 62 FR 51349, Sept. 30, 1997; USCG–2000–7790, 65 FR 58462, Sept. 29, 2000]

§ 116.423 Furniture and furnishings.

(a) For the purpose of this subpart, rooms containing ''fire resistant furnishings'' are considered to be those in which:

(1) Furniture such as chairs, sofas, and similar items are tested and meet the requirements in UL 1056 ''Fire Test of Upholstered Furniture,'' or meet the requirements in §72.05–55 in subchapter H of this chapter.

(2) Case furniture such as bookshelves, desks, cabinets, counters, beds, or other freestanding furniture are constructed in accordance with the requirements in §72.05–55 (a)(1) in subchapter H of this chapter.

(3) Draperies, curtains and other similar furnishings and decorations are flame resistant. These materials must be tested in accordance with National Fire Protection Association (NFPA) 701 ''Fire Tests for Flame Resistant Textiles and Films,'' and must comply with either the small or large scale tests.

(4) Rugs and carpet may be used in addition to deck coverings. Rugs and carpets must be constructed of 100 percent wool or equivalent as determined by a flame spread rating not exceeding 75 and a smoke developed rating not exceeding 100 when tested according to ASTM E 84 (incorporated by reference, see §114.600) or have a critical radiant flux not less than 0.8 watts per square centimeter (18 BTU's per hour per square inch) when tested according to ASTM E 648 (incorporated by reference, see §114.600) ''Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source,'' and with a specific optical density not to exceed 450 in both flaming and nonflaming modes when tested according to ASTM E 662 (incorporated by reference, see §114.600) ''Specific Optical Density of Smoke generated by Solid Materials.'' Also:

(i) Rugs and carpets shall not extend up bulkheads or vertical surfaces more than 10 centimeters (4 inches) above the deck.

(ii) Rugs and carpets are not permitted in machinery spaces, high risk service spaces, or areas where the spillage or leakage of flammable or combustible liquids is possible including areas immediately adjacent to bar service areas.

(b) Passageways and stairway enclosures shall contain only fire resistant furnishings. In addition, all upholstered chairs, sofas, etc., in these areas, shall be tested and meet the requirements in UL 1056 or have padding and upholstery of approved fire resistant materials.

[CGD 85–080, 61 FR 900, Jan. 10, 1996, as amended by USCG–2000–7790, 65 FR 58462, Sept. 29, 2000]

§ 116.425 Deck coverings.

(a) Except as provided in this section, deck coverings used for leveling or finishing purposes in control spaces, stairway enclosures, passageways, accommodation spaces and service spaces must be noncombustible.

(1) Materials approved under §164.006 in subchapter Q of this chapter may be used in thicknesses not to exceed the approved thickness.

(2) Combustible deck leveling and finishing materials which are not approved under §164.006 in subchapter Q of this chapter may be used in a thickness not to exceed 9.5 millimeters (.375 inches).

(b) [Reserved]

§ 116.427 Fire load of accommodation and service spaces.

(a) Fire load calculations must be submitted by the owner for review to the Marine Safety Center when:

(1) A space is designated as a low risk accommodation space by the owner; or

(2) The cognizant OCMI determines, based on the quantity of combustibles, that the fire load present in a high risk accommodations space may exceed 37.5 kg (7.5 pounds) of combustibles per square meter (square foot) of deck area.

(b) When required under paragraph (a) of this section, fire load calculations must include all combustible construction and outfitting materials in addition to all loose or freestanding combustibles intended for use or stowage in the space. This includes but is not limited to: furniture, furnishings, carpets, rugs, combustible deck coverings, draperies, combustible interior finish, veneers, trim, and decorations, electrical cable insulation, plastic piping, light diffusers, mattresses, bedding, lifesaving equipment, and similar materials. The maximum fire load of a low risk accommodation or low risk service space as determined by fire load calculations must not exceed 15.0 kg (3 pounds) of combustibles per square meter (square foot) of deck area. The maximum fire load of a high risk accommodation space as determined by fire load calculations must not exceed 37.5 kg (7.5 pounds) of combustibles per square meter (square foot) of deck area.

