Title 46
Shipping
Parts 70 to 89

Revised as of October 1, 2016

Containing a codification of documents
d of general applicability and future effect

As of October 1, 2016

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To cite the regulations in this volume use title, part and section number. Thus, 46 CFR 70.01–1 refers to title 46, part 70, section 01–1.
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Each volume of the Code is revised at least once each calendar year and issued on a quarterly basis approximately as follows:

- Title 1 through Title 16 as of January 1
- Title 17 through Title 27 as of April 1
- Title 28 through Title 41 as of July 1
- Title 42 through Title 50 as of October 1

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The Paperwork Reduction Act of 1980 (Pub. L. 96–511) requires Federal agencies to display an OMB control number with their information collection request.
Many agencies have begun publishing numerous OMB control numbers as amendments to existing regulations in the CFR. These OMB numbers are placed as close as possible to the applicable recordkeeping or reporting requirements.

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Provisions of the Code that are no longer in force and effect as of the revision date stated on the cover of each volume are not carried. Code users may find the text of provisions in effect on any given date in the past by using the appropriate List of CFR Sections Affected (LSA). For the convenience of the reader, a “List of CFR Sections Affected” is published at the end of each CFR volume. For changes to the Code prior to the LSA listings at the end of the volume, consult previous annual editions of the LSA. For changes to the Code prior to 2001, consult the List of CFR Sections Affected compilations, published for 1949-1963, 1964-1972, 1973-1985, and 1986-2000.

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An index to the text of “Title 3—The President” is carried within that volume.

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OLIVER A. POTTS,
Director,
Office of the Federal Register.
October 1, 2016.
THIS TITLE

Title 46—SHIPPING is composed of nine volumes. The parts in these volumes are arranged in the following order: Parts 1–40, 41–69, 70–89, 90–139, 140–155, 156–165, 166–199, 200–499, and 500 to end. The first seven volumes containing parts 1–199 comprise chapter I—Coast Guard, DHS. The eighth volume, containing parts 200–499, includes chapter II—Maritime Administration, DOT and chapter III—Coast Guard (Great Lakes Pilotage), DHS. The ninth volume, containing part 500 to end, includes chapter IV—Federal Maritime Commission. The contents of these volumes represent all current regulations codified under this title of the CFR as of October 1, 2016.

For this volume, Michele Bugenhagen was Chief Editor. The Code of Federal Regulations publication program is under the direction of John Hyrum Martinez, assisted by Stephen J. Frattini.
Title 46—Shipping

(This book contains parts 70–89)

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SUBCHAPTER H—PASSENGER VESSELS

PART 70—GENERAL PROVISIONS

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Subpart 70.01—Authority and Purpose

§ 70.01–1 Purpose of regulations.

The purpose of the regulations in this subchapter is to set forth uniform minimum requirements for passenger vessels. The regulations are necessary to carry out the provisions of law affecting passenger vessels and such regulations have the force of law. The regulations in this subchapter (parts 70, 71, 72, 76, 77, 78, and 80) have preemptive effect over State or local regulations in the same field.


§ 70.01–7 Right of appeal.

Any person directly affected by a decision or action taken under this subchapter, by or on behalf of the Coast Guard, may appeal therefrom in accordance with subpart 1.03 of this chapter.

[54 FR 50380, Dec. 6, 1989]

§ 70.01–15 OMB control numbers assigned pursuant to the Paperwork Reduction Act.

(a) Purpose. This section collects and displays the control numbers assigned to information collection and record-keeping requirements in this subchapter by the Office of Management and Budget (OMB) pursuant to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). The Coast Guard intends that this section comply with the requirements of 44 U.S.C. 3507(f) which requires that agencies display a current control number assigned by the Director of the OMB for each approved agency information collection requirement.

(b) Display.
§ 70.05—Application

(a) This subchapter is applicable to all U.S.-flag vessels indicated in Column 3 of table 2.01–7(A) that are 100 gross tons or more, except as follows:

(1) Any vessel operating exclusively on inland waters which are not navigable waters of the United States; or,

(2) Any vessel while laid up and dismantled and out of commission; or,

(3) With the exception of vessels of the U.S. Maritime Administration, any vessel with title vested in the United States and which is used for public purposes.

(b) The requirements for notification of safety standards and for safety information and country of registry in promotional literature or advertising of a domestic passenger vessel of 100 gross tons or over having berth or stateroom accommodations for 50 or more passengers are contained in part 80 of this chapter.

(c) Notwithstanding the exceptions previously noted in paragraph (b) of this section, foreign vessels of novel design or construction, or whose operation involves potential unusual risks shall be subject to inspection to the extent necessary to safeguard life and property in United States’ ports, as further provided by §2.01–13 of subchapter A (Procedures Applicable to the Public) of this chapter.

(d) The requirements for notification of safety standards and for safety information and country of registry in promotional literature or advertising of a foreign passenger vessel of 100 gross tons or over having berth or stateroom accommodations for 50 or more passengers are contained in part 80 of this chapter.

 § 70.05–3 Foreign vessels subject to the requirements of this subchapter.

(a) Except as specifically noted in paragraphs (b) and (e), and (f) of this section, parts 70 to 78, inclusive, of this subchapter, shall be applicable to the extent prescribed by law to all foreign vessels of the following classifications indicated in column 4 of table 70.05–1(a) that are 100 gross tons or over:

(1) Foreign vessels which carry more than 12 passengers from any port in the United States; or,

(2) Foreign vessels, other than those mentioned in paragraph (a)(1) of this section, which carry more than 6 passengers from any port in the United States, and which are:

(i) Sailing vessels of 100 gross tons or over and not more than 700 gross tons; or,

(ii) Non-self-propelled vessels of 100 gross tons.

(b) The provisions of parts 70 to 78, inclusive, of this subchapter shall not be applicable to those foreign vessels covered by paragraph (a) of this section which are:

(1) Any vessel of a foreign nation signatory to the International Convention for Safety of Life at Sea, 1974, and which has on board a current valid safety certificate; or,

(2) Any vessel of a foreign nation having inspection laws approximating those of the United States together with reciprocal inspection arrangements with the United States, and which has on board a current valid certificate of inspection issued by its government under such arrangements.

(c) Notwithstanding the provisions of paragraph (b) of this section, foreign vessels of novel design or construction, or whose operation involves potential unusual risks shall be subject to inspection to the extent necessary to safeguard life and property in United States’ ports, as further provided by §2.01–13 of subchapter A (Procedures Applicable to the Public) of this chapter.

(d) The requirements for notification of safety standards and for safety information and country of registry in promotional literature or advertising of a foreign passenger vessel of 100 gross tons or over having berth or stateroom accommodations for 50 or more passengers are contained in part 80 of this chapter.

(e) Notwithstanding the other provisions of this section, foreign passenger vessels of over 100 gross tons having berth or stateroom accommodations for more than 50 persons and departing a United States port with passengers who are United States nationals and
who embarked at that port shall comply with the provisions of the International Convention for Safety of Life at Sea, 1974.

(f) Notwithstanding the exceptions noted in paragraph (b) of this section, each foreign vessel must report marine casualties occurring while the vessel is in the navigable waters of the United States as required by subpart 78.07.

§ 70.05–5 Specific application noted in text.

(a) At the beginning of the various parts, subparts, and sections, a more specific application is generally given for the particular portion of the text involved. This application sets forth the types, sizes, or services or vessels to which the text pertains, and in many cases limits the application of the text to vessels contracted for before or after a specific date. As used in this subchapter, the term vessels contracted for includes not only the contracting for the construction of a vessel, but also the contracting for a material alteration to a vessel, the contracting for the conversion of a vessel to a passenger vessel, and the changing of service or route of a vessel if such change increases or modifies the general requirements for the vessel or increases the hazards to which it might be subjected.

(b) [Reserved]

§ 70.05–7 Ocean or unlimited coastwise vessels on inland and Great Lakes Routes.

(a) Vessels inspected and certificated for ocean or unlimited coastwise routes shall be considered suitable for navigation insofar as the provisions of this subchapter are concerned on any inland route, including the Great Lakes.

(b) [Reserved]

§ 70.05–10 Application to vessels on an international voyage.

(a) Except as provided in paragraphs (b), (c), and (d) of this section, the regulations in this subchapter that apply to a vessel on an “international voyage” apply to a vessel that—

(1) Is mechanjically propelled and carries more than 12 passengers; and

(2) Is engaged on a voyage—

(i) From a country to which the International Convention for Safety of Life at Sea, 1974, (SOLAS 74) applies, to a port outside that country or the reverse;

(ii) From any territory, including the Commonwealth of Puerto Rico, all possessions of the United States and all lands held by the United States under a protectorate or mandate, whose international relations are the responsibility of a contracting SOLAS 74 government, or which is administered by the United Nations, to a port outside that territory or the reverse; or

(iii) Between the contiguous states of the United States and the states of Hawaii or Alaska or between the states of Hawaii and Alaska.

(b) The regulations that apply to a vessel on an “international voyage” in this subchapter do not apply to ships engaged on a voyage solely on the Great Lakes and the St. Lawrence River as far east as a straight line drawn from Cap des Rosiers to West Point, Anticosti Island and, on the north side of Anticosti Island, the 63rd Meridian:

(c) The Commandant or his authorized representative may exempt any vessel on an international voyage from the requirements of this subchapter if the vessel—

(1) Makes a single international voyage in exceptional circumstances; and

(2) Meets safety requirements prescribed for the voyage by the Commandant.

(d) The Commandant or his authorized representative may exempt any vessel from the construction requirements of this subchapter if the vessel does not proceed more than 20 nautical miles from the nearest land in the course of its voyage.

§ 70.05–18 Applicability to vessels operating under an exemption afforded in the Passenger Vessel Safety Act of 1993 (PVSA).

(a) The Passenger Vessel Safety Act of 1993 (PVSA) contained an allowance for the exemption of certain passenger vessels that are—
   (1) At least 100 gross tons but less than 300 gross tons; or
   (2) Former public vessels of at least 100 gross tons but less than 500 gross tons.

(b) The owner or operator of a vessel must have applied for an exemption under the PVSA by June 21, 1994, and then brought the vessel into compliance with the interim guidance in Navigation and Inspection Circular (NVIC) 7–94 not later than December 21, 1996. The PVSA exemption is valid for the service life of the vessel, as long as the vessel remains certified for passenger service. If the Certificate of Inspection (COI) is surrendered or otherwise becomes invalid (not including a term while the vessel is out of service but undergoing an inspection for recertification), the owner or operator must meet the appropriate inspection regulations to obtain a new COI without the PVSA exemption. See 46 CFR 175.118 for information about applicable regulations for vessels that operate under the PVSA exemption.

§ 70.05–20 Gross tonnage as a criterion for requirements.

(a) The regulations in this subchapter, as well as referenced requirements in other subchapters in this chapter, take into account the passenger vessel’s size, construction, and equipment, as well as its intended service on the routes or waters on which it is desired to be operated or navigated, which are indications of the hazards to which such vessel may be subjected. The Commandant’s determinations in this respect for a particular passenger vessel are stipulated in a certificate of inspection, which states certain terms and conditions governing such vessel when in operation.

(b) In applying the laws and regulations to passenger vessels, one criterion for invocation of safety standards is the description of passenger vessels by relative size in gross tons. When it is determined by the Commandant that the gross register tonnage for a particular passenger vessel, which is attained by exemptions, reductions, or other devices in the basic gross tonnage formulation, will circumvent or be incompatible with the application of specific safety requirements in the passenger vessel regulations for a vessel of such physical size, the Commandant shall prescribe the regulations to be made applicable to such vessel.

(c) When the Commandant determines that the gross register tonnage is not a valid criterion for the invocation of safety requirements based on relative size, the parties involved will be informed of the determination and of the regulations applicable to such passenger vessel, and before being permitted to operate such vessel, compliance therewith shall be required. Endorsements or notations on the passenger vessel’s certificate of inspection may be made as appropriate.

§ 70.05–30 Combustible and flammable liquid cargo in bulk.

Note: Requirements for double hull construction for vessels carrying oil, as defined in 33 CFR 157.03, in bulk as cargo are found in 33 CFR 157.104.

Vessels inspected and certificated under this subchapter may carry limited quantities of combustible liquid cargo in bulk in the grades indicated, provided the certificate of inspection is endorsed to permit such carriage:

(a) Grade E in an integral tank; and
(b) Grade E in a portable tank, including a marine portable tank, in accordance with subpart 98.30 or 98.33 of this chapter.


Subpart 70.10—Definition of Terms Used in This Subchapter

§ 70.10–1 Definitions.

Approved means approved by the Commandant, unless otherwise stated. Barge means any non-self-propelled vessel.
Carrying freight for hire means the carriage of any goods, wares, or merchandise, or any other freight for a consideration, whether directly or indirectly flowing to the owner, charterer, operator, agent, or any other person interested in the vessel.

Classed vessel means any vessel classed by the American Bureau of Shipping or other recognized classification society.

Coast Guard District Commander means an officer of the Coast Guard designated as such by the Commandant to command all Coast Guard activities within his or her district, which include the inspection, enforcement, and administration of Subtitle II, Title 46 U.S. Code; Title 33 U.S. Code; and regulations issued under these statutes.

Coastwise is a designation of service that includes all vessels normally navigating the waters of any ocean or the Gulf of Mexico 20 nautical miles or less offshore.

Commandant means the Commandant of the United States Coast Guard.

Consideration means an economic benefit, inducement, right, or profit including pecuniary payment accruing to an individual, person, or entity but not including a voluntary sharing of the actual expenses of the voyage by monetary contribution or donation of fuel, food, beverage, or other supplies.

Ferry means a vessel that is used on a regular schedule—

(1) To provide transportation only between places that are not more than 300 miles apart; and

(2) To transport only—

(i) Passengers; or

(ii) Vehicles, or railroad cars, that are being used, or have been used, in transporting passengers or goods.

Great Lakes is a designation of service that includes all vessels navigating the Great Lakes.


Lakes, bays, and sounds is a designation of service that includes all vessels navigating the waters of the lakes, bays, or sounds other than the waters of the Great Lakes.

Marine inspector or inspector means any person from the civilian or military branch of the Coast Guard assigned under the direction of an Officer in Charge, Marine Inspection, or any other person designated to perform duties related to the inspection, enforcement, and administration of Subtitle II, Title 46 U.S. Code; Title 33 U.S. Code; and regulations issued under these statutes.

Motor vessel means any vessel more than 65 feet in length, which is propelled by machinery other than steam.

Ocean is a designation of service that includes all vessels navigating the waters of any ocean or the Gulf of Mexico more than 20-nautical miles offshore.

Officer in Charge, Marine Inspection means any person from the civilian or military branch of the Coast Guard designated as such by the Commandant and who, under the direction of the Coast Guard District Commander, is in charge of an inspection zone for the performance of duties related to the inspection, enforcement, and administration of Subtitle II, Title 46 U.S. Code; Title 33 U.S. Code; and regulations issued under these statutes.

Passenger means—

(1) On an international voyage, every person other than—

(i) The master and the members of the crew or other persons employed or engaged in any capacity onboard a vessel on the business of that vessel; and

(ii) A child under the age of one.

(2) On other than an international voyage, an individual carried on the vessel, except—

(i) The owner or an individual representative of the owner or, in the case of a vessel under charter, an individual charterer or individual representative of the charterer;

(ii) The master; or

(iii) A member of the crew engaged in the business of the vessel, who has not contributed consideration for carriage, and who is paid for onboard services.

Passenger-for-hire means a passenger for whom consideration is contributed as a condition of carriage on the vessel, whether directly or indirectly flowing to the owner, charterer, operator, agent, or any other person having an interest in the vessel.
Passenger vessel means a vessel of at least 100 gross tons:
(1) Carrying more than 12 passengers, including at least one passenger for hire;
(2) That is chartered and carrying more than 12 passengers;
(3) That is a submersible vessel carrying at least one passenger for hire; or
(4) That is a ferry carrying a passenger.

Pilot boarding equipment means a pilot ladder, accommodation ladder, pilot hoist, or combination of them, as required by this subchapter.

Point of access means the place on the deck of a vessel where a person steps onto or off pilot boarding equipment.

Recognized classification society means the American Bureau of Shipping or other classification society as recognized by the Commandant.

Rivers is a designation of service that includes all vessels whose navigation is restricted to rivers and/or canals, and to such other waters as may be designated by the Coast Guard District Commander.

Sailing vessel means a vessel with no mechanical means of propulsion, all propulsive power being provided by sails.

Short international voyage means an international voyage in the course of which a vessel is not more than 200 miles from a port or place in which the passengers and crew could be placed in safety. Neither the distance between the last port of call in the country in which the voyage begins and the final port of destination, nor the return voyage, may exceed 600 miles. The final port of destination is the last port of call in the scheduled voyage at which the vessel commences its return voyage to the country in which the voyage began.

Specially suitable for vehicles is a designation used for a space that is designed for the carriage of automobiles or other self-propelled vehicles with batteries connected and fuel tanks containing gasoline on vessels on ocean or unlimited coastwise voyages. Requirements for the design and protection of spaces specially suitable for vehicles appear in subparts 72.15, 76.15, 77.05, 78.45, 78.47, and 78.83 of parts 72, 76, 77, and 78 of this subchapter. In addition, preparation of automobiles prior to carriage, with the exception of disconnecting battery cables, must be in accordance with the applicable provision of 49 CFR 176.905.

Submersible vessel means a vessel that is capable of operating below the surface of the water.

Vessel, unless otherwise noted in this subpart, includes all vessels indicated in column three of table 70.05–1(a) in §70.05–1 that exceed 65 feet in length (measured from end-to-end over the deck, excluding sheer) and that carry more than six passengers-for-hire.

Subpart 70.15—Equivalents
§70.15–1 Conditions under which equivalences may be used.
(a) Where in this subchapter it is provided that a particular fitting, material, appliance, apparatus, or equipment, or type thereof, shall be fitted or carried in a vessel, or that any particular provision shall be made or arrangement shall be adopted, the Commandant may accept in substitution therefor any other fitting, material, apparatus, or equipment, or type thereof, or any other provision or arrangement, provided, That he shall have been satisfied by suitable trials that the fitting, material, appliance, apparatus, or equipment, or type thereof, or any other provision or arrangement shall be at least as effective as that specified in this subchapter.

(b) In any case where it is shown to the satisfaction of the Commandant that the use of any particular equipment, apparatus, or arrangement not specifically required by law is unreasonable or impracticable, the Commandant may permit the use of alternate equipment, apparatus, or arrangement to such an extent and upon such conditions as will insure, to his satisfaction, a degree of safety consistent with the minimum standards set forth in this subchapter.
Subpart 70.20—General Marine Engineering Requirements

§ 70.20–1 Marine engineering details.

All marine engineering details such as piping, valves, fittings, boilers, pressure vessels, etc., and their appurtenances installed on the vessel, shall be designed, constructed, and installed in accordance with the provisions of subchapter F (Marine Engineering) of this chapter.

Subpart 70.25—General Electrical Engineering Requirements

§ 70.25–1 Electrical engineering details.