[CGD 85–080, 61 FR 900, Jan. 10, 1996, as amended at 62 FR 51349, Sept. 30, 1997]

§ 116.430 Insulation other than for structural fire protection.

(a) Combustible insulation may be used for pipe and machinery covering or lagging within a machinery space, or used in an individual refrigerator 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 Laboratories 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 inclination for spaces with severe space constraints.

(k) Where a continuous vertical deck penetration for a stairway or elevator exceeds one deck, the integrity of all decks must be assured by enclosure bulkheads and decks meeting the requirements of §§ 116.415(b) and 116.415(c) of this part. Doors meeting the requirements of §§ 116.435(b) and 116.435(c) of this part must be fitted in the enclosure at each deck serviced.

(l) Where a 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

Commanding Officer, Marine Safety Center.

(5) The Commanding Officer, Marine Safety Center may accept other means of escape in combination with a stairtower provided the exits open directly to weather or through a main vertical zone bulkhead.

(6) For vessels in which a stairtower is not required, a stairway must provide a means of escape for each deck of the main vertical zone.

(n) The minimum tread width of a stairway or stairtower must be 8.4 millimeters (0.333 inches) for each person served, but must not be less than 910 millimeters (36 inches). However, in stairways accessing spaces utilized solely by crew members, the minimum tread width must be 8.4 millimeters (0.333 inches) for each person served, but not less than 710 millimeters (28 inches).

(1) The minimum tread width of a stairway or stairtower must be determined for each deck considering only those persons on that deck, except as provided in paragraph (n)(3) of this section. Once a minimum tread width has been established at any deck, it must not be decreased in the direction of escape.

(2) In determining the number of persons served, a space must be considered to contain at least the number of persons as follows:

(i) Passenger overnight accommodation spaces: Designed capacity;

(ii) Accommodation spaces having fixed seating for passengers: Maximum seating capacity;

(iii) Public spaces, including spaces such as casinos, restaurants, club rooms, and cinemas, and public accommodation spaces as defined in §114.400 of this subchapter, except overnight accommodation spaces: One person for each 0.9 square meters (10 square feet) of deck area. In computing such deck area, the following areas must be excluded:

(A) Areas for which the number of persons permitted is determined using the fixed seating criterion;

(B) Obstructions, including stairway and elevator enclosures, elevated stages, bars, and cashier stands, but not including slot machines, tables, or other room furnishings;

(C) Toilets and washrooms;

(D) Interior passageways less than 850 millimeters (34 inches) wide and passageways on open deck less than 710 millimeters (28 inches) wide;

(E) Spaces necessary for handling lifesaving equipment, anchor handling equipment, or line handling gear, or in way of sail booms or running rigging; and

(F) Bow pulpits, swimming platforms, and areas that do not have a solid deck, such as netting on multi hull vessels;

(iv) Crew overnight accommodation spaces: Two-thirds designed capacity; and

(v) Work spaces: Occupancy under normal operating conditions.

(3) If a stairway forms part of a normal embarkation or debarkation route, or egress route to an area of refuge, the number of persons using the stairway for that purpose must be used in determining the minimum tread width. The Commanding Officer, Marine Safety Center, may approve a narrower stairway width if a narrower stairway will not unreasonably impede the flow of persons out of the space requiring egress or from an area of refuge to an embarkation station. Specific consideration can be given by the Marine Safety Center to the arrangement of landing area in excess of that required by paragraph (i) of this section when considering the approval of a narrower stairway width. However, the stairway width must be at least 910 millimeters (36 inches) unless the stairway is utilized solely by crew members, in which case the minimum tread width must be at least 710 millimeters (28 inches).

(4) If more than one stairtower serves a main vertical zone, the number of persons in that main vertical zone may be distributed among the stairtowers.

[CGD 85–080, 61 FR 900, Jan. 10, 1996; 61 FR 20556, May 7, 1996, as amended at 62 FR 51350, Sept. 30, 1997; USCG–1998–4442, 63 FR 52191, Sept. 30, 1998; USCG–2002–13058, 67 FR 61729, Sept. 30, 2002; USCG–2004–18884, 69 FR 58348, Sept. 30, 2004]

§116.439 Balconies.

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

(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 (1,000 square feet) or 20 percent 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 must 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 §76.27 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 (incorporated by reference, see §114.600).

(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; USCG–2012–0196, 81 FR 48269, July 22, 2016]

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) Vessels described by 46 CFR 114.110(f) must ensure that the two means of escape required in paragraph (b) of this section are unobstructed and not located directly above, or dependent on, a berth.

(p) 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.

(q) 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.

(r) 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; USCG–2021–0306, 86 FR 73171, Dec. 27, 2021]

§ 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]

§ 116.610 Ventilation ducts.

(a) For the purposes of this section, a ventilation duct includes any type of piping, chamber, or conduit used for ventilation.

(b) A ventilation duct, and materials incidental to its installation, must be made of noncombustible material.

(c) Combustibles and other foreign materials are not allowed within ventilation ducts. However, metal piping and electrical wiring installed in a metal protective enclosure may be installed within ventilation ducts, provided that the piping or the wiring does not interfere with the operation of fire dampers. Electrical wiring and piping may not be installed in an exhaust duct over a frying vat or grill.

(d) Suitable means, such as a manual damper, automatic damper, or vent cover, must be provided in an accessible location outside the space served by the ventilation duct for shutting off the passage of air through the ventilation duct in the event of fire.

(e) A ventilation duct must not serve more than one main vertical zone; penetrations of main vertical zones must be minimized.

(f) A ventilation duct penetrating an A-Class or B-Class fire control boundary must meet the following requirements:

(1) A ventilation duct must meet the same requirements relative to the passage of smoke and flame as the fire control boundary penetrated;

(2) A steel duct penetrating an A-Class fire control boundary must be of at least 11 USSG, and a steel duct penetrating a B-Class bulkhead or deck must be of at least 16 USSG;

(3) A duct penetrating a main vertical zone bulkhead must be fitted with an automatic fire damper at the main vertical zone bulkhead;

(4) A duct penetrating an A-Class fire control boundary and opening into a space formed by that boundary must be equipped with a fire damper;

(5) A steel duct that penetrates an A-Class fire control boundary other than a main vertical zone bulkhead, and does not open within the space formed by the boundary need not be fitted with a fire damper provided the duct is at least 11 USSG throughout that space;

(6) A duct penetrating an insulated fire control boundary must be fitted with insulation of the same type and thickness as the boundary penetrated for a distance of at least 305 millimeters (12 inches) on the insulated side of the boundary. A fire damper blade need not be insulated; and

(7) Ducts serving cargo spaces, machinery spaces, or vehicles spaces must be fitted with automatic fire dampers.

(g) Fire dampers, where required by this section, must comply with the following requirements;

(1) A fire damper and casing must be at least 11 USSG and not more than 3.2 millimeters (0.125 inch) gap between the blade and casing;

(2) A fire damper must close against the draft in the duct and be accessible for periodic inspection by means of a hinged or bolted plate in the duct and surrounding bulkhead or deck, if fitted;

(3) Fire damper springs, blades, and hinges must be of stainless steel construction or of steel suitably coated to prevent corrosion;

(4) Fire dampers must be capable of manual operation from outside the space served, be fitted with an indicator showing whether the damper is open or closed, and be marked with red letters of at least 12.7 millimeters (0.5 inches) in height stating ''VENTILATION FIRE DAMPER''; and

(5) An automatic fire damper must meet the above requirements and must be designed to operate at 74 °C (165 °F) for normal locations and approximately 100 °C (212 °F) for locations such as galleys.

(h) A ventilation duct serving a stairtower must not serve another space.

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

§ 116.620 Ventilation of machinery and fuel tank spaces.