All electrical engineering details and installations shall be designed and installed in accordance with subchapter J (Electrical Engineering) of this chapter.

Subpart 70.28—Lifesaving Appliances and Arrangements

§ 70.28–1 Lifesaving appliances and arrangements.

All lifesaving appliances and arrangements on passenger vessels must be in accordance with subchapter W (Lifesaving Appliances and Arrangements) of this chapter.

[CGD 84–069, 61 FR 25287, May 20, 1996]

Subpart 70.35—American Bureau of Shipping’s Standards

§ 70.35–1 Standards to be used.

(a) Where in this subchapter an item, or method of construction, or testing is required to meet the standards established by the American Bureau of Shipping, the current standards in effect at the time of construction of the vessel, or otherwise as applicable, shall be used. The current standards of other recognized classification societies may also be accepted upon approval by the Commandant.

(b) [Reserved]

§ 70.35–5 Where obtainable.

(a) The standards established by the American Bureau of Shipping are usually published annually and may be purchased from the American Bureau of Shipping, ABS Plaza, 16855 Northchase Drive, Houston, TX 77060. These standards may also be examined at Coast Guard Headquarters. Contact Commandant (CG–5PS), Attn: Director of Commercial Regulations, U.S. Coast Guard Stop 7500, 2703 Martin Luther King Jr. Avenue, SE., Washington, DC 20593-7500, or contact the office of any Coast Guard District Commander or Officer in Charge, Marine Inspection.

(b) [Reserved]


EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 70–35–5, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

PART 71—INSPECTION AND CERTIFICATION

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Source: CGFR 65–50, 30 FR 16895, Dec. 30, 1965, unless otherwise noted.

Subpart 71.01—General Provisions; Certificate of Inspection

§ 71.01–1 Preemptive effect.

The regulations in this part have preemptive effect over State or local regulations in the same field.


§ 71.01–2 When required.

(a) Except as noted in this subpart or subpart 71.05, no vessel subject to inspection and certification shall be operated without a valid certificate of inspection.
§ 71.01–5 Posting.

The certificate of inspection shall be displayed under glass in a conspicuous place where observation by the passengers is likely.

[CGD 72–104R, 37 FR 14233, July 18, 1972]

§ 71.01–10 Period of validity.

(a) Certificates of inspection will be issued for a period of 1 year. Application may be made by the master, owner, or agent for inspection and issuance of a new certificate of inspection at any time within the period of validity of the current certificate.

(b) Certificates of inspection may be revoked or suspended by the Coast Guard where such process is authorized by law. This may occur if the vessel does not meet the requirements of law or regulations in this chapter or if there is a failure to maintain the safety requirements requisite to the issuance of a certificate of inspection.


§ 71.01–15 Temporary certificate.

(a) If necessary to prevent delay of the vessel, a temporary certificate of inspection, Form CG-854, shall be issued pending the issuance and delivery of the regular certificate of inspection. Such temporary certificate shall be carried in the same manner as the regular certificate and shall in all ways be considered the same as the regular certificate of inspection which it represents.

(b) [Reserved]

§ 71.01–20 Expired certificate.

(a) Nothing in this subpart shall prevent a vessel upon a regularly established line from a port in the United States to a port of a foreign country not contiguous to the United States whose certificate of inspection expires at sea while said vessel is in a foreign port or a port of Hawaii from lawfully completing her voyage without the valid certificate of inspection or temporary certificate required by this subpart: Provided. That the voyage shall be completed within 30 days after the expiration of the certificate of inspection. No such vessel shall depart if its certificate of inspection will expire within 15 days of the date of sailing.

(b) [Reserved]

Subpart 71.05—Permit To Proceed to Another Port for Repair

§ 71.05–1 When issued.

(a) The Officer in Charge, Marine Inspection, may issue a permit to proceed to another port for repair, Form CG–948, to a vessel, if in his judgment it can be done with safety, even if the certificate of inspection of the vessel has expired or is about to expire.

(b) [Reserved]

§ 71.05–5 To whom issued.

(a) Such permit will only be issued upon the written application of the master, owner, or agent of the vessel.

(b) [Reserved]

§ 71.05–10 Conditions of permit.

(a) The permit will state upon its face the conditions under which it is issued and whether or not the vessel is permitted to carry freight or passengers. Passengers may not be carried if the certificate of inspection has expired, except as provided under § 71.01–20.

(b) [Reserved]

§ 71.05–15 Posting.

(a) The permit shall be carried in a manner similar to that described in § 71.01–5 for a certificate of inspection.

(b) [Reserved]

Subpart 71.10—Permit To Engage in Excursions

§ 71.10–1 When issued.

(a) The Officer in Charge, Marine Inspection, may issue a permit to carry additional passengers on an excursion, Form CG-949, if after personally inspecting the vessel, it can, in his judgment, be done with safety.

(b) [Reserved]
§ 71.10–5 To whom issued.
(a) Such permit will only be issued upon the written application of the master, owner, or agent of the vessel.
(b) [Reserved]

§ 71.10–10 Conditions of permit.
(a) The permit will state upon its face the conditions under which it is issued, the number of extra passengers the vessel may carry, any additional lifesaving or safety equipment which will be required, the route for which the permit is granted, and the dates on which the permit will be valid.
(b) [Reserved]

§ 71.10–15 Posting.
(a) The permit when used, shall be carried in addition to the certificate of inspection and shall be carried in a manner similar to that described in §71.01–5 for a certificate of inspection.
(b) [Reserved]

Subpart 71.15—Inspection of Vessels

§ 71.15–1 Standards in inspection of hulls, boilers, and machinery.
In the inspection of hulls, boilers, and machinery of vessels, the standards established by the American Bureau of Shipping, see part 70, subpart 70.35 of this chapter respecting material and inspection of hulls, boilers, and machinery, and the certificate of classification referring thereto, except where otherwise provided for by the rules and regulations in this subchapter, subchapter E (Load Lines), subchapter F (Marine Engineering), subchapter J (Electrical Engineering), and subchapter W (Lifesaving Appliances and Arrangements) of this chapter, shall be accepted as standard by the inspectors.

[CGD 84–069, 61 FR 25327, May 20, 1996]

§ 71.15–5 Alternate compliance.
(a) In place of compliance with other applicable provisions of this subchapter, the owner or operator of a vessel subject to plan review and inspection under this subchapter for initial issuance or renewal of a Certificate of Inspection may comply with the Alternate Compliance Program provisions of part 8 of this chapter.
(b) For the purposes of this section, a list of authorized classification societies, including information for ordering copies of approved classification society rules and supplements, is available at Coast Guard Headquarters, Contact Commandant (CG–ENG), Attn: Office of Design and Engineering Systems, U.S. Coast Guard Stop 7509, 2703 Martin Luther King Jr. Avenue SE., Washington, DC 20593–7509; telephone 202–372–1372 or fax 202–372–1925. Approved classification society rules and supplements are incorporated by reference into 46 CFR 8.110(b).


Subpart 71.20—Initial Inspection

§ 71.20–1 Prerequisite of certificate of inspection.
(a) The initial inspection is a prerequisite of the issuance of the original certificate of inspection.
(b) [Reserved]

§ 71.20–5 When made.
(a) The original inspection will only be made upon the written application of the owner or builder of the vessel to the Officer in Charge, Marine Inspection, on Form CG-3752, application for inspection of U.S. vessel, at or nearest the port where the vessel is located.
(b) [Reserved]

§ 71.20–10 Plans.
(a) Before application for inspection is made and before construction is started, the owner or builder shall have plans indicating the proposed arrangement and construction of the vessel approved by the Commandant. The procedure for submitting plans and the list of plans to be supplied is set forth in subpart 71.65.
(b) [Reserved]
§ 71.20–15 Scope of inspections.

The initial inspection, which may consist of a series of inspections during the construction of a vessel, shall include a complete inspection of the structure, including the outside of the vessel’s bottom, the machinery, unfired pressure vessels, equipment and the inside and outside of the boilers. The inspection shall be such as to insure that the arrangements, material, and scantlings of the structure, boilers and other pressure vessels and their appurtenances, piping, main and auxiliary machinery, electrical installations, lifesaving appliances, fire-detecting and extinguishing equipment, pilot boarding equipment, pollution prevention equipment and other equipment fully comply with the applicable regulations for such vessel and are in accordance with approved plans, and determine that the vessel is in possession of a valid certificate issued by the Federal Communications Commission, if any. The inspection shall be such as to ensure that the workmanship of all parts of the vessel and its equipment is in all respects satisfactory and that the vessel is provided with lights, means of making sound signals, and distress signals as required by applicable statutes and regulations.


§ 71.20–20 Specific tests and inspections.

The applicable tests and inspections relating to annual inspection as set forth in subpart 71.25 shall be made at this time. In addition, the following specific tests and inspections shall be made by the inspector:

(a) For inspection procedures of life-saving appliances and arrangements, see subchapter W (Lifesaving Appliances and Arrangements) of this chapter.

(b) Installation of carbon dioxide or clean agent extinguishing piping in accordance with 46 CFR 76.15–15 and 46 CFR subpart 95.16.

(c) For inspection procedures of marine engineering equipment and systems, see subchapter F (Marine Engineering) of this chapter.

(d) For inspection procedures of electrical engineering equipment and systems, see subchapter J (Electrical Engineering) of this chapter.

(e) For inspection and testing standards of structural subdivision integrity, see §72.01–25 of this subchapter.

(f) For inspection and testing of watertight doors, see §170.270 of this chapter.


Subpart 71.25—Annual Inspection

§ 71.25–1 Prerequisite of reissuance of certificate of inspection.

(a) The annual inspection is a prerequisite of the reissuance of a certificate of inspection.

(b) [Reserved]

§ 71.25–3 Incorporation by reference.

(a) Certain material is incorporated by reference into this subpart with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. All approved material is available for inspection at the U.S. Coast Guard, Office of Design and Engineering Standards (CG–ENG), 2703 Martin Luther King Jr. Avenue SE., Stop 7509, Washington, DC 20593–7509, and is available from the sources listed below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030 or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.


(2) [Reserved]

[USCG–2012–0196, 81 FR 46251, July 22, 2016]
§ 71.25–5 When made.

(a) The annual inspection will be made only upon the written application of the master, owner, or agent of the vessel on Form CG–3752, Application for Inspection of U.S. Vessel, to the Officer in Charge, Marine Inspection, at or nearest the port where the vessel is to be inspected.

(b) You must submit your application for the annual inspection at least 30 days before your current certificate of inspection expires.


§ 71.25–10 Scope of inspections.

The annual inspection shall include an inspection of the structure, boilers, and other pressure vessels, machinery and equipment. The inspection shall be such as to insure that the vessel, as regards the structure, boilers and other pressure vessels, and their appurtenances, piping, main and auxiliary machinery, electrical installations, life-saving appliances, fire-detecting and extinguishing equipment, pilot boarding equipment, and other equipment, is in satisfactory condition and fit for the service for which it is intended, and that it complies with the applicable regulations for such vessels, and determine that the vessel is in possession of a valid certificate issued by the Federal Communications Commission, if required. The lights, means of making sound signals, and distress signals carried by the vessel shall also be subject to the above-mentioned inspection for the purpose of ensuring that they comply with the requirements of the applicable statutes and regulations.


§ 71.25–15 Lifesaving equipment.

For inspection procedures of lifesaving appliances and arrangements, see subchapter W (Lifesaving Appliances and Arrangements) of this chapter.

[CGD 84–069, 61 FR 25297, May 20, 1996]
TABLE 71.25–20(a)(1)—Continued

<table>
<thead>
<tr>
<th>Type unit</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry chemical (stored pressure type).</td>
<td>See that pressure gage is in operating range. If not, or if seal is broken, weigh or otherwise determine that full charge of dry chemical is in extinguisher. Recharge if pressure is low or if dry chemical is needed.</td>
</tr>
<tr>
<td>Vaporizing liquid (pump type).</td>
<td>Pump a few strokes into clean pail and replace liquid. Keep water out of extinguisher or liquid. Keep extinguisher completely full of liquid.</td>
</tr>
</tbody>
</table>

1 Cylinders must be tested and marked, and all flexible connections and discharge hoses of semi-portable carbon dioxide and halon extinguishers must be tested or renewed, as required by §§ 147.60 and 147.65 of this chapter.

2 Vaporizing-liquid type fire extinguishers containing carbon tetrachloride or chlorobromomethane or other toxic vaporizing liquids must be removed from all vessels. (See § 76.50–5(e) of this subchapter.)

TABLE 71.25–20(a)(2)

<table>
<thead>
<tr>
<th>Type system</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foam</td>
<td>Systems utilizing a soda solution must have that solution replaced. In all cases, ascertain that powder is not caked.</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>Weigh cylinders. Recharge cylinder if weight loss exceeds 10 percent of the weight of the charge. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed carbon dioxide systems must be tested or renewed, as required by 46 CFR 147.60 and 147.65.</td>
</tr>
<tr>
<td>Halon 1301 and halocarbon.</td>
<td>Recharge or replace if weight loss exceeds 5 percent of the weight of the charge or if cylinder has a pressure gauge, recharge cylinder if pressure loss exceeds 10 percent, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections to Halon 1301 and halocarbon cylinders must be tested or renewed, as required by 46 CFR 147.60 and 147.65 or 147.67. NOTE: Halon 1301 system approvals have expired, but existing systems may be retained if they are in good and serviceable condition to the satisfaction of the Coast Guard inspector.</td>
</tr>
<tr>
<td>Inert gas</td>
<td>Recharge or replace cylinder if cylinder pressure loss exceeds 5 percent of the specified gauge pressure, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed inert extinguishers must be tested or renewed, as required by 46 CFR 147.60 and 147.66.</td>
</tr>
<tr>
<td>Water mist</td>
<td>Maintain system in accordance with the maintenance instructions in the system manufacturer's design, installation, operation, and maintenance manual.</td>
</tr>
</tbody>
</table>

(3) All fire detection and extinguishing systems, all piping controls, valves, and alarms must be checked to ascertain that the system is in operating condition. In this respect, automatic sprinkling systems must be checked by means of test stations or opening heads, smoke detection systems must be checked by introducing smoke into the accumulators, fire detection and manual alarm systems must be checked by test stations or actuating detectors or pull boxes, and steam smothering lines must be checked with at least a 50 p.s.i. air pressure with the ends capped or by blowing steam through the lines at the designed pressure.

(4) The fire main system must be operated and the pressure checked at the most remote and highest outlets. All firehose must be subjected to a test pressure equivalent to the maximum pressure to which they may be subjected in service, but not less than 100 p.s.i.
§ 71.25–25 Hull equipment.

(a) At each annual inspection, the inspector shall conduct the following tests and inspections of hull equipment:

(1) All subdivision bulkheads shall be examined to determine that their watertight integrity has not been impaired.

(2) All watertight doors shall be operated locally by manual power and also by hydraulic or electric power if so fitted. Where remote control is fitted, the doors shall also be operated by the remote control apparatus.

(3) All magnetically controlled fire doors shall be operated locally and by the remote control, and all automatic fire dampers shall be checked to determine that they are in an operable condition.

(4) The remote controls of all valves shall be operated.

(5) The owner, operator or master shall provide the Officer in Charge, Marine Inspection with all current valid certificates and registers of cargo gear issued by an organization recognized by the Commandant under § 31.10–16.

(b) Every acceptable cargo gear certificate and/or register shall be properly executed by a person authorized to do so and shall:

(1) Certify as to the tests and examinations conducted;

(2) Show the dates on which the tests and examinations were conducted; and,

(3) Indicate that the cargo gear described in the certificate or register complies with the standards of the organization or association authorized to issue the certificate or register.

(c) Competent persons for the purposes of this section are defined as—

(1) Surveyors of a classification society recognized by the Commandant under 46 U.S.C. 3316.

(2) Surveyors of a cargo gear organization recognized by the Commandant under § 31.10–16.

(3) Responsible officials or employees of the testing laboratories, companies, or organizations who conduct tests of pieces of loose cargo gear, wire rope, or the annealing of gear as may be required by the standards of the organization or association authorized to issue the certificate or register.

(d) The registers issued in connection with cargo gear certification must have all required entries fully completed as of the dates indicated, shall be kept current, and shall include the following:

(1) A register of the cargo handling machinery and the gear accessory thereto carried on the vessel named therein;

(2) Certification of the testing and examination of winches, derricks, and their accessory gear;

(3) Certification of the testing and examination of cranes, hoists, and their accessory gear;

(4) Certification of the testing and examination of chains, rings, shackles, swivels, and blocks;

(5) Certification of the testing and examination of wire rope;

(6) Certification of the heat treatment of chains, rings, hooks, shackles, and swivels which require such treatment; and,

(7) Certification of the annual thorough examinations of gear not required to be periodically heat treated.


§ 71.25–30 [Reserved]

§ 71.25–35 Marine engineering equipment.

(a) For inspection procedures of marine engineering equipment and systems, see subchapter F. (Marine Engineering) of this chapter.

(b) [Reserved]

§ 71.25–37 Pollution prevention.

At each inspection for certification, the inspector shall examine the vessel to determine that it meets the vessel design and equipment requirements for pollution prevention in 33 CFR part 155, subpart B.

Coast Guard, DHS

§ 71.25–40 Sanitary inspection.
(a) At each annual inspection the passenger and crew quarters, toilet and washing spaces, galleys, serving pantries, lockers, etc., shall be examined by the inspector to be assured that they are in a sanitary condition.
(b) [Reserved]

§ 71.25–45 Fire hazards.
(a) At each annual inspection, the inspector shall examine the tank tons and bilges in the machinery spaces to see that there is no accumulation of oil which might create a fire hazard.
(b) [Reserved]

§ 71.25–50 Inspector not limited.
(a) Nothing in this subpart shall be construed as limiting the inspector from making such tests or inspections as he deems necessary to be assured of the safety and seaworthiness of the vessel.
(b) [Reserved]

Subpart 71.30—Reinspection

§ 71.30–1 When made.
In general, at least three reinspections shall be made on each vessel within one year. These reinspections will be made at approximately equal intervals between annual inspections. In the case of vessels with a seasonal schedule, reinspections will be made during the operating season if practicable.


§ 71.30–5 Scope.
(a) The inspector shall examine all accessible parts of the vessel’s hull, machinery, and equipment to be assured that it is in a satisfactory condition.
(b) In general, the scope of the reinspection shall be the same as for the annual inspection, but will be in less detail unless it is determined that major change has occurred since the last annual inspection.