In addition to the requirements of this subpart, ventilation systems for spaces containing machinery or fuel

tanks must comply with the requirements of Part 119 of this chapter.

Subpart G—Crew Spaces

§ 116.700 General requirements.

(a) A crew accommodation space and a work space must be of sufficient size, adequate construction, and with suitable equipment to provide for the safe operation of the vessel and the protection and accommodation of the crew in a manner practicable for the size, facilities, service, route, speed, and modes of operation of the vessel.

(b) The deck above a crew accommodation space must be located above the deepest load waterline.

§ 116.710 Overnight accommodations.

Overnight accommodations must be provided for all crew members if the vessel is operated more than 12 hours in a 24 hour period, unless the crew is put ashore and the vessel is provided with a new crew.

§ 116.730 Crew accommodations on vessels of more than 19.8 meters (65 feet) in length with overnight accommodations for more than 49 passengers.

A crew accommodation space on a vessel of more than 19.8 meters (65 feet) in length with overnight accommodations for more than 49 passengers must comply with §§ 72.20–10; 72.20–15; 72.20–20(d); 72.20–25 (a) and (d) 72.20–30; 72.20–35; 72.20–45; 72.20–50; and 72.20–55 in subchapter H of this chapter.

[CGD 85–080, 61 FR 900, Jan. 10, 1996, as amended by USCG–2000–7790, 65 FR 58462, Sept. 29, 2000; USCG–2002–13058, 67 FR 61729, Sept. 30, 2002]

Subpart H—Passenger Accommodations

§ 116.800 General requirements.

(a) All passenger accommodations must be arranged and equipped to provide for the safety of the passengers in consideration of the route, modes of operation, and speed of the vessel.

(b) The height of ceilings in a passenger accommodation space, including aisles and passageways, must be at least 1880 millimeters (74 inches), but may be reduced at the sides of a space to allow for camber, wiring, ventilation ducts, and piping.

(c) A passenger accommodation space must be maintained to minimize fire and safety hazards and to preserve sanitary conditions. Aisles must be kept clear of obstructions.

(d) A passenger accommodation space must not contain:

(1) Electrical generation equipment or transformers, high temperature parts, pipelines, rotating assemblies, or any other item that could injure a passenger, unless such an item is adequately shielded or isolated; or

(2) A control for operating the vessel, unless the control is so protected and located that operation of the vessel by a crew member will not be impeded by a passenger during normal or emergency operations.

(e) The deck above a passenger accommodation space must be located above the deepest load waterline.

(f) A variation from a requirement of this subpart may be authorized by the Commanding Officer, Marine Safety Center for an unusual arrangement or design provided there is no significant reduction of space, accessibility, safety, or sanitation.

§ 116.810 Overnight accommodations.

(a) A berth must be provided for each passenger authorized to be carried in overnight accommodation spaces. Each berth must measure at least 1880 millimeters (74 inches) by 610 millimeters (24 inches) and have at least 610 millimeters (24 inches) of clear space above.

(b) Berths must not be located more than three high and must be constructed of wood, fiber reinforced plastic, or metal. A berth located more than 1,525 millimeters (60 inches) above the deck must be fitted with a suitable aid for access.

(c) The construction and arrangement of berths and other furniture must allow free and unobstructed access to each berth. Each berth must be immediately adjacent to an aisle leading to a means of escape from the accommodation space. As aisle alongside a berth must be at least 610 millimeters (24 inches) wide. An aisle joining

two or more aisles in an overnight accommodation space must be at least 1,065 millimeters (42 inches) wide.

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

§ 116.820 Seating.

(a) A seat must be provided for each passenger permitted in a space for which the fixed seating criterion in §115.113(b)(3) of this subchapter has been used to determine the number of passengers permitted.

(b) A seat must be constructed to minimize the possibility of injury and avoid trapping occupants.

(c) Installation of seats must provide for ready escape.

(d) Seats, including fixed, temporary, or portable seats, must be arranged as follows:

(1) An aisle of not more than 3.8 meters (15 feet) in overall length must be not less than 610 millimeters (24 inches) in width.