§ 71.30–10 Inspector not limited.
(a) Nothing in this subpart shall be construed as limiting the inspector from making such tests or inspections as he deems necessary to be assured of the safety and seaworthiness of the vessel.
(b) [Reserved]

Subpart 71.40—Inspection After Accident

§ 71.40–1 General or partial survey.
(a) A survey, either general or partial, according to the circumstances, shall be made every time an accident occurs or a defect is discovered which affects the safety of the vessel or the efficacy or completeness of its life-saving appliances, fire-fighting or other equipment, or whenever any important repairs or renewals are made. The survey shall be such as to insure that the necessary repairs or renewals have been effectively made, that the material and the workmanship of such repairs or renewals are in all respects satisfactory, and that the vessel complies in all respects with the regulations in this subchapter.
(b) [Reserved]

Subpart 71.45—Sanitary Inspections

§ 71.45–1 When made.
(a) An inspection of passenger and crew quarters, toilet and washing spaces, serving pantries, galleys, etc., shall be made, in general, at least once in every month. If the route of the vessel is such that it is away from a United States port for more than one month, an inspection shall be conducted at least once every trip.
(b) [Reserved]

Subpart 71.50—Drydock ing

§ 71.50–1 Definitions relating to hull examinations.
As used in this part—
Adequate hull protection system means a method of protecting the vessel’s hull from corrosion. It includes, as a minimum, either hull coatings and a cathodic protection (CP) system consisting of sacrificial anodes, or an impressed current CP system.
Alternative Hull Examination (AHE) Program means a program in which an
eligible vessel may receive an initial and subsequent credit hull examination through a combination of underwater surveys, internal examinations, and annual hull condition assessment.

_Drydock examination_ means hauling out a vessel or placing a vessel in a drydock or slipway for an examination of all accessible parts of the vessel’s underwater body and all through-hull fittings and appurtenances, including verification of the accuracy of draft marks if not already verified at a previous drydock examination.

_Internal structural examination_ means an examination of the vessel while afloat or in drydock and consists of a complete examination of the vessel’s main strength members, including the major internal framing, the hull plating, voids, and ballast tanks, but not including cargo, sewage, or fuel oil tanks.

_Remotely operated vehicle (ROV) team_, at a minimum, consist of an ROV operator, a non-destructive testing inspector, an ROV tender or mechanic, and a team supervisor who is considered by the Officer in Charge, Marine Inspection (OCMI) to have the appropriate training and experience to perform the survey and to safely operate the ROV in an effective manner. The team must also have a hull-positioning technician present. This position may be assigned to a team member already responsible for another team duty.

_Shallow water_ is an ascertained water depth at which the uppermost deck(s) of a sunken vessel remain above the water’s surface. The determination of the water’s depth is made by the Officer in Charge, Marine Inspection (OCMI) who considers the vessel’s stability (passenger heeling moment), the contour of the hull, the composition of the river bottom, and any other factors that would tend to prevent a vessel from resting an even keel.

_Third party examiner_ means an entity:

(1) With a thorough knowledge of diving operations, including diving limitations as related to diver safety and diver supervision;

(2) Having a familiarity with, but not limited to, the following—

(i) The camera used during the AHE; and

(ii) The NDT equipment used during the AHE, including the effect of water clarity, and marine growth in relation to the quality of the readings obtained;

(3) Having a familiarity with the communications equipment used during the AHE;

(4) Possessing the knowledge of vessel structures, design features, nomenclature, and the applicable AHE regulations; and

(5) Able to present the Officer in Charge, Marine Inspection, with evidence of formal training, demonstrated ability, past acceptance, or a combination of these.

_Underwater Survey in Lieu of Drydocking (UWILD)_ means a program in which an eligible vessel may alternate between an underwater survey and the required drydock examinations.


§ 71.50–3 Drydock examination, internal structural examination, underwater survey, and alternate hull exam intervals.

(a) If your vessel is operated on international voyages, it must undergo a drydock and internal structural examination once every 12 months unless it has been approved to undergo an underwater survey per §71.50–5 of this part.

(b) If your vessel is operated on other than international voyages and does not meet the conditions in paragraphs (c) through (f) of this section, it must undergo a drydock and internal structural examination as follows unless it has been approved to undergo an underwater survey per §71.50–5 of this part:

(1) Except as provided in paragraph (b)(2) of this section, vessels that operate in salt water must undergo two drydock and two internal structural examinations within any five year period. No more than three years may elapse between any two examinations.

(2) Vessels 20 years of age or older that operate in salt water and accommodate overnight passengers must undergo drydock and internal structural examinations at intervals not to exceed 18 months.
§ 71.50–5 Underwater Survey in Lieu of Drydocking (UWILD).

(a) The Officer in Charge, Marine Inspection (OCMI), may approve an underwater survey instead of a drydock examination at alternating intervals if your vessel is—

(1) Less than 15 years of age;
(2) A steel or aluminum hulled vessel;
(3) Fitted with an effective hull protection system; and
(4) Described in §71.50–3(a) or (b).

(b) For vessels less than 15 years of age, you must submit an application for an underwater survey to the OCMI at least 90 days before your vessel’s next required drydock examination. The application must include—

(1) The procedure for carrying out the underwater survey;
(2) The time and place of the underwater survey;
(3) The method used to accurately determine the diver’s or remotely operated vehicle’s (ROV) location relative to the hull;
(4) The means for examining all through-hull fittings and appurtenances;
(5) The means for taking shaft bearing clearances;
(6) The condition of the vessel, including the anticipated draft of the vessel at the time of survey;
(7) A description of the hull protection system; and
(8) The name and qualifications of any third party examiner.

(c) If your vessel is 15 years old or older, the cognizant District Commander for the area in which the exam is being completed, may approve an underwater survey instead of a drydock examination at alternating intervals. You must submit an application for an underwater survey to the OCMI at least 90 days before your vessel’s next required drydock examination. You may be allowed this option if—

(1) The vessel is qualified under paragraphs (a)(2) through (4) of this section;
(2) Your application includes the information in paragraphs (b)(1) through (b)(8) of this section; and
(3) During the vessel’s drydock examination that precedes the underwater survey, a complete set of hull gaugings was taken and they indicated that the
§ 71.50–15 Description of the Alternative Hull Examination (AHE) Program for certain passenger vessels.

The Alternative Hull Examination (AHE) Program provides you with an alternative to a drydock examination by allowing your vessel’s hull to be examined while it remains afloat. If completed using only divers, this program has four steps: the application process, the preliminary examination, the presurvey meeting, and the hull examination. If the vessel is already participating in the program or if a remotely operated vehicle (ROV) is used during the program, the preliminary exam step may be omitted. Once you complete these steps, the Officer in Charge, Marine Inspection (OCMI), will evaluate the results and accept the examination as a credit hull exam if the vessel is in satisfactory condition. If only divers are used for the underwater survey portion of the examination process, you may receive credit for a period of time such that subsequent AHEs would be conducted at intervals of twice in every five years, with no more than three years between any two AHEs. The OCMI may waive an underwater survey in accordance with § 71.50–29(d) provided that the interval does not exceed five years between any two underwater surveys. If an underwater ROV is used as the predominate method to examine the vessel’s underwater hull plating, you may receive credit up to five years. At the end of this period, you may apply for further participation under the AHE Program.

Note to §71.50–15: The expected hull coverage when using an ROV must be at least 80 percent.


§ 71.50–17 Eligibility requirements for the Alternative Hull Examination (AHE) Program for certain passenger vessels.

(a) Your vessel may be eligible for the AHE Program if—

(1) It is constructed of steel or aluminum;

(2) It has an effective hull protection system;

(3) It has operated exclusively in fresh water since its last drydock examination;

(4) It operates in a reduced risk environment such as a river or the protected waters of a lake; and

(5) It operates exclusively in shallow water or within 0.5 nautical miles from shore.

(b) In addition to the requirements in paragraph (a), the Officer in Charge, Marine Inspection (OCMI), will evaluate the following information when determining your vessel’s eligibility for the AHE Program:

(1) The overall condition of the vessel, based on its inspection history;

(2) The vessel’s history of hull casualties and hull-related deficiencies; and

(3) The AHE Program application, as described in §71.50–19 of this part.

(c) When reviewing a vessel’s eligibility for the AHE program, the OCMI may modify the standards given by paragraph (a)(5) of this section where it is considered safe and reasonable to do so. In making this determination, the OCMI will consider the vessel’s overall condition, its history of safe operation, and any other factors that serve to mitigate overall safety risks.


§ 71.50–19 The Alternative Hull Examination (AHE) Program application.

If your vessel meets the eligibility criteria in §71.50–17 of this part, you may apply to the AHE Program. You must submit an application at least 90 days before the requested hull examination date to the Officer in Charge, Marine Inspection (OCMI), who will oversee the hull examination. The application must include—

(a) The proposed time and place for conducting the hull examination;
§ 71.50–25 Alternative Hull Examination (AHE) procedure.

(a) To complete the underwater survey you must—

(1) Perform a general examination of the underwater hull plating and a detailed examination of all hull welds, propellers, tailshafts, rudders, and other hull appurtenances;

(2) Examine all sea chests;

(3) Remove and inspect all sea valves in the presence of a marine inspector once every five years;

(4) Remove all passengers from the vessel when the sea valves are being examined, if required by the Officer in Charge, Marine Inspection (OCMI);

(5) Allow access to all internal areas of the hull for examination, except internal tanks that carry fuel, sewage, or potable water. Internal tanks that

(b) The name of the participating diving contractor and underwater remotely operated vehicle (ROV) company accepted by the OCMI under §71.50–27 of this part;

(c) The name and qualifications of the third party examiner. This person must be familiar with the inspection procedures and his or her responsibilities under this program. The OCMI has the discretionary authority to accept or deny use of any third party examiner using the criteria established in §71.50–1 of this part;

(d) A signed statement from your vessel’s master, chief engineer, or the person in charge stating the vessel meets the eligibility criteria of §71.50–17 of this part and a description of the vessel’s overall condition, level of maintenance, known or suspected damage, underwater body cleanliness (if known), and the anticipated draft of the vessel at the time of the examination;

(e) Plans or drawings that illustrate the external details of the hull below the sheer strake;

(f) A detailed plan for conducting the hull examination in accordance with §§71.50–25 and 71.50–27 of this part, which must address all safety concerns related to the removal of sea valves during the inspection; and

(g) A preventative maintenance plan for your vessel’s hull, its related systems and equipment.

§ 71.50–27 Alternative Hull Examination (AHE) program options: Divers or underwater remotely operated vehicle (ROV).

To conduct the underwater survey portion of the AHE, you may use divers or an underwater ROV.

(a) If you use divers to conduct the underwater survey, you must:

(1) Locate the vessel so the divers can work safely under the vessel’s keel and around both sides. The water velocity must be safe for dive operations;

(2) Provide permanent hull markings, a temporary grid system of wires or cables spaced not more than 10 feet apart and tagged at one-foot intervals, or any other acoustic or electronic positioning system approved by the OCMI to identify the diver’s location with respect to the hull, within one foot of accuracy;

(3) Take ultrasonic thickness gaugings at a minimum of 5 points on each plate, evenly spaced;

(4) Take hull plating thickness gaugings along transverse belts at the bow, stern, and midships, as a minimum. Plating thickness gaugings must also be taken along a longitudinal belt at the wind and water strake. Individual gaugings along the transverse and longitudinal belts must be spaced no more than 3 feet apart;

(5) Ensure the third party examiner observes the entire underwater examination process;

(6) Record the entire underwater survey with audio and video recording equipment and ensure that communications between divers and the third party examiner are recorded; and

(7) Use appropriate equipment, such as a clear box, if underwater visibility is poor, to provide the camera with a clear view of the hull.

(b) You may use an underwater ROV to conduct the underwater survey. The underwater ROV operating team, survey process and equipment, quality assurance methods, and the content and format of the survey report must be accepted by the Officer in Charge, Marine Inspection (OCMI) prior to the survey. If you choose this option, you must—

(1) Locate the vessel to ensure that the underwater ROV can operate effectively under the vessel’s keel and around all sides;

(2) Employ divers to examine any sections of the hull and appurtenances that the underwater ROV cannot access or is otherwise unable to evaluate; and

(3) If the OCMI determines that the data obtained by the ROV, including non-destructive testing results, readability of the results, and positioning standards, will not integrate into the data obtained by the divers, then a third party examiner must be present during the diver’s portion of the examination.

§ 71.50–29 Hull examination reports.

(a) If you use only divers for the underwater survey portion of the Alternative Hull Examination (AHE), you must provide the Officer in Charge, Marine Inspection (OCMI), with a written hull examination report. This report must include thickness gauging results, bearing clearances, a copy of the audio and video recordings, and any other information that will help the OCMI evaluate your vessel for a credit hull exam. The third party examiner...
Coast Guard, DHS

§ 71.50–35 Notice and plans required.

(a) The master, owner, operator, or agent of the vessel shall notify the Officer in Charge, Marine Inspection, whenever the vessel is to be drydocked, regardless of the reason for drydocking.

(b) Each vessel, except barges, that holds a Load Line Certificate must have on board a plan showing the vessel’s scantlings. This plan must be made available to the Coast Guard marine inspector whenever the vessel undergoes a drydock examination, internal structural examination or underwater survey or whenever repairs are made to the vessel’s hull.

§ 71.50–31 Continued participation in the Alternative Hull Examination (AHE) program.

(a) To continue to participate in the AHE Program, vessel operators must conduct an annual hull condition assessment. At a minimum, vessel operators must conduct an internal examination and take random hull gaugings internally during the hull condition assessment, unless waived by the Officer in Charge, Marine Inspection (OCMI). If the annual hull assessment reveals significant damage or corrosion, where temporary repairs have been made, or where other critical areas of concern have been identified, the OCMI may require an expanded examination to include an underwater hull examination using divers. If an underwater examination is required, the examination must focus on areas at higher risk of damage or corrosion and must include a representative sampling of hull gaugings.

(b) If an underwater survey is required for the annual hull condition assessment, the OCMI may require the presence of a third party examiner and a written hull examination report must be submitted to the OCMI. This report must include thickness gauging results, a copy of the audio and video recordings and any other information that will help the OCMI evaluate your vessel for continued participation in the AHE program. The third party examiner must sign the report and confirm the validity of its contents.

(c) You must submit your preventive maintenance reports or checklists on an annual basis to the OCMI. These reports or checklists must conform to the plans you submitted in your application under §71.50–19 of this part, which the OCMI approved.

(d) Prior to each scheduled annual hull condition assessment—

(1) The owner may submit to the OCMI a plan for conducting the assessment, or a request for a waiver of this requirement, no fewer than 30 days before the scheduled assessment; and

(2) The OCMI may reduce the scope or extend the interval of the assessment if the operational, casualty, and deficiency history of the vessel, along with a recommendation of the vessel’s master, indicates that it is warranted.

(c) Each barge that holds a Load Line Certificate must have a plan showing the barge's scantlings. The plan need not be maintained on board the barge but must be made available to the Coast Guard marine inspector whenever the barge undergoes a drydock examination, internal structural examination, or underwater survey or whenever repairs are made to the barge's hull.


Subpart 71.53—Integral Fuel Oil Tank Examinations

§ 71.53–1 When required.

(a) Each fuel oil tank with at least one side integral to the vessel's hull and located within the hull (“integral fuel oil tank”) is subject to inspection as provided in this section. Each integral fuel oil tank is subject to inspection as provided in this section. The owner or operator of the vessel shall have the tanks cleaned out and gas freed as necessary to permit internal examination of the tank or tanks designated by the marine inspector. The owner or operator shall arrange for an examination of the fuel tanks of each vessel during an internal structural examination at intervals not to exceed five years.

(b) Integral non-double-bottom fuel oil tanks need not be cleaned out and internally examined if the marine inspector is able to determine by external examination that the general condition of the tanks is satisfactory.

(c) Double-bottom fuel oil tanks on vessels less than 10 years of age need not be cleaned out and internally examined if the marine inspector is able to determine by external examination that the general condition of the tanks is satisfactory.

(d) All double-bottom fuel oil tanks on vessels 10 years of age or older but less than 15 years of age need not be cleaned out and internally examined if the marine inspector is able to determine by internal examination of at least one forward, one amidships, and one aft double-bottom fuel oil tank, and by external examination of all other double-bottom fuel oil tanks on the vessel, the general condition of the tanks is satisfactory.

(e) All double-bottom fuel oil tanks on vessels 15 years of age or older need not be cleaned out and internally examined if the marine inspector is able to determine by internal examination of at least one forward, one amidships, and one aft double-bottom fuel oil tank, and by external examination of all other double-bottom fuel oil tanks on the vessel, the general condition of the tanks is satisfactory.


Subpart 71.55—Repairs and Alterations

§ 71.55–1 Permission required.

(a) No repairs or alterations affecting the safety of the vessel with regard to the hull, machinery, or equipment, shall be made without the knowledge of the Officer in Charge, Marine Inspection.

(b) Drawings of alterations shall be approved before work is started, unless deemed unnecessary by the Officer in Charge, Marine Inspection.

(c) Drawings will not be required for repairs in kind.

§ 71.55–5 Inspection required.

(a) An inspection, either general or partial depending upon the circumstances, shall be made whenever any important repairs or alterations are undertaken.

(b) [Reserved]

Subpart 71.60—Special Operating Requirements

§ 71.60–1 Inspection and testing required when making alterations, repairs, or other such operations involving riveting, welding, burning or like fire-producing actions.

(a) The provisions of “Standard for the Control of Gas Hazards on Vessels to be Repaired,” NFPA No. 306, published by National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02269, shall be used as a guide in conducting the inspections and
issuance of certificates required by this section.

(b) Until an inspection has been made to determine that such operation can be undertaken with safety, no alterations, repairs, or other such operations involving riveting, welding, burning, or like fire-producing actions shall be made:

(1) Within or on the boundaries of cargo tanks which have been used to carry combustible liquid or chemicals in bulk; or,

(2) Within or on the boundaries of fuel tanks; or,

(3) To pipe lines, heating coils, pumps, fittings, or other appurtenances connected to such cargo or fuel tanks.

(c) Such inspections shall be made and evidenced as follows:

(1) In ports or places in the United States or its territories and possessions the inspection shall be made by a marine chemist certificated by the National Fire Protection Association; however, if the services of such certified marine chemist are not reasonably available, the Officer in Charge, Marine Inspection, upon the recommendation of the vessel owner and his contractor or their representative, shall select a person who, in the case of an individual vessel, shall be authorized to make such inspection. If the inspection indicated that such operations can be undertaken with safety, a certificate setting forth the fact in writing and qualified as may be required, shall be issued by the certified marine chemist or the authorized person before the work is started. Such qualifications and requirements shall include precautions necessary to eliminate or minimize hazards that may be present from protective coatings or residues from cargoes.

(2) When not in such a port or place, and a marine chemist or such person authorized by the Officer in Charge, Marine Inspection, is not reasonably available, the inspection shall be made by the senior officer present and a proper entry shall be made in the vessel's logbook.

(d) It shall be the responsibility of the senior officer present to secure copies of certificates issued by the certified marine chemist or such person authorized by the Officer in Charge, Marine Inspection. It shall be the responsibility of the senior officer present, insofar as the persons under his control are concerned, to maintain a safe condition on the vessel by full observance of all qualifications and requirements listed by the marine chemist in the certificate.


Subpart 71.65—Plan Approval

§ 71.65–1 General.

(a) The list of required plans is general in character, but includes all plans in §71.65–5 which normally show construction and safety features coming under the cognizance of the Coast Guard. In the case of a particular vessel, all of the plans enumerated may not be applicable, and it is intended that only those plans and specifications be submitted as will clearly show the vessel’s arrangement, construction and required equipment.

(b) In the list of required plans in §71.65–5 the items which must be approved by the American Bureau of Shipping for vessels classed by that organization are indicated by an asterisk. When prints bearing record of such approval by the American Bureau of Shipping are forwarded to the Coast Guard they will in general be accepted as satisfactory except insofar as the law or the Coast Guard regulations contain requirements which are not covered by the American Bureau of Shipping.

(c) Plans and specifications for cargo gear shall be approved by either a recognized classification society or the International Cargo Gear Bureau, Inc., whose home office is located at 321 West 44th Street, New York, NY 10036; on the Internet at http://www.icgb.com.

§ 71.65–5 Plans and specifications required for new construction.

(a) General. (1) Specifications.
(2) General Arrangement Plan of decks, holds, inner bottoms, etc., and including inboard and outboard profile.

(b) Hull structure. ¹
(1) *Inner Bottom Plating and Framing.
(2) *Midship Section.
(3) *Shell Plating and Framing.
(4) *Stem, Stern Frame, and Rudder.
(5) *Structural Deck Plans for Strength Decks.
(6) *Pillars and Girders.
(7) *Watertight and Oiltight Bulkheads.
(8) *Foundations for Main Machinery and Boilers.
(9) *Arrangement of Ports, Doors, and Airports in Shell Plating.
(10) *Hatch Coamings and Covers in Weather and Watertight Decks.
(11) *Details of Hinged Subdivision Watertight Doors and Operating Gear.
(12) *Scuppers and Drains Penetrating Shell Plating.
(13) *Arrangement of the cargo gear including a stress diagram. The principal details of the gear and the safe working load for each component part shall be shown.

(c) Subdivision and stability. Plans and calculations required by subchapter S of this chapter.

d) Fire control. (1) Fire control diagram showing location and type of all required fire-screen insulation, including main fire zone and subdivisions, stairway and elevator enclosures, control space enclosures, etc., and type of all doors in such subdivisions and enclosures.

(2) Comprehensive typical details of fire-screen insulation of both vertical and horizontal surfaces, including deck coverings where used, keyed by reference numbers to the “fire control diagram”.

¹The Asterisk (*) indicates items that are approved by the American Bureau of Shipping for vessels classed by it. Items approved the American Bureau of Shipping are generally accepted as satisfactory unless the law or Coast Guard regulations contain requirements that are not covered by the American Bureau of Shipping.

(3) Ventilation diagram including dampers and other fire control features.

(4) Alarm systems.

(5) Detecting systems.

(6) Extinguishing systems, including fire main, carbon dioxide, clean agent, foam, and sprinkling systems.

(7) Supervised Patrol Route.

e) Marine engineering. (1) For plans required for marine engineering equipment and systems, see subchapter F (Marine Engineering) of this chapter.

(2) [Reserved]

(f) Electrical engineering. (1) For plans required for electrical engineering equipment and systems, see subchapter J (Electrical Engineering) of this chapter.

(2) [Reserved]

g) Lifesaving equipment. (1) These plans are to show the location and arrangement of embarkation decks, all overboard discharges and projections in way of launching lifeboats, weights of lifeboats fully equipped and loaded, working loads of davits and winches, types and sizes of falls, the manufacturer’s name and identification for all equipment, and all other relevant and necessary information.

(i) Arrangement of lifeboats.

(ii) Arrangement of davits.

(iii) Location and stowage of liferafts and buoyant apparatus.

(2) [Reserved]

(h) Crew’s accommodations. (1) Arrangement plans showing accommodations, ventilation, escapes, hospital, and sanitary facilities for all crewmembers.

(2) [Reserved]

(i) Navigation bridge visibility. For vessels of 100 meters (328 feet) or more in length contracted for on or after September 7, 1990, a plan must be included which shows how visibility from the navigation bridge will meet the standards contained in §72.04–1 of this subchapter.

§ 71.65–10 Plans required for alterations of existing vessels.

(a) In the event of alterations involving the safety of the vessel, the applicable plans shall be submitted for approval covering the proposed work, except as modified by § 71.55–1(b). The general scope of the plans shall be as noted in § 71.65–5.

(b) [Reserved]

§ 71.65–15 Procedure for submittal of plans.

(a) As the relative location of shipyards, design offices, and Coast Guard offices vary throughout the country, no specific routing will be required in the submittal of plans. In general, one of the following procedures would apply, but in a particular case, if a more expeditious procedure can be used, there will be no objection to its adoption:

(1) The plans may be submitted to the Officer in Charge, Marine Inspection, in the district in which the vessel is to be built. This procedure will be most expeditious in the case of those offices where personnel and facilities are available for examination and approval of the plans locally.

(2) The plans may be submitted by visitors directly to the Commanding Officer, Marine Safety Center, U.S. Coast Guard, 4200 Wilson Boulevard Suite 400, Arlington, VA 22203, or transmitted by mail to: Commanding Officer (MSC), Attn: Marine Safety Center, U.S. Coast Guard Stop 7410, 4200 Wilson Boulevard Suite 400, Arlington, VA 22203–7410, in a written or electronic format. Information for submitting the VSP electronically can be found at http://www.uscg.mil/HQ/MSC. In this case, the plans will be returned directly to the submitter, with a copy of the action being forwarded to the interested Officer in Charge, Marine Inspection.

(3) In the case of classed vessels, upon specific request by the submitter, the American Bureau of Shipping will arrange to forward the necessary plans to the Coast Guard indicating its action thereon. In this case, the plans will be returned as noted in paragraph (a)(2) of this section.

(b) [Reserved]

§ 71.65–20 Number of plans required.

(a) Three copies of each plan are normally required so that one can be returned to the submitter. If the submitter desires additional approved plans, a suitable number should be submitted to permit the desired distribution.

(b) [Reserved]

Subpart 71.75—Certificates Under the International Convention for Safety of Life at Sea, 1974

§ 71.75–1 Application.

(a) The provisions of this subpart shall apply to all vessels on or certificated for an international voyage.

(b) [Reserved]

§ 71.75–5 Passenger Ship Safety Certificate.

(a) All vessels on or certificated for an international voyage are required to have a "SOLAS Passenger Ship Safety Certificate."

(b) All such vessels shall meet the requirements of this chapter for vessels on or certificated for an international voyage in addition to the applicable requirements of SOLAS.

§ 71.75–10 Exemption Certificate.

(a) A vessel may be exempted by the Commandant from complying with certain requirements of the Convention under his administration upon request
made in writing to him and transmitted via the Officer in Charge, Marine Inspection.

(b) When an exemption is granted to a vessel by the Commandant under and in accordance with the Convention, an Exemption Certificate describing such exemption shall be issued through the appropriate Officer in Charge, Marine Inspection, in addition to the Passenger Ship Safety Certificate.


§ 71.75–13 Safety Management Certificate.

All vessels to which 33 CFR part 96 applies 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.


§ 71.75–15 Posting of Convention certificates.

(a) The certificates described in this subpart, or certified copies thereof, when issued to a vessel shall be posted in a prominent and accessible place on the vessel.

(b) The certificate shall be carried in a manner similar to that described in §71.01–5 for a certificate of inspection.

§ 71.75–20 Duration of certificates.

(a) The certificates are issued for a period of not more than 12 months, with exception to a Safety Management Certificate which is issued for a period of not more than 60 months.

(b) An Exemption Certificate shall not be valid for longer than the period of the Passenger Ship Safety Certificate to which it refers.

(c) The Passenger Ship Safety Certificate may be withdrawn, revoked, or suspended at any time when it is determined the vessel is no longer in compliance with applicable requirements.

(See §2.01–70 of this chapter for procedures governing appeals.)

§ 72.01–10 Vessels using fuel having a flashpoint of 110 degrees F. or lower.

(a) Where liquid fuel having a flashpoint of 110 degrees F. or lower is carried for main or auxiliary machinery or for starting purposes, such machinery and fuel tanks shall be in separate vapor tight compartments separating each from the other and from the remainder of the vessel.

(b) [Reserved]
§ 72.01–15 Structural standards.
(a) In general, compliance with the standards established by the American Bureau of Shipping, see subpart 70.35 of this subchapter, will be considered satisfactory evidence of the structural efficiency of the vessel. However, in special cases, a detailed analysis of the entire structure or some integral part may be made by the Coast Guard to determine the structural requirements.
(b) [Reserved]

§ 72.01–20 Special consideration.
(a) Special consideration will be given to the structural requirements for vessels, such as small vessels or vessels of unusual design not contemplated by the standards established by the American Bureau of Shipping, see subpart 70.35 of this subchapter.
(b) [Reserved]

§ 72.01–25 Additional structural requirements.
(a) Vessels required by part 171 of this chapter to have subdivision bulkheads, double bottoms, etc. must comply with the following structural requirements:

(1) Each watertight subdivision bulkhead, whether transverse or longitudinal, shall be constructed in such a manner that it shall be capable of supporting, with a proper margin of resistance, the pressure due to the maximum head of water which it might have to sustain in the event of damage to the vessel, but at least the pressure due to a head of water up to the margin line. The construction of the bulkheads shall be to the satisfaction of the Commandant.

(2) Steps and recesses in subdivision bulkheads shall be watertight and as strong as the bulkhead at the place where each occurs. Decks, trunks, tunnels, duct keels, ventilators, etc., that are made watertight to maintain the subdivision requirements for a vessel shall be of the same strength as the bulkhead at the corresponding levels. The means used for making them watertight and the arrangements adopted for closing openings in them shall be to the satisfaction of the Commandant. Watertight ventilators and trunks shall be carried at least up to the bulkhead deck.

(3) Where frames or beams pass through a watertight bulkhead or deck, such bulkhead or deck shall be made structurally watertight without the use of wood, cement, or similar materials.

(4) Subdivision bulkheads, including steps, recesses, trunks, tunnels, ventilators, etc., which might form part of such bulkheads, shall be thoroughly examined and hose tested upon completion of construction. The water pressure for such tests shall be at least 30 p.s.i. Testing of main compartments by filling them with water is not compulsory.

(5) The forepeak, double bottoms (including duct keels), and inner skins shall be tested with water to a-head corresponding to the requirements of paragraph (a)(1) of this section upon completion of construction.

(6) The watertight space enclosing the stern tube shall be tested by filling with water to a-head up to the deepest subdivision load line.

(7) Tanks which are intended to hold liquids, and which form part of the subdivision of the vessel, shall be tested for tightness upon completion of construction with water to a-head up to the deepest subdivision load line or to a-head corresponding to % of the depth from the top of the keel to the margin line in way of the tanks, whichever is greater; but in no case shall the test-head be less than 3 feet above the top of the tank.

(8) The tests referred to in the preceding paragraphs (a) (5), (6), and (7) of this section are for the purpose of insuring that the subdivision structural arrangements are watertight and are not regarded as a test of the fitness of any compartment for the storage of oil, fuel or for other specific purposes for which a test of a superior character may be required depending upon the height to which the liquid has access in the tank or its connections.
(b) [Reserved]


§ 72.01–90 Vessels contracted for prior to November 19, 1952.

(a) Existing structure previously approved will be considered satisfactory
§ 72.04–1 Navigation bridge visibility

Each passenger vessel which is 100 meters (328 feet) or more in length and contracted for on or after September 7, 1990, must meet the following requirements:

(a) The field of vision from the navigation bridge, whether the vessel is in a laden or unladen condition, must be such that:

(1) From the conning position, the view of the sea surface is not obscured forward of the bow by more than the lesser of two ship lengths or 500 meters (1640 feet) from dead ahead to 10 degrees on either side of the vessel. Within this arc of visibility any blind sector caused by cargo, cargo gear, or other permanent obstruction must not exceed 5 degrees.

(2) From the conning position, the horizontal field of vision extends over an arc from at least 22.5 degrees abaft the beam on one side of the vessel, through dead ahead, to at least 22.5 degrees abaft the beam on the other side of the vessel. Blind sectors forward of the beam caused by cargo, cargo gear, or other permanent obstruction must not exceed 10 degrees each, nor total more than 20 degrees, including any blind sector within the arc of visibility described in paragraph (a)(1) of this section.

(3) From each bridge wing, the field of vision extends over an arc from at least 45 degrees on the opposite bow, through dead ahead, to at least dead astern.

(4) From the main steering position, the field of vision extends over an arc from dead ahead to at least 60 degrees on either side of the vessel.

(5) From each bridge wing, the respective side of the vessel is visible forward and aft.

(b) Windows fitted on the navigation bridge must be arranged so that:

(1) Framing between windows is kept to a minimum and is not installed immediately in front of any work station.

(2) Front windows are inclined from the vertical plane, top out, at an angle of not less than 10 degrees and not more than 25 degrees.

(3) The height of the lower edge of the front windows is limited to prevent any obstruction of the forward view previously described in this section.

(4) The height of the upper edge of the front windows allows a forward view of the horizon at the conning position, for a person with a height of eye of 1.8 meters (71 inches), when the vessel is at a forward pitch angle of 20 degrees.

(c) Polarized or tinted windows must not be fitted.

[CGD 85–099, 55 FR 32247, Aug. 8, 1990]
§ 72.05–1

Subpart 72.05—Structural Fire Protection

§ 72.05–1 Application.

(a) The provisions of this subpart apply to the following vessels:
   (1) All vessels of 100 gross tons or more.
   (2) All vessels with overnight accommodations for more than 150 passengers.
   (3) All vessels on an international voyage.

(b) The provisions of this subpart, with the exception of § 72.05–90, apply to all vessels noted in paragraph (a) of this section contracted for on or after May 26, 1965. Such vessels contracted for prior to May 26, 1965, must meet the requirements of § 72.05–90.

(c) Vessels meeting the structural fire protection requirements of SOLAS, Chapter II–2, Regulations 5, 6, 8, 9, and 11 (incorporated by reference, see § 72.01–2), when combined with the stair requirements in § 72.05–20 may be considered equivalent to the provisions of this subpart.

(d) Vessels regulated under subchapter K of this chapter which carry more than 600 passengers or with overnight accommodations for more than 49 passengers must also meet the requirements for stairways, ladders and elevators in § 72.05–20 (see 46 CFR 116.438(a)).

§ 72.05–5 Definitions.

NOTE: The parenthetical number after each space refers to the applicable column and row number in tables 72.05–10 (d) through (g).

(a) Safety areas will be considered as including the following spaces:
   (1) Control stations, i.e., spaces containing the emergency source of power, and those spaces in which a continuous watch is maintained and in which navigating, radio, or fire-control equipment is located. (1)
   (2) Passenger and crew stairway and elevator enclosures. (2)
   (3) Passenger and crew communicating corridors. (3)
   (4) Open decks and enclosed promenades in way of lifeboat embarkation or lowering positions. (4) (See also paragraph (1) of this section.)

(b) Accommodation spaces will be considered as including the following spaces:
   (1) Public spaces, such as halls, dining rooms, messrooms, lounges, cafes, and other similar spaces normally accessible during the voyage. (5) through (7) (Depending upon size and furnishings.)
   (2) Public sales rooms and similar spaces. (6) or (7) (Depending on size.)
   (3) Staterooms, including passenger and crew rooms, barber shops, beauty parlors, offices, dispensatories, etc. (5) or (6) (Depending on furnishings.)
   (4) Washrooms and toilet spaces, both public and private. (8)
   (5) Isolated lockers and small storerooms in accommodation areas. (6)
   (6) Isolated serving pantries, etc., in accommodation areas, with incombustible furnishings. (8)
   (7) Operating rooms. (8)
   (8) Small laundries containing only tubs and washing machines, with no facilities for drying other than small electric driers. (8)
   (9) Small cleaning gear lockers containing only slop sinks, and having no room for stowing materials other than a broom, mop, cleaning powder, soap, etc. (8)
   (10) Large cleaning gear lockers having considerable stowage space. (6) or (9)

(c) Service spaces will be considered as including the following spaces:
   (1) Motion picture projection rooms and film stowage rooms. (6) or (9)
   (2) Galley, main pantries, and storerooms, including alleyways and stairs, part of and for the exclusive use of such spaces. (9)
   (3) Diet kitchens. (6) or (9) (Depending on furnishings.)
   (4) Work shops (not part of machinery spaces, galleys, etc.), large laundries, drying rooms, mail and baggage rooms, etc. (9)
   (5) Garbage disposal and stowage rooms, and trash stowage rooms. (9)
   (6) Paint and lamp rooms, and similar spaces containing highly combustible materials. (9)
   (d) Machinery spaces—will be considered as including the following spaces:
   (1) Main machinery spaces, including trunks and casings, alleyways, gratings, and stairways, part of and for the exclusive use of the machinery equipment. (9)
the exclusive use of these spaces, auxiliary machinery spaces containing internal combustion machinery or other oil burning, heating, or pumping units, and fuel oil filling stations. (10)

(2) Auxiliary machinery spaces containing only pumps, tanks, electrical machinery, ventilation or air conditioning equipment, resistors, steering machinery, stabilizer machinery, etc. (12) (Where such spaces contain considerable stowage space for combustibles.) (10)

(e) Cargo spaces will be considered as including the following spaces:

(1) Cargo holds, lockers, and trunks, both accessible and inaccessible and including refrigerated cargo spaces and cargo oil tanks intended for the alternate carriage of dry cargo. (11)

(2) Cargo oil tanks if not intended for the alternate carriage of dry cargo. (12)

(f) Miscellaneous spaces will be considered as including the following spaces:

(1) Fuel and water tanks and voids. (12)

(2) Open decks and enclosed promenades except in way of lifeboat embarkation and lowering positions. (13) (See also paragraph (1) of this section.)

(3) Shaft alleys when separated from machinery spaces, and containing no space assigned for the stowage of combustibles. (12)

(g) A standard fire test is one which develops in the test furnace a series of time-temperature relationships as follows:

<table>
<thead>
<tr>
<th>Time (minutes)</th>
<th>Temperature (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1,000</td>
</tr>
<tr>
<td>10</td>
<td>1,300</td>
</tr>
<tr>
<td>30</td>
<td>1,550</td>
</tr>
<tr>
<td>60</td>
<td>1,700</td>
</tr>
</tbody>
</table>

(h) Main vertical zones are those sections, the mean length of which does not, in general, exceed 131 feet on any one deck, into which the hull, superstructure, and deckhouses are required to be divided by fire-resisting bulkheads.

(i) Where the term steel or other equivalent metal is used in this part, it is intended to require a material which, by itself or due to insulation provided, has structural and integrity qualities equivalent to steel at the end of the applicable fire exposure.

(j) Working spaces will be considered as only those service and machinery spaces where personnel are normally employed as contrasted to those where personnel may occasionally visit or be employed for short periods of time.

(k) Passenger or crew corridors over 8 feet in width will be considered as public spaces for the purpose of this subpart.

(l) Spaces which might be considered as open decks due to the presence of permanent openings to the weather in one or more sides, or where any or all sides may be completely open to the weather, will be considered as interior or enclosed spaces for the purpose of this subpart if any spot on the overhead is more than 15 feet from the nearest opening to the weather. This requirement shall only apply to those portions of the space as are under a deck or canopy, but it shall not be considered as a restriction against permanent opening or a restriction against the materials used for a canopy. This paragraph shall not apply to open or enclosed promenades having a nominal width of 15 feet or less.