(2) An aisle of more than 3.8 meters (15 feet) in overall length must be not less than 760 millimeters (30 inches) in width.

(3) Where seats are in rows, the distance from seat front to seat front must be not less than 760 millimeters (30 inches) and the seats must be secured to a deck or bulkhead.

(4) Seats used to determined the number of passengers permitted, in accordance with §115.113(b)(3) of this subchapter, must be secured to the deck, bulkhead, or bulwark.

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

Subpart I—Rails and Guards

§ 116.900 Deck rails.

(a) Except as otherwise provided in this section, rails or equivalent protection must be installed near the periphery of all decks of a vessel accessible to passengers or crew. Equivalent protection may include lifelines, wire rope, chains, and bulwarks, that provide strength and support equivalent to fixed rails. Deck rails must include a top rail with the minimum height required by this section, and lower courses or equivalent protection as required by this section.

(b) Deck rails must be designed and constructed to withstand a point load of 91 kilograms (200 pounds) applied at any point in any direction, and a uniform load of 74 kilograms per meter (50 pounds per foot) applied to the top rail in any direction. The point and uniform loads do not need to be applied simultaneously.

(c) Where space limitations make deck rails impractical for areas designed for crew use only, such as at narrow catwalks in way of deckhouse sides, hand grabs may be substituted.

(d) The height of top rails required by paragraph (a) of this section must be as follows:

(1) Rails on passenger decks of a ferry or a vessel engaged in excursion trips, including but not limited to sightseeing trips, dinner and party cruises, and overnight cruises, must be at least 1,000 millimeters (39.5 inches) high.

(2) Rails on a vessel subject to the 1966 International Convention on Load Lines must be at least 1,000 millimeters (39.5 inches) high.

(3) All other rails must be at least 910 millimeters (36 inches) high.

(e) A sailing vessel, an open boat, or any other vessel not specifically covered elsewhere in this section, must have rails of a minimum height or equivalent protection as considered necessary by the cognizant OCMI, based on the vessel's operation, route, and seating arrangement.

(f) Rail courses or an equivalent must be installed between a top rail required by paragraph (a) of this section and the deck so that no open space exists that is more than 305 millimeters (12 inches) high, except:

(1) On passenger decks of a ferry or of a vessel on an excursion trip one of the following must be installed:

(i) Bulwarks;

(ii) Chain link fencing or wire mesh that has openings of not more than 100 millimeters (4 inches) in diameter; or

(iii) Bars, slats, rail courses, or an equivalent spaced at intervals of not more than 100 millimeters (4 inches).

(2) On a vessel subject to the 1966 International Convention on Load Lines, rail courses, or an equivalent, must be installed so that there is not

an open space higher than 230 millimeters (9 inches) from the deck to the first rail course or equivalent.

(g) Rails must be permanently installed except that the following rails may be removable:

(1) Rails in way of embarkation stations and boarding locations; and

(2) Rails on a vessel when the service of the vessel is routinely changed, as determined by the cognizant OCMI, and the required top rail height varies depending on the service of the vessel at a particular time.

§ 116.920 Storm rails.

Suitable storm rails or hand grabs must be installed where necessary in passageways, at deckhouse sides, and at ladders and hatches.

§ 116.940 Guards in vehicle spaces.

On a vessel authorized to carry one or more vehicles, suitable chains, cables, or other barriers must be installed at the end of each vehicle runway. In addition, temporary rails or equivalent protection must be installed in way of each vehicle ramp, in compliance with §116.900 of this part, when the vessel is underway.

§ 116.960 Guards for exposed hazards.

An exposed hazard, such as gears or rotating machinery, must be protected by a cover, guard, or rail.

§ 116.970 Protection against hot piping.

Piping, including valves, pipe fittings and flanges, conveying vapor, gas, or liquid, the temperature of which exceeds 65.5 °C (150 °F), must be insulated where necessary to prevent injuries.

Subpart J—Window Construction and Visibility

§ 116.1010 Safety glazing materials.