(m) Where balconies are installed opening into a space, the following general requirements shall be met:

(1) For the purpose of meeting main vertical zone bulkhead spacing, the length of the space to which the balcony is open will be considered as being increased by an amount equal to the gross area of the balcony divided by the average width of the space.

(2) Where balconies are formed by penetrating one or more decks, the bulkheads in the upper portion of the space are, in effect, part of a stepped or recessed deck and should be treated as such for fire control purposes. In this regard, particular attention should be given to the protection of openings with proper doors of the type indicated in §72.05–25(b)(9).

(3) Two means of escape shall be provided for each balcony, at least one of which shall be independent of the space to which the balcony is open.

§72.05–10 Type, location, and construction of fire control bulkheads and decks.

(a) The hull, structural bulkheads, decks, and deckhouses shall be constructed of steel or other equivalent metal construction of appropriate scantlings.

35
(b) The hull, superstructure, and deck houses shall be subdivided by suitable structural steel or other equivalent metal bulkheads into main vertical zones, the mean length of which shall not, in general, exceed 131 feet on any one deck. Where practicable, the main vertical zone bulkheads shall be kept in a single vertical plane. However, on vessels designed for special purposes, such as automobile or railroad car ferries, where the installation of such bulkheads would defeat the purpose for which the vessel is intended, equivalent means for controlling and limiting a fire may be substituted if specifically approved by the Commandant.

(c) All bulkheads and decks shall be classed as A–60, A–30, A–15, A–0, B–15, B–0, or C, depending upon the type of space on each side of the bulkhead or above and below the deck.

(1) Bulkheads or decks of the “A” Class shall be composed of steel or equivalent metal construction, suitably stiffened and made intact with the main structure of the vessel, such as shell, structural bulkheads, and decks. They shall be so constructed that, if subjected to the standard fire test, they would be capable of preventing the passage of smoke and flame for 1 hour. In addition, they shall be so insulated with approved structural insulation, bulkhead panels, or deck covering that the average temperatures on the unexposed side would not rise more than 250 °F. above the original temperature, nor would the temperature at any one point, including any joint, rise more than 405 °F. above the original temperature within the time listed below:

<table>
<thead>
<tr>
<th>Class</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>A–60</td>
<td>60 minutes</td>
</tr>
<tr>
<td>A–30</td>
<td>30 minutes</td>
</tr>
<tr>
<td>A–15</td>
<td>15 minutes</td>
</tr>
<tr>
<td>A–0</td>
<td>0 minutes (i.e., no insulation requirements)</td>
</tr>
</tbody>
</table>

(2) Bulkheads of the “B” Class shall be constructed with approved incombustible materials and made intact from deck to deck (or to ceiling as provided in paragraph (h) of this section) and to shell or other boundaries. They shall be so constructed that, if subjected to the standard fire test, they would be capable of preventing the passage of flame for ½ hour. In addition, their insulation value shall be such that the average temperature of the unexposed side would not rise more than 250 °F. above the original temperature, nor would the temperature at any one point, including any joint, rise more than 405 °F. above the original temperature within the time listed below:

<table>
<thead>
<tr>
<th>Class</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>B–15</td>
<td>15 minutes</td>
</tr>
<tr>
<td>B–0</td>
<td>0 minutes (i.e., no insulation requirements)</td>
</tr>
</tbody>
</table>

(3) Class C bulkheads or decks shall be constructed of approved incombustible materials, but need meet no requirements relative to the passage of flame nor the limiting of temperature rise.

(d) The minimum requirements for the bulkheads between the various spaces, where such bulkheads form the boundaries of main vertical zones, shall be as noted in table 72.05–10(d).

(e) The minimum requirements for the bulkheads between the various spaces, where such bulkheads do not form the boundaries of main vertical zones, shall be as noted in table 72.05–10(e).

(f) The minimum requirements for the decks between the various spaces, where such decks form the boundaries of stepped main vertical zones, shall be as noted in table 72.05–10(f).

(g) The minimum requirements for the decks between the various spaces, where such decks do not form the boundaries of stepped main vertical zones, shall be as noted in table 72.05–10(g).
### TABLE 72.05–10(d)—BULKHEADS—MAIN VERTICAL ZONE

<table>
<thead>
<tr>
<th>ADJACENT TO</th>
<th>THIS SPACE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control stations</td>
<td>Stairway and elevator enclosures</td>
</tr>
<tr>
<td>Corridors</td>
<td>Lifeboat embarkation or lowering stations</td>
</tr>
<tr>
<td>Lifeboat embarkation or lowering stations</td>
<td>State-rooms and all public spaces with incombustible veneers and trim and fire resistant furnishings</td>
</tr>
<tr>
<td>State-rooms and all public spaces with incombustible veneers and trim and fire resistant furnishings</td>
<td>Public spaces over 500 square feet with combustible furnishings and isolated pantries</td>
</tr>
<tr>
<td>Public spaces over 500 square feet with combustible furnishings and isolated pantries</td>
<td>Wash-rooms toilet spaces, and isolated pantries with combustible furnishings</td>
</tr>
<tr>
<td>Wash-rooms toilet spaces, and isolated pantries with combustible furnishings</td>
<td>Galley, main pantries, store-rooms, and workshops</td>
</tr>
<tr>
<td>Galley, main pantries, store-rooms, and workshops</td>
<td>Dry cargo spaces</td>
</tr>
<tr>
<td>Dry cargo spaces</td>
<td>Fuel and water tanks and voids</td>
</tr>
<tr>
<td>Fuel and water tanks and voids</td>
<td>Open decks and enclosed promenades (not safety areas)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stairway and elevator enclosures</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
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<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
</tr>
<tr>
<td>Corridors</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
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<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
</tr>
<tr>
<td>Lifeboat embarkation or lowering stations</td>
<td>C</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>C</td>
</tr>
<tr>
<td>State-rooms and all public spaces with incombustible veneers and trim and fire resistant furnishings</td>
<td>A-15</td>
<td>A-15</td>
<td>A-0</td>
<td>A-30</td>
<td>A-30</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
</tr>
<tr>
<td>State-rooms and public spaces of 500 square feet or less with combustible furnishings, and isolated storerooms</td>
<td>A-60</td>
<td>A-60</td>
<td>A-0</td>
<td>A-60</td>
<td>A-60</td>
<td>A-0</td>
<td>A-60</td>
<td>A-0</td>
<td>A-60</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
</tr>
<tr>
<td>Public spaces over 500 square feet with combustible furnishings and isolated pantries</td>
<td>A-60</td>
<td>A-60</td>
<td>A-0</td>
<td>A-60</td>
<td>A-60</td>
<td>A-0</td>
<td>A-60</td>
<td>A-0</td>
<td>A-60</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
</tr>
<tr>
<td>Washrooms, toilet spaces, and isolated pantries with incombustible fittings</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
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<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
</tr>
<tr>
<td>Galleys, main pantries, store-rooms, and workshops</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
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<td>A-0</td>
<td>A-0</td>
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</tr>
<tr>
<td>Machinery spaces</td>
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<td>A-0</td>
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<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>C</td>
</tr>
<tr>
<td>Dry cargo spaces</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
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<td>A-0</td>
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<td>A-0</td>
</tr>
<tr>
<td>Fuel and water tanks and voids</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
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<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
</tr>
<tr>
<td>Open decks and enclosed promenades (not safety areas)</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
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</tr>
<tr>
<td>ADJACENT TO</td>
<td>Control stations</td>
<td>Stairway and elevator enclosures</td>
<td>Corridors</td>
<td>Life boat embarkation or lowering stations</td>
<td>State-rooms and all public spaces with incombustible veneers and trim and fire resistant furnishings</td>
<td>State-rooms and public spaces of 500 square feet or less with combustible furnishings and isolated storerooms</td>
<td>Public spaces over 500 square feet with combustible furnishings</td>
<td>Wash-room spaces, and isolated pantries with combustible fittings</td>
<td>Galley, main pantries, store-rooms, and workshops</td>
<td>Machinery spaces</td>
<td>Dry cargo spaces</td>
<td>Fuel and water tanks and voids</td>
</tr>
<tr>
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<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Control stations</td>
<td>1 B-0 A-0 A-0 A-0 A-0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Stairway and elevator enclosures</td>
<td>2</td>
<td>C A-0 A-0 A-0</td>
<td>B-0 A-0 A-0</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Corridors</td>
<td>3</td>
<td></td>
<td>C A-0 B-0</td>
<td>B-0</td>
<td>A-0</td>
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<td>B-0</td>
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</tr>
<tr>
<td>Life boat embarkation or lowering stations</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>State-rooms and all public spaces with incombustible veneers and trim and fire resistant furnishings</td>
<td>5</td>
<td></td>
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<tr>
<td>Public spaces over 500 square feet with combustible furnishings</td>
<td>7</td>
<td></td>
<td></td>
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<td></td>
<td>B-15</td>
<td>A-30 B-0</td>
<td>A-60</td>
<td>A-60</td>
<td>A-60</td>
<td>A-0</td>
<td>A-0</td>
</tr>
<tr>
<td>Washrooms, toilet spaces and isolated pantries with incombustible fittings</td>
<td>8</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Galley, main pantries, store-rooms, and workshops</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Dry cargo spaces</td>
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<tr>
<td>Fuel and water tanks and voids</td>
<td>12</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Open decks and enclosed promenades (not safety areas)</td>
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</tr>
</tbody>
</table>

1 Class C bulkheads may be used between two similar spaces, such as between two similar storerooms. However, a Class A-0 bulkhead shall be used between dissimilar spaces, such as a storeroom and a dissimilar workshop.
Table 72.05–10(f)—Decks—Main Vertical Zones

<table>
<thead>
<tr>
<th>THIS SPACE:</th>
<th>THIS SPACE:</th>
<th>ADJACENT TO</th>
<th>THIS SPACE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control stations</td>
<td>Stairway and elevator enclosures</td>
<td>Corridors</td>
<td>Lifeboat embarkation or lowering stations</td>
</tr>
<tr>
<td>Control stations</td>
<td>Stairway and elevator enclosures</td>
<td>Corridors</td>
<td>Lifeboat embarkation or lowering stations</td>
</tr>
<tr>
<td>Control stations</td>
<td>Stairway and elevator enclosures</td>
<td>Corridors</td>
<td>Lifeboat embarkation or lowering stations</td>
</tr>
<tr>
<td>1</td>
<td>A-60</td>
<td>A-60</td>
<td>A-30</td>
</tr>
<tr>
<td>2</td>
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<tr>
<td>3</td>
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<td>7</td>
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<td>8</td>
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<tr>
<td>13</td>
<td>A-0</td>
<td>A-0</td>
<td>A-0</td>
</tr>
</tbody>
</table>
### Table 72.05–10(g)—Decks—Not Main Vertical Zones

| ADJACENT TO                          |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |
|--------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Control stations                     | Stairway and elevator enclosures | Corridors           | Lifeboat embarkation or lowering stations | State-rooms and all public spaces with incombustible veneers and trim and fire resistant furnishings | State-rooms and public spaces of 500 square feet or less with combustible furnishings and isolated storerooms | Public spaces over 500 square feet with combustible furnishings | Washrooms, toilet spaces, and isolated compartments with combustible fittings | Galley, main pantries, storerooms, and workshops | Machinery spaces | Dry cargo spaces | Fuel and water tanks and voids | Open decks and enclosed promenades (not safety areas) |
| Control stations                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |
| Stairway and elevator enclosures     | 2                   | C                   | 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                |
| Corridors                            | 3                   | A-15                | A-0                 | A-0                | A-0                | A-15                | A-0                | A-0                | A-0                | A-0                | A-0                | A-0                | A-0                | A-0                | A-0                |
| Lifeboat embarkation or lowering stations |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |
| State-rooms and all public spaces with incombustible veneers and trim and fire resistant furnishings | 4                   | A-0                 | A-0                 | A-0                 | C                   | A-0                 | A-0                | A-0                | A-0                | A-0                | A-0                | A-0                | A-0                | A-0                | A-0                |
| State-rooms and public spaces of 500 square feet or less with combustible furnishings and isolated storerooms | 5                   | A-15                | A-15                | A-0                 | A-0                | A-0                 | A-15                | A-0                | A-0                | A-0                | A-0                | A-0                | A-0                | A-0                |
| Public spaces over 500 square feet with combustible furnishings | 6                   | A-60                | A-60                | A-30                | A-15                | A-30                | A-60                | A-60                | A-0                | A-0                | A-0                | A-0                | A-0                | A-0                |
| Washrooms, toilet spaces, and isolated compartments with combustible fittings | 7                   | 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                |
| Galley, main pantries, storerooms, and workshops | 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                |
| Machinery spaces                     | 9                   | 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                |
| Dry cargo spaces                     | 10                  | A-60                | A-60                | A-60                | A-30                | A-15                | A-60                | A-60                | A-0                | A-0                | A-0                | C                   | A-0                | A-0                | A-0                |
| Fuel and water tanks and voids       | 11                  | 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                | A-0                |
| Open decks and enclosed promenades (not safety areas) | 12                  | 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                | C                   |
| Table 72.05–10(g)—Decks—Not Main Vertical Zones |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |
§ 72.05–15 Ceilings, linings, trim, and decorations in accommodation spaces and safety areas.

(a) Ceilings and linings and any furring incidental to their erection shall be of approved incombustible materials. Where such ceilings or linings are given credit for their insulating value in obtaining a bulkhead or deck classification they shall be of Class B–15 bulkhead panel material, and the construction shall be as required by § 72.05–10(j).

(b) Bulkheads, linings, and ceilings may have a combustible veneer within a room not to exceed $\frac{2}{5}$ of an inch in thickness. However, combustible veneers shall not be used in passageways or stairway enclosures, or in spaces specifically restricted by tables 72.05–10(d) through (g).

(c) The total volume of combustible face trim, moldings, and decorations, including veneers, in any compartment shall not exceed a volume equivalent to $\frac{1}{3}$ inch veneer on the combined area of the walls of the compartment. Such trim, molding, or decorations shall not perform any structural function, and shall not be used in corridors or stairway enclosures.

(d) Combustible veneers, trim, decorations, etc., shall not be used in or extend into hidden spaces such as behind

(h) Where ceilings or linings are fitted, “B” Class bulkheads, with the exception of those forming passageways, may stop at the ceiling or lining and need not continue to the deck or shell, provided the ceiling and/or lining is erected as indicated in paragraph (j) of this section. However, draft stops meeting at least Class B–0 requirements shall be fitted not more than 45 feet apart between the ceiling or lining and the deck or shell. The space behind the linings of stairways and similar trunks shall have similar draft stops at each deck.

(i) Where Class B–15 bulkhead panels are required to go beyond the ceiling to the deck above, or beyond the lining to the shell, the portion of the bulkhead panel within the void space need only meet B–0 requirements.

(j) Where “B” Class panels are used, all four edges of the panel shall be retained by continuous steel or equivalent metal flanges on both sides of the panel offering at least $\frac{3}{4}$ inch coverage. The top and bottom flanges shall be so attached to the structural decks above and below so as to support and restrain the panels in the event of fire. Other methods of construction may be specifically approved by the Commandant if determined to be equivalent.

(k) Any sheathing, furring, or holding pieces incidental to the securing of structural insulation shall be of approved incombustible materials.

(l) 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 Class A–0 requirements.

(m) Decks within accommodation spaces and inside safety areas may have an overlay for leveling or finishing purposes which need not meet the requirements for an approved deck covering. Such an overlay will not be considered as giving any insulating value and may not in general exceed $\frac{3}{4}$ of an inch in thickness. Greater thicknesses may be specifically approved by the Commandant for specific locations.

(n) Rugs and carpets may be used in addition to any deck covering or overlay installed. Rugs and carpets used in stairways or corridors shall be of wool, or other materials having equivalent fire-resistive qualities.
§ 72.05–20  Stairways, ladders, and elevators.

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

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

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

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

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

(2) [Reserved]

(c) Deck penetrations shall meet the following requirements:

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

(2) Where only two decks are served by a stairway or elevator, the integrity of the deck involved may be assured as noted in the preceding paragraph. Alternatively, the integrity may be maintained at one level only by means of bulkheads and by doors meeting the requirements of § 72.05–25(b)(9). If the latter method is used, it should be noted that the integrity of a deck is involved, and accordingly, the bulkhead classifications should be selected from tables 72.05–10(f) or 72.05–10(g), the spaces above or below being assumed to extend to the bulkheads and doors.

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

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

Type 1—Main Vertical Zone enclosed stair towers.

Type 2—Enclosed stairways other than Type 1.

Type 3—Interior stairway not enclosed.

Type 4—Exterior stairways or exterior inclined ladders.

(e) Each Main Vertical Zone shall be served by at least one Type 1 stairway, so that independent of adjoining Main Vertical Zones, escape may be effected from any accommodation space or any other space where persons may be normally quartered or employed, to ALL other decks having any such spaces within the same Main Vertical Zone without coming out of the stair tower enclosure. Each Type 1 stairway shall give access to the Embarkation Deck or, if the Embarkation Deck does not extend to the portion of the vessel in question, to at least one weather deck from which convenient communication to the Embarkation Deck is provided by means of Type 4 stairways. In cases where a Type 1 stairway is accessible from two Main Vertical Zones, it may be considered as the required Type 1 stairway for both zones provided all boundaries of the stairway meet Main Vertical Zone requirements.

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

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

(h) In general, curved, spiral, or winding stairways will not be permitted. Relaxation from this requirement may be permitted, provided, in the opinion of the Commandant, the
proposed stairway is equivalent with respect to safety and dimensions to the stairways covered by this section.

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

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

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

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

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

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

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

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

<table>
<thead>
<tr>
<th>Type of stairway</th>
<th>Primary use</th>
<th>Maximum angle of inclination (degrees)</th>
<th>Minimum stair tread width, in inches, based upon number of persons served by the stairway—Number of persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ...............</td>
<td>Passenger or crew ....................</td>
<td>40</td>
<td>28 30 32 34 36 40 44</td>
</tr>
<tr>
<td>2 or 3 ..........</td>
<td>Passenger ..........................</td>
<td>40</td>
<td>28 30 32 34 36 36 36</td>
</tr>
<tr>
<td>2 or 3 ..........</td>
<td>Crew ................................</td>
<td>55</td>
<td>28 30 30 30 30 30 30</td>
</tr>
<tr>
<td>4 ...............</td>
<td>Passenger or embarkation route.</td>
<td>45</td>
<td>28 30 30 30 30 30 30</td>
</tr>
<tr>
<td>4 ...............</td>
<td>Crew ................................</td>
<td>55</td>
<td>24 24 24 24 24 24 24</td>
</tr>
</tbody>
</table>

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

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

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

(i) Passenger staterooms—designed capacity.

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

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

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

(v) Working spaces—normal operating capacity.

(4) Type 1 stairways shall be dimensioned on a deck-by-deck basis as described in the previous subparagraphs. In determining the number of persons using a Type 1 stairway, all persons within the Main Vertical Zone or Zones
in question are assumed to be using Type 1 stairways. No consideration is given to any Type 2 or 3 stairways that may be available. If more than one Type 1 stairway serves a particular Main Vertical Zone, the persons shall be distributed between the stairways dependent upon the arrangements, and the stairways shall be dimensioned accordingly. If in the normal operation of the vessel, a Type 1 stairway is intended for a greater number of persons than given by the foregoing, the larger number shall be used.

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

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

(1) Any interruption of the slope or change of direction of the stairway shall be accomplished by means of an intermediate landing of rectangular or nearly rectangular shape based on the actual dimensions of the stairs landing thereon.

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

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

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

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

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

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

<table>
<thead>
<tr>
<th>Type of stairway</th>
<th>Primary use</th>
<th>Minimum clear opening, in inches, of doors to stairways based on number of persons served by doors—Number of persons (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Passenger or crew</td>
<td>28 30 32 34 36 36 0.75N</td>
</tr>
<tr>
<td>2 or 3</td>
<td>Passenger</td>
<td>28 30 32 34 36 36 0.75N</td>
</tr>
<tr>
<td>2 or 3</td>
<td>Crew</td>
<td>28 30 30 30 30 30 0.75N</td>
</tr>
</tbody>
</table>

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

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

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

(3) On the Embarkation Deck, each Type 1 stairway shall provide at least 44 inches of exit door width to each side of the vessel. Exit may be provided directly to the weather or indirectly by passageways and/or corridors which lead to the weather.

§ 72.05–25 Doors, other than watertight.

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

(1) All doors shall be capable of operation from either side by 1 person.
(2) In public spaces, stairway enclosures, corridors, etc., all doors shall open in the direction of escape where practicable.

(3) If it is desired to use decorative doors in addition to those required, they shall be constructed of approved incombustible materials and shall not interfere with the normal operation of the required doors, and shall open in the same direction if the required doors are in a main avenue of escape.

(4) For the purpose of this subpart, all glass permitted in doors shall be at least 1/4-inch thick. However, greater thickness may be required for strength purposes in certain locations. Except for hardwood doors permitted by paragraph (b)(8) of this section, all glass shall be fitted in steel or equivalent metal frames and shall be retained by steel or equivalent metal glazing beads or angles.

(5) Where wire-inserted glass is required, and the single wire type is employed, the strands shall run horizontally and shall be not more than 2 inches apart.

(6) Where hose ports are fitted, they shall be cut in the lower corner of the door on the side opposite the hinge so that if the hose is passed through the doorway when the door is open, it may be closed over the hose. The cut for the hose port should be approximately 6 inches square. A hinged or pivoted steel or equivalent metal cover shall be fitted in the cut, equipped with a bullet catch or similar method of fastening which will permit easy and automatic operation of the hinged cover.

(7) Combustible veneers may be used in doors where permitted for, and subject to the same conditions as, the bulkheads in which the doors are hung.

(8) The locking of doors may be permitted, except as noted in §72.10–20.

(b) Doors in “A” Class bulkheads shall meet the following requirements:

(1) Doors in bulkheads required to be Class A–60, A–30, or A–15 shall be of hollow steel or equivalent metal construction solidly filled with approved structural insulation capable of meeting the requirements for a Class A–15 bulkhead.

(2) Doors in bulkheads required to be Class A–0 shall be of solid or hollow steel or equivalent metal construction capable of meeting the requirements of a Class A–0 bulkhead.

(3) Doors shall have a latch with a minimum throw of ¾ inch which can be operated from either side of the door. Double swing doors, where permitted for the proper utility of the space, may have the latch normally inoperative.

(4) Except as noted in paragraph (b)(8) of this section, doors may be fitted with not more than 100 square inches of glass, which shall be of the wire inserted type.

(5) Vent grilles or louvers shall not be used in doors of this type.

(6) The bottoms of doors may be undercut not to exceed ½ inch above the door sill or top of approved deck covering. Rugs, and carpets, shall not pass through doorways, but linoleum and similar coverings may do so.

(7) Door frames shall be of rigid construction, and shall provide at least a ¼ inch door stop at the sides and top, except:

(i) Double doors capable of independent operation and latching may have a clearance between the doors not to exceed ½ inch. However, if one door must always be closed first, a doorstop of at least ¼ inch shall be provided for the second door.

(ii) Double swing doors, where permitted, may have a maximum clearance of ½ inch at the tops and sides.

(8) Doors opening out onto open decks shall either meet the applicable requirements of this paragraph, or they may be of hardwood having a minimum thickness of 1¾ inches. In any case, no restriction as to the area of glass will be made for such doors insofar as this subpart is concerned. Only glass of the wire-inserted type may be fitted in such doors opening onto safety areas from accommodation spaces containing combustible type furniture and service, cargo, and machinery spaces.

(9) Doors in stairway enclosures and Main Vertical Zone bulkheads shall, in addition to meeting the requirements of this paragraph, also meet the following requirements:

(i) Doors, other than those which are normally locked, such as from state-rooms, fan rooms, lockers, etc., shall be of the self-closing type capable of closing against a 3½ degree list, and
§ 72.05–30

such doors shall be numbered in accordance with § 78.47–35 of this subchapter.

(ii) All doors, except those that are kept normally closed, shall be of a type which are capable of release from the control station and from a position at the door. The release mechanism shall be so designed that the door will automatically close in the event of disruption to the control system; however, approved power operated watertight doors will be considered acceptable for this purpose. Holdback hooks, or other means of permanently holding the door open, not subject to control station release, will not be permitted. When double swing doors are permitted, they shall have a latch arrangement which is automatically engaged by the operation of the door release system.

(iii) Double doors shall be so arranged that either door may be closed and latched independently.

(iv) For additional requirements for stairway doors, see § 72.05–20(s).

(c) Doors in “B” Class bulkheads shall meet the following requirements:

(1) Doors may be of solid or hollow steel or equivalent metal construction or may be of steel or equivalent metal frame with glass panes or may be of approved incombustible materials of such construction as specifically approved by the Commandant.

(2) No restriction as to the area of glass will be made for such doors, but all glass shall be of the wire-inserted type.

(3) The lower half of such doors may contain vent grilles or louvers with a net area not to exceed 2 square feet.

(4) Doors shall have a latch with a minimum throw of 3⁄8 inch which can be operated from either side of the door. Double swing doors, where permitted for the proper utility of the space, may have the latch normally inoperative.

(5) The bottoms of doors may be undercut not to exceed 1 inch above the door sill or top of approved deck covering. Rugs and carpets shall not pass through doorways but linoleum and similar covering may do so.

(6) Door frames shall be of rigid construction, and shall provide at least a 1⁄2 inch doorstop at the sides and top, except:

(i) Double doors capable of independent operation and latching may have a clearance between the doors not to exceed 1⁄8 inch. However, if one door must always be closed first, a door stop of at least 1⁄2 inch shall be provided for the second door.

(ii) Double swing doors, where permitted, may have a maximum clearance of 1⁄8 inch at the tops and sides.

(d) Doors in bulkheads required to be Class C shall be of approved incombustible materials.

§ 72.05–30 Windows and airports.

(a) For the purpose of this subpart, all glass in windows or airports shall be at least 1⁄4 inch thick. However, greater thickness may be required for strength purposes in certain locations. All glass shall be fitted in steel or equivalent metal frames and shall be retained by steel or equivalent metal glazing beads or angles.

(b) Where wire-inserted glass is required, and the single wire type is employed, the strands shall run horizontally and shall be not more than 2 inches apart.

(c) Windows in Class B–0 bulkheads shall be fitted with wire inserted glass. Such windows opening onto passageways may not extend below the normal height of the storm rails.

(d) Windows in Class B–15 bulkheads shall be fitted with wire inserted glass. In addition, such windows shall be fitted with a suitable steel or equivalent metal shutter capable of being operated manually as well as automatically by means of a fusible link.

(e) Windows in interior “A” Class bulkheads shall be fitted with suitable steel or equivalent metal shutter capable of being operated manually as well as automatically from the control station by the same system used for the fire doors as noted in § 72.05–25(b)(9)(ii). The metal shutter shall be insulated to meet the applicable bulkhead requirements.

(f) Windows or airports opening onto lifeboat embarkation or lowering spaces from service, cargo, or machinery spaces, or from control or accommodation spaces other than those containing only incombustible veneers and trim and fire resistant furnishings, shall be fitted with wire inserted glass.
§ 72.05–50 Ventilation.

(a) Where the term duct is used in this section, it shall include trunks, plenums, and any other type of ventilation piping, chambers, or duct work.

(b) Where automatic fire dampers are required, they shall be designed to operate at approximately 165 degrees F. for normal locations, and approximately 212 degrees F. for locations such as galleys. The dampers shall be so designed as to close against the anticipated draft in the duct. The damper shall be made accessible for periodic inspection by means of a hinged or bolted plate in the duct. The damper and the portion of duct containing the damper shall be constructed of at least \( \frac{1}{8} \) inch steel plate suitably stiffened. No insulation need be applied to the damper blade.

(c) Where ventilation ducts are required to meet bulkhead requirements, the space within the duct shall be considered to be the same as the space served by the ventilator, and the duct shall be insulated to meet the applicable requirements of tables 72.05–10(d) and 72.05–10(e).

(d) All ventilation systems shall be designed, where practicable, so that all ducts leading to the various enclosures are kept within the main vertical zones. No duct may serve spaces in more than one main vertical zone.

(e) Where of necessity, ducts pass through main vertical zone bulkheads, automatic fire dampers shall be fitted adjacent to the bulkhead. The duct between the bulkhead and the damper shall meet the applicable bulkhead requirements. The damper shall be fitted on at least one side of the bulkhead with a visible indicator showing whether the damper is in the open or closed position. The indicator may be connected to the manual operating device rather than the damper blade so that it might show as being open when it had automatically closed, but could never be open if the indicator showed it to be closed. The damper shall be capable of being manually closed from both sides of the bulkhead. The operating positions for the damper shall be marked as required by §78.47–53 of this subchapter.

(f) Vent ducts serving stairway enclosures shall serve no other spaces.

(g) Ventilation ducts serving cargo or main machinery spaces which pass through accommodation spaces or safety areas shall be fitted with an automatic fire damper adjacent to the point of entry. Between the bulkhead or deck and the damper, and in addition, on vertical ducts for a distance of...
§ 72.05–55 Furniture and furnishings.
(a) For the purpose of this subpart, rooms containing “fire resistant furnishings” will be considered to be those in which:
(1) All case furniture such as desks, wardrobes, dressing tables, bureaus, dressers, etc., shall be constructed entirely of approved incombustible materials; except that a combustible veneer not exceeding ¼ inch may be used on the top surface of such articles.
(2) All free standing furniture such as chairs, sofas, tables, etc., shall be constructed with frames of approved incombustible materials.
(3) All draperies shall be of approved fire resistant fabrics.
(4) All rugs and carpets shall be of wool or other material having equivalent fire resistant qualities.
(b) Waste paper baskets shall be constructed of approved incombustible materials with solid sides and bottoms.
(c) Passageways and stairway enclosures shall contain only fire resistant furnishings. In addition, all upholstery and padding of chairs, sofas, etc., in these areas, shall be of approved fire resistant materials.

§ 72.05–90 Vessels contracted for prior to May 26, 1965.
(a) Vessels of 100 gross tons and over, contracted for prior to May 26, 1965, on an international voyage; and vessels of 100 gross tons and over, contracted for on or after May 28, 1936, and prior to May 26, 1965, not on an international voyage; shall meet the following requirements:
(1) Existing structure, arrangements, and materials previously approved will be considered satisfactory so long as they meet the minimum requirements of this paragraph and are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original construction.
(2) The details shall be in general agreement with §§ 72.05–5 through 72.05–60.
(b) Vessels of 100 gross tons and over, contracted for prior to May 28, 1936, not on an international voyage, shall meet the following requirements:
(1) Existing structure, arrangements, and materials previously approved will be considered satisfactory so long as they meet the minimum requirements of this paragraph and are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original construction.
(2) All vessels in ocean or coastwise service shall be fitted above the bulkhead deck with fire-resisting bulkheads and doors spaced not more than 131 feet apart which are capable of resisting the passage of flame for a period of at least 1 hour.
(3) All vessels with berth or state-room accommodations for 50 or more passengers shall be fitted with an approved automatic sprinkling system unless deemed unnecessary by the Commandant. This system shall be so installed as to protect all enclosed parts of the vessel accessible to passengers or crew while the vessel is being navigated, except cargo holds, machinery spaces, and when of fire-resistant construction, toilets, bathrooms, and spaces of similar construction. Where, in the case of a particular vessel, the Commandant does not consider the installation of an automatic water-sprinkling system necessary, such vessel shall be protected in such enclosed parts of the vessel as the Commandant shall deem necessary, with an automatic electric or pneumatic fire-
detecting and alarm system, used singly or in combination, of a type approved by the Commandant.

c) Vessels of less than 100 gross tons, contracted for prior to May 26, 1965, which carry more than 150 passengers, shall meet the following requirements:

1) Existing structure, arrangements, and materials previously approved will be considered satisfactory so long as they meet the minimum requirements of this paragraph and are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original construction.

2) For such vessels, contracted for on or after November 19, 1952, and prior to May 26, 1965, on an international voyage, the details shall be in general agreement with §§72.05-5 through 72.05-66.

[CGFR 67-87, 32 FR 19180, Dec. 20, 1967]

Subpart 72.10—Means of Escape

§ 72.10–1 Application.

(a) The provisions of this subpart, with the exception of §72.10–90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of §72.10–90.

(b) [Reserved]

§ 72.10–5 Two means required.

(a) There shall be at least two means of escape from all general areas accessible to the passengers or where the crew may be quartered or normally employed. At least one of these two means of escape shall be independent of watertight doors. For stairway continuity and general requirements for stairways see §72.05–20.

(b) Elevators shall not be considered as one of the required means of escape.

(c) Stairways serving only a space and a balcony to a space shall not be considered as one of the required means of escape.


§ 72.10–10 Location.

(a) The two means of escape shall be as remote as practicable so as to minimize the possibility of one incident blocking both escapes.

(b) [Reserved]

§ 72.10–15 Vertical ladders not acceptable.

(a) Vertical ladders and deck scuttles shall not in general be considered satisfactory as one of the required means of escape. However, where it is demonstrated that the installation of a stairway would be impracticable, a vertical ladder may be used as the second means of escape.

(b) [Reserved]

§ 72.10–20 No means for locking door.

(a) No means shall be provided for locking doors giving access to either of the 2 required means of escape, except that crash doors or locking devices, capable of being easily forced in an emergency, may be employed provided a permanent and conspicuous notice to this effect is attached to both sides of the door. This paragraph shall not apply to outside doors to deckhouses where such doors are locked by key only and such key is under the control of one of the vessel’s officers.

(b) [Reserved]

§ 72.10–25 Stairway size.

(a) Stairways shall be of sufficient width to satisfactorily accommodate the number of persons having access to such stairs for escape purposes.

(b) [Reserved]

§ 72.10–30 Dead end corridors.

(a) Dead end corridors, or the equivalent, more than 40 feet in length shall not be permitted.

(b) [Reserved]

§ 72.10–35 Public spaces.

(a) In all cases, public spaces having a deck area of over 300 square feet shall have at least two exits. Where practicable, these exits shall give egress to different corridors, rooms, or spaces to minimize the possibility of one incident blocking both exits.

(b) [Reserved]
§ 72.10–40 Access to lifeboats.
(a) The stairways, corridors, and doors shall be so arranged as to permit a ready and direct access to the various lifeboat embarkation areas.
(b) [Reserved]

§ 72.10–45 Weather deck communications.
(a) Vertical communication shall be provided between the various weather decks by means of permanent inclined ladders. Where ladders are for the exclusive use of the crew for rapid communication, and do not form part of a normal escape route, vertical ladders may be employed.
(b) [Reserved]

§ 72.10–90 Vessels contracted for prior to November 19, 1952.
(a) Existing arrangements previously approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original design provided that in no case will a greater departure from the standards of §§72.10–5 through 72.10–45 be permitted than presently exists. Nothing in this paragraph shall be construed as exempting any vessel from having 2 suitable means of escape from all main compartments which are accessible to the passengers or where the crew are normally quartered or employed.
(b) [Reserved]

Subpart 72.15—Ventilation
§ 72.15–1 Application.
(a) The provisions of this subpart with the exception of §72.15–90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of §72.15–90.
(b) [Reserved]

§ 72.15–5 Structural fire protection.
See §72.05–50 for ventilation requirements pertaining to structural fire protection.

§ 72.15–10 Vessels using fuel having a flashpoint of 110 degrees F. or lower.
(a) Where liquid fuel having a flashpoint of 110 degrees F. or lower is used for main or auxiliary machinery or for starting purposes, the spaces containing such machinery or fuel tanks shall have natural supply and mechanical ventilation as required by this section.
(b) The requirements for the mechanical exhaust system shall be such as to assure the air changes as noted in table 72.15–10(b), depending upon the size of the space.

<table>
<thead>
<tr>
<th>Size of space, cubic feet</th>
<th>Minutes per air change</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>2</td>
</tr>
<tr>
<td>1,000</td>
<td>3</td>
</tr>
<tr>
<td>1,500</td>
<td>4</td>
</tr>
<tr>
<td>2,000</td>
<td>5</td>
</tr>
</tbody>
</table>

(c) Exhaust blower motors shall be outside of the ducts, and if mounted in any compartment required to be ventilated by this section, shall be of the explosion proof type. Blower blades shall be non-sparking with reference to their housings.
(d) Exhaust blower switches shall be located outside of any space required to be ventilated by this section, and shall be of the type interlocked with the ignition switch so that the blowers are started before the engine ignition is switched on. A red warning sign at the switch shall state that the blowers shall be operated prior to starting the engines for a sufficient time to insure at least one complete change of air in the compartments.
(e) The area of the ducts shall be such as to limit the air velocity to a maximum of 2,000 feet per minute. Ducts may be of any shape, provided that in no case shall 1 dimension exceed twice the other.
(f) At least 2 inlet ducts shall be located at 1 end of the compartment and they shall extend to the lowest part of the compartment or bilge on each side. Similar exhaust ducts shall be led to the mechanical exhaust system from the lowest part of the compartment or bilge on each side of the compartment.
at the end opposite from that at which
the inlet ducts are fitted.

(g) All ducts shall be constructed of
non-ferrous metal or galvanized ferrous
metal not less than No. 22 USSG, in-
tact and gastight from end to end and
shall be of substantial construction.
The ducts shall lead as direct as pos-
sible and be properly fastened and sup-
ported.

(h) All supply ducts shall be provided
with cowls or scoops having a free area
not less than twice the required duct
area. When the cowls or scoops are
screened, the mouth area shall be in-
creased to compensate for the area of
the screen wire. Dampers shall not be
fitted in the supply ducts. Cowls or
scoops shall be kept open at all times
except when the stress of weather is
such as to endanger the vessel if the
openings are not temporarily closed.
Supply and exhaust openings shall not
be located where the natural flow of air
is unduly obstructed, or adjacent to
possible sources of vapor ignition, nor
shall they be so located that exhaust
air may be taken into the supply vents.