Glass and other glazing material used in windows must be of material that will not break into dangerous fragments if fractured.

§ 116.1020 Strength.

Each window, port hole, and its means of attachment to the hull or deck house, must be capable of withstanding the maximum load from wave and wind conditions expected due to its location on the vessel and the authorized route of the vessel.

§ 116.1030 Operating station visibility.

(a) Windows and other openings at the operating station must be of sufficient size and properly located to provide an adequate view for safe navigation in all operating conditions.

(b) Glass or other glazing material used in windows at the operating station must have a light transmission of not less than 70 percent according to Test 2 of American National Standards Institute (ANSI) Z 26.1 ''Safety Glazing Materials For Motor Vehicles Operating on Land Highways,'' and must comply with Test 15 of ANSI Z 26.1 for Class I Optical Deviation.

Subpart K—Drainage and Watertight Integrity of Weather Decks

§ 116.1110 Drainage of flush deck vessels.

(a) Except as provided in paragraph (b) of this section, the weather deck on a flush deck vessel must be watertight and have no obstruction to overboard drainage.

(b) Each flush deck vessel may have solid bulwarks in the forward one-third length of the vessel if:

(1) The bulwarks do not form a well enclosed on all sides; and

(2) The foredeck of the vessel has sufficient sheer to ensure drainage aft.

§ 116.1120 Drainage of cockpit vessels, well deck vessels, and open boats.

Drainage of cockpit vessels, well deck vessels, and open boats must meet the applicable requirements of §§178.420, 178.430, 178.440, 178.450 in subchapter T of this chapter.

§ 116.1160 Watertight integrity.

(a) A hatch exposed to the weather must be watertight, except that the following hatches may be weathertight:

(1) A hatch on a watertight trunk that extends at least 305 millimeters (12 inches) above the weather deck;

(2) A hatch in a cabin top; and

(3) A hatch on a vessel that operates only on protected waters.

(b) A hatch cover must:

(1) Have securing devices; and

(2) Be attached to the hatch frame or coaming by hinges, captive chains, or other devices of substantial strength to prevent its loss.

(c) A hatch cover that provides access to accommodation spaces must be operable from either side.

(d) A weathertight door must be provided for each opening located in a deck house or companionway. Permanent watertight coamings must be provided as follows:

(1) On a vessel on an exposed or partially protected route, a watertight coaming with a height of at least 150 millimeters (6 inches) must be provided under each weathertight door in a cockpit or a well, or on the main deck of a flush deck vessel.

(2) On a vessel on a protected route, a watertight coaming with a height of at least 75 millimeters (3 inches) must be provided under each weathertight door in a cockpit or a well.

(3) The height of the watertight coaming for a hinged watertight door, need only be sufficient to accommodate the door.

Subpart L—Ballast Systems

§ 116.1200 Ballast.

(a) Any solid fixed ballast used to comply with the requirements of Parts 170 and 171 in subchapter S of this chapter must be:

(1) Stowed in a manner that prevents shifting of the ballast; and

(2) Installed to the satisfaction of the cognizant OCMI.

(b) Solid fixed ballast may not be located forward of the collision bulkhead unless the installation and arrangement of the ballast and the collision bulkhead minimizes the risk of the ballast penetrating the bulkhead in a collision.

(c) Solid fixed ballast may not be removed from a vessel or relocated unless approved by the cognizant OCMI except that ballast may be temporarily moved for a vessel examination or repair if it is replaced to the satisfaction of the OCMI.

(d) Water ballast, either as an active system or permanent, must be approved by the Commanding Officer, Marine Safety Center.

PART 117—LIFESAVING EQUIPMENT AND ARRANGEMENTS

Subpart A—General Provisions

Sec.

Subpart B—Emergency Communications

Subpart C—Ring Life Buoys and Life Jackets

Subpart D—Survival Craft Arrangements and Equipment

Subpart E—Number and Type of Survival Craft

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SOURCE: CGD 85–080, 61 FR 911, Jan. 10, 1996, unless otherwise noted.