[CGFR 65–50, 30 FR 16903, Dec. 30, 1965, as
amended by USCG–2014–0688, 79 FR 58281,
Sept. 29, 2014]

§ 72.15–15 Ventilation for closed
spaces.

(a) All enclosed spaces within the
vessel shall be properly vented or ven-
tilated. Means shall be provided to
close off all vents and ventilators.

(b) Means shall be provided for stop-
ning all fans in ventilation systems
serving machinery and cargo spaces
and for closing all doorways, ventila-
tors and annular spaces around funnels
and other openings to such spaces,
from outside these spaces, in case of
fire.

(c) The ventilation of spaces which
are “specially suitable for vehicles”
shall be in accordance with the provi-
sions of this paragraph. In addition, if
vehicles are operated inside of enclosed
spaces, the ventilation shall be in ac-
cordance with subpart 78.83 of this sub-
chapter.

(1) Areas below the weather deck
shall be provided with continuous pres-
sure-positive ventilation at each level
on which vehicles are transported.

(2) The quantity of ventilating air
shall be not less than 1 cubic foot per
minute per square foot of deck area.

(3) The ventilation shall be such as to
prevent air stratification as well as to
prevent accumulation of air pockets.

(4) An alarm system shall be provided
which will indicate the loss of required
ventilation. The alarm location shall
be in a normally manned space accept-
able to the Commandant.

[CGFR 66–50, 30 FR 16903, Dec. 30, 1965, as
amended by CGFR 66–33, 31 FR 15281, Dec. 6,
1966]

§ 72.15–20 Ventilation for crew quars-
ters and passenger spaces.

(a) All crew and passenger spaces
shall be adequately ventilated in a
manner suitable to the purpose of the
space.

(b) On vessels of 100 gross tons and
over, except for such spaces as are so
located that under all ordinary condi-
tions of weather, windows, ports, sky-
lights, etc., and doors to passageways
can be kept open, all crew spaces shall
be ventilated by a mechanical system,
unless it can be shown that a natural
system will provide adequate ventila-
tion. However, vessels which trade reg-
ularly in the tropics shall, in general,
be fitted with a mechanical ventilation
system.

§ 72.15–90 Vessels contracted for prior
to November 19, 1952.

(a) Existing arrangements previously
approved will be considered satisfac-
tory so long as they are maintained in
good condition to the satisfaction of
the Officer in Charge, Marine Inspec-
tion. Minor repairs and alterations
may be made to the same standards as
the original design provided that in no
case will a greater departure from the
standards of §§ 72.15–5 through 72.15–20
be permitted than presently exists.

(b) [Reserved]

Subpart 72.20—Accommodations
for Officers and Crew

SOURCE: CGD 95–027, 61 FR 26002, May 23,
1996, unless otherwise noted.
§ 72.20–1 Application.

The provisions of this part, except §72.20–90, apply to all vessels contracted for after November 18, 1952. Vessels contracted for before November 19, 1952, must meet the requirements of §72.20–90.

§ 72.20–5 Intent.

Accommodations provided for officers and crew on all vessels shall be securely constructed, properly lighted, heated, drained, ventilated, equipped, located, arranged, and insulated from undue noise, heat, and odors.

(c) Each room shall be of such size that there is at least 2.78 square meters (30 square feet) of deck area and a volume of at least 5.8 cubic meters (210 cubic feet) for each person accommodated. The clear head room shall be not less than 190 centimeters (75 inches). In measuring sleeping accommodations any furnishings contained therein for the use of the occupants are not to be deducted from the total volume or from the deck area.

(d) Each person shall have a separate berth and not more than one berth may be placed above another. The berth must be composed of materials not likely to corrode. The overall size of a berth must not be less than 68 centimeters (27 inches) wide by 190 centimeters (75 inches) long, except by special permission of the Commandant. Where two tiers of berths are fitted, the bottom of the lower berth must not be less than 30 centimeters (12 inches) above the deck. The berths must not be obstructed by pipes, ventilating ducts, or other installations.

(e) A locker must be provided for each person accommodated in a room.

§ 72.20–10 Location of crew spaces.

(a) Crew quarters must not be located farther forward in the vessel than a vertical plane located at 5 percent of the vessel’s length abaft the forward side of the stem at the designed summer load water line. However, for vessels in other than ocean or coastwise service, this distance need not exceed 8.5 meters (28 feet). For the purpose of this paragraph, the vessel’s length must be as defined in §43.15–1 of subchapter E (Load Lines) of this chapter. Unless approved by the Commandant, no section of the deck head of the crew spaces may be below the deepest load line.

(b) There must be no direct communication, except through solid, close fitted doors or hatches between crew spaces and chain lockers, or machinery spaces.

§ 72.20–15 Construction.

All crew spaces are to be constructed and arranged in a manner suitable to the purpose for which they are intended and so that they can be kept in a clean, workable, and sanitary condition.

§ 72.20–20 Sleeping accommodations.

(a) Where practicable, each licensed officer shall be provided with a separate stateroom.

(b) Sleeping accommodations for the crew must be divided into rooms, no one of which shall berth more than 4 persons.
§ 72.20–30 Messrooms.

(a) Messrooms must be located as near to the galley as practicable except where the messroom is equipped with a steam table.

(b) Each messroom must seat the number of persons expected to eat in the messroom at one time.

§ 72.20–35 Hospital space.

(a) Each vessel which in the ordinary course of its trade makes voyages of more than 3 days duration between ports and which carries a crew of 12 or more, must be provided with a hospital space. This space must be situated with due regard to the comfort of the sick so that they may receive proper attention in all weathers.

(b) The hospital must be suitably separated from other spaces and must be used for the care of the sick and for no other purpose.

(c) The hospital must be fitted with berths in the ratio of 1 berth to every 12 members of the crew, or portion thereof, who are not berthed in single occupancy rooms, but the number of berths need not exceed 6.

(d) The hospital must have a toilet, washbasin, and bathtub or shower conveniently situated. Other necessary suitable equipment such as a clothes locker, a table, and a seat must be provided.

§ 72.20–40 Other spaces.

Each vessel must have—

(a) Sufficient facilities where the crew may wash and dry their own clothes, including at least 1 sink supplied with hot and cold fresh water;

(b) Recreation spaces; and

(c) A space or spaces of adequate size on an open deck to which the crew has access when off duty.

§ 72.20–45 Lighting.

Each berth must have a light.

§ 72.20–50 Heating and cooling.

(a) All manned spaces must be adequately heated and cooled in a manner suitable to the purpose of the space.

(b) The heating and cooling system for accommodations must be capable of maintaining a temperature of 21 °C (70 °F) under normal operating conditions without curtailing ventilation.

(c) Radiators and other heating apparatus must be so placed and shielded, where necessary, to avoid risk of fire, danger or discomfort to the occupants. Pipes leading to radiators or heating apparatus must be insulated where those pipes create a hazard to persons occupying the space.

§ 72.20–55 Insect screens.

Provisions must be made to protect the crew quarters against the admission of insects.

§ 72.20–90 Vessels contracted for prior to November 19, 1952.

(a) Vessels of 100 gross tons and over, contracted for prior to March 4, 1915, must meet the requirements of this paragraph.

(1) Existing structure, arrangements, materials, and facilities, previously approved will be considered satisfactory so long as they are maintained in a suitable condition to the satisfaction of the Officer in Charge, Marine Inspection.

(2) Minor repairs and alterations may be made to the same standard as the original construction provided that in no case will a greater departure from the standards of §§ 72.20–5 through 72.20–55 be permitted than presently exists.

(b) Vessels of 100 gross tons and over, contracted for on or after March 4, 1915, but prior to January 1, 1941, must meet the following requirements:

(1) Existing structure, arrangements, materials, and facilities, previously accepted or approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standard as the original construction.

(2) Where reasonable and practicable, a minimum of 1 toilet, shower, and washbasin must be provided for each 10 members of the crew or fraction thereof.

(3) Crew spaces must have a volume of at least 3.4 cubic meters (120 cubic feet) and a deck area of at least 1.5 square meters (16 square feet) for each person accommodated.
§ 72.25–1

(4) Each crewmember shall have a separate berth, and berths may not be placed more than two high.

(5) Each vessel, which in the ordinary course of its trade makes a voyage of more than three days duration between ports and which carries a crew of twelve or more persons, must be provided with a suitable hospital space for the exclusive use of the sick or injured. Berths must be provided in the ratio of one berth for each twelve members of the crew or fraction thereof, but the number of berths need not exceed six.

(6) The crew spaces must be securely constructed, properly lighted, heated, drained, ventilated, equipped, located, and arranged, and, if practicable, must be insulated from undue noise, heat, and odors.

[cit]

Subpart 72.25—Passenger Accommodations

§ 72.25–1 Application.

(a) The provisions of this subpart shall apply to all vessels.

(b) [Reserved]

§ 72.25–10 Location of passenger quarters.

(a) The deck forming the deckhead of passenger quarters between adjacent watertight bulkheads shall not be below the deepest load line at any point within the watertight compartment in question.

(b) [Reserved]

§ 72.25–15 Passenger accommodations for excursion boats, ferryboats, and passenger barges.

(a) Except as specifically excluded by this section, separate public toilet spaces shall be provided for male and female passengers with at least the minimum equipment in each based upon the number of passengers permitted to be carried as set forth in table 72.25–15(a).

(b) In the men's spaces, urinals may be substituted for toilets, provided at

<table>
<thead>
<tr>
<th>Number of passengers</th>
<th>Toilets</th>
<th>Washbasins</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Over</td>
<td>Not over</td>
</tr>
<tr>
<td>100</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>300</td>
<td>2</td>
<td>1</td>
</tr>
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<td>500</td>
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</tr>
<tr>
<td>4,000</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>(*)</td>
<td>(*)</td>
<td>(*)</td>
</tr>
</tbody>
</table>

* Additional facilities by extrapolation.

VerDate Sep<11>2014 09:52 Nov 15, 2016 Jkt 238206 PO 00000 Frm 00064 Fmt 8010 Sfmt 8010 Y:\SGML\238206.XXX 238206Lhorne on DSK30JT082PROD with CFR
least one-half the required toilets are fitted.
(c) On ferryboats and barges having a short run, passenger toilet facilities need not be fitted.

Subpart 72.30—Subdivision and Stability
§ 72.30–1 Application.
Each vessel must meet the applicable requirements in subchapter S of this chapter.
[CGD 79–023, 48 FR 51007, Nov. 4, 1983]

Subpart 72.40—Rails and Guards
§ 72.40–1 Application.
(a) The provisions of this subpart, with the exception of §72.40–90, shall apply to all vessels contracted for on or after July 1, 1969. Vessels contracted for prior to July 1, 1969, shall meet the requirements of §72.40–90.
(b) [Reserved]

§ 72.40–5 Where rails required.
(a) All passenger vessels shall have efficient guard rails or bulwarks on decks and bridges as follows: The height of rails or bulwarks shall be at least 39½ inches from the deck. At the peripheries of the freeboard and superstructure decks and at the peripheries of all decks accessible to passengers, rails shall be in at least three courses including the top. The opening below the lowest course shall not be more than 9 inches. The courses shall not be more than 15 inches apart. In the case of ships with rounded gunwales the guard rail supports shall be placed on the flat of the deck. On other decks and bridges the rails shall be in at least two courses, including the top, approximately evenly spaced.
(b) Where the height of the rails interferes with the business of the vessel, as in the case of a sport fishing vessel, other arrangements may be specifically approved by the Commandant. However, in general, the effective rail or bulwark height above the deck on which the passengers stand shall be at least 30 inches.

§ 72.40–90 Vessels contracted for prior to July 1, 1969.
(a) Passenger vessels contracted for prior to July 1, 1969, assigned a deeper load line under part 42 of subchapter E (Load Lines) of this chapter shall have efficient guard rails or bulwarks as required by §72.40–5. Otherwise, existing structure, arrangements, materials, and facilities previously approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to...
the same standards as the original construction provided that in no case will greater departure from the standards of §§72.40–5 through 72.40–20 be permitted than presently exists.

(b) [Reserved]

(CGFR 69–72, 34 FR 17483, Oct. 29, 1969)

**PART 76—FIRE PROTECTION EQUIPMENT**

**Subpart 76.01—Application**

Sec.
76.01–1 General; preemptive effect.
76.01–2 Incorporation by reference.
76.01–5 Equipment installed but not required.

**Subpart 76.05—Fire Detecting and Extinguishing Equipment, Where Required**

76.05–1 Fire detection and alarm systems.
76.05–5 Manual alarm system.
76.05–10 Supervised patrol system.
76.05–15 Fire main system.
76.05–20 Fixed fire extinguishing systems.
76.05–25 Hand portable fire extinguishers and semiportable fire extinguishing systems.

**Subpart 76.10—Fire Main System, Details**

76.10–1 Application.
76.10–3 Water availability.
76.10–5 Fire pumps.
76.10–10 Fire station hydrants, hose and nozzles.
76.10–15 Piping.
76.10–90 Installations contracted for prior to May 26, 1965.

**Subpart 76.13—Steam Smothering Systems**

76.13–1 Application.
76.13–90 Installations contracted for prior to January 1, 1962.

**Subpart 76.15—Carbon Dioxide Extinguishing Systems, Details**

76.15–1 Application.
76.15–5 Quantity, pipe sizes, and discharge rate.
76.15–10 Controls.
76.15–15 Piping.
76.15–20 Carbon dioxide storage.
76.15–25 Discharge outlets.
76.15–30 Alarms.
76.15–35 Enclosure openings.
76.15–40 Pressure relief.
76.15–50 Lockout valves.
76.15–60 Odorizing units.
76.15–90 Installations contracted for prior to November 19, 1982.
Coast Guard, DHS

§ 76.01—Application

76.01–1 General; preemptive effect.
(a) The provisions of this part shall apply to all vessels except as specifically noted in this part.
(b) The regulations in this part have preemptive effect over State or local regulations in the same field.

[CGFR 65–50, 30 FR 16940, Dec. 30, 1965, unless otherwise noted.]

Subpart 76.05—Manual Alarm System, Details

76.05–1 Application.
76.05–5 Zoning.
76.05–10 Location and spacing of manual alarm boxes.
76.05–15 Operation and installation.
76.05–90 Installations contracted for prior to November 19, 1962.

Subpart 76.50—Hand Portable Fire Extinguishers and Semiportable Fire Extinguishing Systems, Arrangements and Details

76.50–1 Application.
76.50–5 [Reserved]
76.50–10 Location.
76.50–20 Semi-portable fire extinguishers.
76.50–80 Locations and number of fire extinguishers required for vessels constructed prior to January 18, 2017.
76.50–90 Vessels contracted for prior to November 19, 1962.

Subpart 76.60—Fire Axes

76.60–1 Application.
76.60–5 Number required.
76.60–10 Location.


§ 76.01–2 Incorporation by reference.
(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Coast Guard must publish notice of change in the Federal Register and the material must be available to the public. All approved material is available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030 or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. The material is also available from the sources listed in paragraphs (b) through (d) of this section.

(2) [Reserved]
(c) International Maritime Organization (IMO) Publishing, 4 Albert Embankment, London SE1 7SR, United Kingdom, +44 (0)20 7735 7611, http://www.imo.org. (1) International Convention for the Safety of Life at Sea (SOLAS), as amended, Consolidated Edition, 2009, including Erratum, IBR approved for §§76.27–1(b) and 76.27–70 introductory text, (a) through (d) and (j).
(2) [Reserved]
§ 76.01–5 Equipment installed but not required.

(a) Where extinguishing systems or equipment are not required, but are installed, the system or equipment and its installation must meet the requirements of this part.

(b) Use of non-approved fire detection systems may be acceptable as excess equipment provided that:

(1) Components are listed by a nationally recognized testing laboratory (NRTL) as that term is defined in 46 CFR 161.002–2, and are designed, installed, tested, and maintained in accordance with an appropriate industry standard and the manufacturer’s specific guidance;

(2) Installation conforms to the requirements of 46 CFR chapter I, subchapter J (Electrical Engineering), especially the hazardous location electrical installation regulations in 46 CFR 111.105; and

(3) Coast Guard plan review is completed for wiring plans.

Subpart 76.05—Fire Detecting and Extinguishing Equipment, Where Required

§ 76.05–1 Fire detection and alarm systems.

(a) Approved fire detection and alarm systems must be installed on the following vessels as set forth in subpart 76.27 of this part:

(1) Any vessel on an international voyage;

(2) Any vessel of more than 150 feet (45.72 meters) in length having sleeping accommodations for passengers; and

(3) Any vessel of 150 feet (45.72 meters) or less in length, not on an international voyage, having sleeping accommodations for 50 or more persons. Vessels in this category are not required to have a fire detection system in the cargo spaces.

(b) The arrangements and details of the fire detection systems must be as set forth in subparts 76.25 through 76.33 of this part.

§ 76.05–5 Manual alarm system.

(a) An approved manual alarm system must be installed in all vessels as set forth in subpart 76.27 of this part.

§ 76.05–10 Supervised patrol system.

(a) A supervised patrol or watchman system must be provided on all vessels as set forth in §§78.30–10 and 78.30–15 of this subchapter.

(b) [Reserved]

§ 76.05–15 Fire main system.

(a) Fire pumps, hydrants, hose, and nozzles shall be installed on the following vessels:

(1) On all self-propelled vessels.

(2) After July 1, 1957, on all barges with sleeping accommodations for more than six persons.

(b) The arrangement and details of the fire main system shall be as set forth in subpart 76.10.
Approved fire extinguishing systems must be installed, as required by Table 76.05–20 on all self-propelled vessels and on all barges with sleeping accommodations for more than six persons. Previously approved installations may be retained as long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection.

### TABLE 76.05–20—REQUIRED FIXED EXTINGUISHING SYSTEMS

<table>
<thead>
<tr>
<th>Space</th>
<th>Fixed extinguishing systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Areas</td>
<td></td>
</tr>
<tr>
<td>Wheelhouse or fire-control room</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Stairway and elevator enclosures</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Communication corridors</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Lifeboat embarkation and lowering stations</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Radio room</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Accommodations</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Staterooms, toilet spaces, isolated pantries, etc</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Offices, lockers, and isolated staterooms</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Public spaces</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Open decks or enclosed promenades</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Service Spaces</td>
<td></td>
</tr>
<tr>
<td>Galley</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Main pantries</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Motion picture booths and film lockers</td>
<td>Carbon dioxide.³</td>
</tr>
<tr>
<td>Paint and lamp rooms</td>
<td>Carbon dioxide.³</td>
</tr>
<tr>
<td>Inaccessible baggage, mail, and specie rooms and staterooms</td>
<td>Carbon dioxide.³</td>
</tr>
<tr>
<td>Refrigerated staterooms</td>
<td>Carbon dioxide.³</td>
</tr>
<tr>
<td>Carpenter, valet, photographic, and printing shops, sales rooms, etc</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Machinery spaces</td>
<td></td>
</tr>
<tr>
<td>Coal fired boilers: Bunker and boiler space</td>
<td>Carbon dioxide or foam.⁴</td>
</tr>
<tr>
<td>Oil fired boilers: Spaces containing oil fired boilers either main or auxiliary, their fuel oil service pumps, and/or such other fuel oil units as the heaters, strainers, valves, manifolds, etc., that are subject to the discharge pressure of the fuel oil service pumps, together with adjacent spaces to which oil can drain,</td>
<td>Carbon dioxide or foam.⁴</td>
</tr>
<tr>
<td>Internal combustion or gas turbine propelling machinery spaces</td>
<td>Carbon dioxide.³</td>
</tr>
<tr>
<td>Electric propulsive motors or generators of open type</td>
<td>Carbon dioxide (in ventilating system).⁶</td>
</tr>
<tr>
<td>Enclosed ventilating systems for motors and generators of electric propelling machinery</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Auxiliary spaces, internal combustion or gas turbine</td>
<td>Carbon dioxide.⁷</td>
</tr>
<tr>
<td>Auxiliary spaces, electric motors or generators</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Auxiliary spaces, steam</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Trunks to machinery spaces</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Fuel tanks</td>
<td>None required.¹</td>
</tr>
<tr>
<td>Cargo Spaces</td>
<td></td>
</tr>
<tr>
<td>Inaccessible during voyage (combustible cargo), including trunks (excluding tanks)</td>
<td>Carbon dioxide.³</td>
</tr>
<tr>
<td>Accessible during voyage (combustible cargo)</td>
<td>Automatic or manual sprinkler system.</td>
</tr>
<tr>
<td>Vehicular deck (except where no overhead deck is 30 feet (9.14 meters) in length or less)</td>
<td>Manual sprinkler.</td>
</tr>
<tr>
<td>Cargo oil tanks</td>
<td>Carbon dioxide or foam.³</td>
</tr>
<tr>
<td>Specially suitable for vehicles</td>
<td>Carbon dioxide, automatic or manual sprinkler system.</td>
</tr>
</tbody>
</table>

¹ Vessels of 100 GT or more contracted for on or before May 27, 1936, and having combustible joiner work must be fitted with an automatic sprinkler system, except in relatively incombustible spaces.
² Sprinkler heads may be attached to a potable water system provided electrical or pneumatic detecting is installed.
³ Protection of auxiliary boilers, fuel oil units, valves, and manifolds not required on vessels contracted for prior to November 19, 1952.
⁴ Not required on vessels of less than 300 GT (except on an international voyage) using fuel with a flashpoint higher than 110 °F, where the space is normally manned.
⁵ Not required on vessels contracted for prior to November 19, 1952.
⁶ Not required on vessels of less than 300 GT or on vessels contracted for prior to November 19, 1952, except where fuel, including starting fuel, has a flashpoint of 110 °F or less.
§ 76.05–25 Hand portable fire extinguishers and semiportable fire extinguishing systems.

(a) Approved hand portable fire extinguishers and semiportable fire extinguishing systems shall be installed on all vessels as set forth in subpart 76.50.

(b) [Reserved]

Subpart 76.10—Fire Main System, Details

§ 76.10–1 Application.

(a) The provisions of this subpart, with the exception of § 76.10–90, shall apply to all fire main installations contracted for on or after May 26, 1965. Installations contracted for prior to May 26, 1965, shall meet the requirements of § 76.10–90.

(b) [Reserved]

§ 76.10–3 Water availability.

(a) On all vessels on an international voyage, regardless of the date of construction, water pressure from the firemain protecting enclosed spaces shall be immediately available by maintenance of water pressure on the firemain at all times when passengers are aboard the vessel, or by remote control of fire pumps which control shall be easily operable and readily accessible.

(b) Where approved remote controls are not installed, an alarm shall be fitted which will sound in the engine room indicating a drop of water pressure on the system.


§ 76.10–5 Fire pumps.

(a) Vessels must be equipped with independently driven fire pumps in accordance with table 76.10–5(a).

(b) Vessels on an international voyage shall have a minimum total fire pump capacity at least equal to two-thirds of the required total bilge pump capacity, but in no case less than that required by this section. Each of the required fire pumps shall have a capacity not less than 80 percent of the total required capacity divided by the number of required pumps.

(c) Each pump shall be capable of delivering water simultaneously from the two highest outlets at a Pitot tube pressure of approximately 50 p. s. i. Where one or both of these outlets is a 1½-inch siamese fitting, both branches of the siamese fitting at each such outlet shall be utilized for the purpose of this requirement.

(d) Fire pumps shall be fitted on the discharge side with relief valves set to relieve at 25 p. s. i. in excess of the pressure necessary to maintain the requirements of paragraph (c) of this section or 125 p. s. i., whichever is greater. Relief valves may be omitted if the pumps, operating under shutoff conditions, are not capable of developing a pressure exceeding this amount.

(e) Fire pumps shall be fitted with a pressure gauge on the discharge side of the pumps.

(f) Fire pumps may be used for other purposes provided at least one of the required pumps is kept available for use on the fire system at all times. In no case shall a pump having connection to an oil line be used as a fire pump. Branch lines connected to the fire main for purposes other than fire and deck wash shall be arranged so that the requirements of paragraphs (b) and (c) of
this section and any other services installed on the fire main can be met simultaneously.

(g) The total area of the pipes leading from a pump shall not be less than the discharge area of the pump.

(h) If a vessel uses main or auxiliary oil fired boilers or internal combustion propulsion machinery, and is required to have two fire pumps, the pumps must be in separate spaces and the arrangement of pumps, sea connections, and sources of power must be arranged to ensure that a fire in any one space will not put all of the fire pumps out of operation. However, in vessels of less than 300 feet in length, when it is shown to the satisfaction of the Commandant that it is unreasonable or impracticable to meet this requirement due to the size or arrangement of the vessel, or for other reasons, the installation of a total flooding carbon dioxide or clean agent extinguishing system may be accepted as an alternate method of extinguishing any fire that affects the powering and operation of at least one of the required fire pumps.

§ 76.10–10 Fire station hydrants, hose and nozzles

(a) The size of fire hydrants, hoses, and nozzles, and the length of hose required, must be as specified in Table 76.10–5(a) of this subpart.

(b) On vessels of more than 1,500 gross tons, the 2½-inch hose and hydrants specified in Table 76.10–5(a) may be replaced with 1½-inch hose and hydrants as follows:

(1) The hydrants in interior locations may have wye connections for 1½-inch hose. In these cases, the hose must be 75 feet (22.86 meters) in length, and only one hose will be required at each fire station; however, if every interior space can be reached by a 50-foot hose then 50-foot hoses may be installed at each interior fire hydrant; and

(2) The hydrants for external locations may consist of two 1½-inch outlets, each with a 1½-inch hose, supplied through a wye connection as a substitute.

(c) On vessels of 500 gross tons or more, there must be at least one shore connection to the fire main available to each side of the vessel in an accessible location. Suitable cut-out valves and check valves must be provided. Suitable adaptors also must be provided for furnishing the vessel’s shore connections with couplings mating those on the shoreside fire lines. Vessels of 500 gross tons or more on an international voyage must be provided with at least one international shore connection complying with ASTM F 1121 (incorporated by reference, see §76.01–2). Facilities must be available that enable an international shore connection to be used on either side of the vessel.

(d) Fire hydrants must be of sufficient number and so located that any part of the vessel accessible to the passengers or crew while the vessel is being navigated, other than main machinery spaces and cargo holds, may be reached with at least two streams of water from separate outlets, at least one of which must be from a single length of hose. All areas of the main machinery spaces and cargo holds must be capable of being reached by at least two streams of water, each of which must be from a single length of hose from separate outlets. This requirement need not apply to shaft alleys containing no assigned space for the stowage of combustibles. Fire hydrants must be numbered as required by §78.47–20 of this subchapter.

(e) All parts of the fire main located on exposed decks must either be protected against freezing or be fitted with cut-out valves and drain valves so that the entire exposed parts of such piping may be shut off and drained in freezing weather. Except when closed to prevent freezing, such valves must be sealed open.

(f) The outlet at each fire hydrant must be provided with a cock or valve fitted in such a position that the fire hose may be removed while the fire main is under pressure. In addition, the outlet must be limited to any position from the horizontal to the vertical pointing downward, so that the hose will lead horizontally or downward to minimize the possibility of kinking.
(g) Each fire hydrant must have at least one length of firehose, a spanner wrench, and a hose rack or other device for stowing the hose.

(h) Firehoses must be connected to the outlets at all times. However, on open decks where no protection is afforded to the hose in heavy weather, or where the hose may be liable to damage from the handling of cargo, the hose may be temporarily removed from the hydrant and stowed in an accessible nearby location.

(i) A fire hydrant not be used for any purpose other than fire extinguishing and fire drills.

(j) Each firehose on each hydrant must have a combination solid stream and water spray firehose nozzle that meets the requirements in 46 CFR 162.027. Firehose nozzles previously approved under subpart 162.027 of this chapter may be retained so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection.

(k) Straight stream firehose nozzles approved under 46 CFR 162.027 must have low-velocity water spray applicators for—

(1) Two firehoses within the accommodation and service areas; and

(2) Each firehose within propulsion machinery spaces containing an oil-fired boiler, internal combustion machinery, or an oil fuel unit on a vessel on an international voyage or on any vessel of 1,000 gross tons or more. The length of each applicator must be not more than 1.8 meters (6 feet).

(l) Fixed brackets, hooks, or other means for stowing an applicator must be next to each fire hydrant that has an applicator under paragraph (k) of this section.

(m) Fire hydrants, nozzles, and other fittings must have threads to accommodate the hose connections noted in paragraph (i) of this section.

(n) Firehose and couplings must be as follows:

(1) Fire station hydrant connections must be brass, bronze, or other equivalent metal. Couplings must either—

(i) Use National Standard (NS) firehose coupling threads for the 1½-in (38-mm) and 2½-in (64-mm) hose sizes, i.e., 9 threads per inch for a 1½-in hose, and 7½ threads per inch for a 2½-in hose; or

(ii) Be a uniform design for each hose diameter throughout the vessel.

(2) Each section of firehose must be a lined commercial firehose that conforms to UL 19 (incorporated by reference, see §76.01–2). A hose that bears the label of UL as a lined firehose is accepted as conforming to this requirement.

[USCG–2012–0196, 81 FR 48254, July 22, 2016]

§ 76.10–15 Piping.

(a) All piping, valves, and fittings shall meet the applicable requirements of subchapter F (Marine Engineering) of this chapter.

(b) All distribution cut-off valves shall be marked as required by §78.47–15 of this subchapter.

(c) For vessels on an international voyage, the diameter of the fire main shall be sufficient for the effective distribution of the maximum required discharge from two fire pumps operating simultaneously. This is in addition to §76.10–5(c). The discharge of this quantity of water through hoses and nozzles at a sufficient number of adjacent hydrants shall be at a minimum Pitot tube pressure of approximately 50 pounds per square inch.

§ 76.10–90 Installations contracted for prior to May 26, 1965.

(a) Installations contracted for prior to May 26, 1965, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§76.10–5 through 76.10–15 shall be complied with insofar as the number and general type of equipment is concerned. Existing equipment, except firehose nozzles and low-velocity water spray applicators, previously approved but not meeting the applicable requirements of §§76.10–5 through 76.10–15 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, alterations, and replacements may be permitted to the same standards as the original installation. However, all new installations or major replacements shall meet the applicable requirements in this part.

(2) All vessels contracted for prior to November 19, 1952, shall be fitted with
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§ 76.13–90 Installations contracted for prior to January 1, 1962.

(a) Installations contracted for prior to July 1, 1935, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved will be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, and alterations may be made to the same standard as the original installation.

(2) The main pipes and their branches to the cargo compartments and similar spaces shall be not less than 1½-inch pipe size and shall emanate from not more than two stations in easily accessible locations. If located on the open deck, the distribution manifolds shall be suitably protected by an enclosing cabinet or casing which shall be marked as required by §78.47–17 of this subchapter. Each branch line shall have a valve at the manifold which shall be marked as required by §78.47–15 of this subchapter.

(3) Branches to paint lockers and similar small spaces may be taken from the nearest stream supply line and shall be not less than ¾-inch pipe size. The valve shall be marked as required by §78.47–15 of this subchapter.

(b) Installations contracted for on or after July 1, 1935, but prior to November 19, 1952, shall meet the following requirements:

(1) Steam shall be available from the main or auxiliary boilers to provide at least one pound of steam per hour for each 50 cubic feet of gross volume of the largest compartment protected. Where reasonable and practicable, the steam pressure shall be at least 100 p.s.i.

(2) The piping system shall meet the general requirements of paragraphs

§ 76.13–90 Installations contracted for prior to January 1, 1962.

Subpart 76.13—Steam Smothering Systems

§ 76.13–1 Application.

Steam smothering systems are not permitted on vessels contracted for on or after January 1, 1962. Previously approved installations may be retained as long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection.

[CGD 95–027, 61 FR 26004, May 23, 1996]
(c)(5) through (12) of this section insofar as is reasonable and practicable.

(4) The minimum size of distribution piping and the number of branches to the various spaces shall be as given in table 76.13–90(b)(4) or by the following formula:

\[ D = \sqrt[3]{\frac{C}{30,000}} \]  

where:

\( D \) = Required diameter of pipe in inches.
\( C \) = Volume of compartment in cubic feet.

<table>
<thead>
<tr>
<th>Volume of compartment in cubic feet</th>
<th>Number of branches to compartment</th>
<th>Pipe size of each branch, inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 30,000</td>
<td>30,000</td>
<td>1</td>
</tr>
<tr>
<td>Over 46,000</td>
<td>46,000</td>
<td>1 1/4</td>
</tr>
<tr>
<td>Not over 67,000</td>
<td>67,000</td>
<td>1 1/4</td>
</tr>
<tr>
<td>Not over 94,000</td>
<td>94,000</td>
<td>1 1/2</td>
</tr>
<tr>
<td>Not over 135,000</td>
<td>135,000</td>
<td>1 1/2</td>
</tr>
<tr>
<td></td>
<td>203,000</td>
<td>2 1/2</td>
</tr>
</tbody>
</table>

(5) The minimum size of the steam supply line from the boiler to the distribution and manifold shall be as given by the following formula:

\[ D = \sqrt[3]{\frac{C}{60,000}} \]  

(2) where:

\( D \) = Diameter of pipe in inches.
\( C \) = Volume of all compartments in cubic feet.

(c) Installations contracted for on or after November 19, 1952, but prior to January 1, 1962, shall meet the following requirements:

(1) Existing arrangements, materials and facilities previously approved will be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standard as the original installation.

(2) Steam shall be available from main or auxiliary boilers to provide at least one pound of steam per hour for each 12 cubic feet of the gross volume of the largest compartment to be protected.

(3) Although separate piping shall be led to each cargo hold and ’tween deck, for the purpose of determining the amount of steam required, a cargo compartment will be considered as the space between adjacent watertight or firescreen bulkheads and from tank top or lowest deck to the deck head of the uppermost deck on which cargo may be carried. If a trunk extends beyond such deck, the trunk space shall be included. Tonnage openings shall be considered as sealed for this purpose.

(4) A steam pressure of at least 100 p.s.i. shall be available unless specifically approved otherwise.

(5) All piping, valves, and fittings shall meet the applicable requirements of subchapter F (Marine Engineering) of this chapter.

(6) The distribution piping shall emanate from not more than three stations in easily accessible locations on the weather deck, and shall lead to the lower portion of each cargo hold, cargo ’tween deck, and other compartments protected. However, lines to paint lockers and similar small spaces may be taken from the nearest steam supply line.

(7) The distribution line to each compartment shall be fitted with a shutoff valve. The valve shall be marked as required by §78.47–15 of this subchapter.

(8) The manifold steam supply line shall be fitted with a master valve at the manifold.

(9) Provisions shall be made for draining the manifold and distribution lines to prevent them from freezing.

(10) If located on the open deck, the distribution manifolds shall be suitably protected by an enclosing cabinet or casing. In any case, it shall be marked as required by §78.47–17 of this subchapter.

(11) Piping shall not be led into or through spaces accessible to the passengers or crew while the vessel is being navigated, with the exception of machinery spaces and corridors. However, in special cases, arrangements to run piping through such spaces may be specifically approved by the Commandant, provided all joints are welded, suitable expansion bends are provided, and all piping is extra heavy.

(12) Piping shall be used for no other purpose except that it may be incorporated with the fire detecting system, and where suitable provisions are made, it may be used for steaming out tanks.
(13) The minimum size and number of branches to the various spaces shall be as given in Table 76.13–90(c)(13). The distribution piping from the manifold to the branch lines shall have an area approximately equal to the combined areas of the branch lines served.

<table>
<thead>
<tr>
<th>Volume of spaces in cubic feet</th>
<th>Number of branches to spaces</th>
<th>Pipe size of each branch, inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over</td>
<td>Not over</td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>1</td>
<td>¾</td>
</tr>
<tr>
<td>5,000</td>
<td>15,000</td>
<td>1 ¾</td>
</tr>
<tr>
<td>30,000</td>
<td>60,000</td>
<td>2 ½</td>
</tr>
<tr>
<td>60,000</td>
<td>100,000</td>
<td>3 ½</td>
</tr>
<tr>
<td>100,000</td>
<td>190,000</td>
<td>4 ½</td>
</tr>
</tbody>
</table>

(14) The steam supply line from the boiler to any distribution manifold shall be of sufficient size to supply all the branch lines to the largest compartment and to all adjacent compartments.

§ 76.15–5 Quantity, pipe sizes, and discharge rate.

(a) General. The amount of carbon dioxide required for each space shall be as determined by the following paragraphs in this section.

(b) Total available supply. A separate supply of carbon dioxide need not be provided for each space protected. The total available supply shall be at least sufficient for the space requiring the greatest amount.

(c) Cargo spaces. (1) The number of pounds of carbon dioxide required for each space in cubic feet shall be equal to the gross volume of the space in cubic feet divided by 30.

(2) Although separate piping shall be led to each cargo hold and 'tween deck, for the purpose of determining the amount of carbon dioxide required, a cargo compartment will be considered as the space between adjacent watertight or fire screen bulkheads and from the tank top or lowest deck to the deck head of the uppermost space on which cargo may be carried. If a trunk extends beyond such deck, the trunk volume shall be included. Tonnage openings shall be considered as sealed for this purpose.

(3) Branch lines to the various cargo holds and 'tween decks shall not be less than ¾ inch standard pipe size.

(4) No specific discharge rate need be applied to such systems.

(d) Machinery spaces, paint lockers, tanks, and similar spaces. (1) Except as provided in paragraph (d)(3) of this section, the number of pounds of carbon dioxide required for each space shall be equal to the gross volume of the space divided by the appropriate factor noted in Table 76.15–5(d)(1). If fuel can drain from the compartment being protected to an adjacent compartment, or if the compartments are not entirely separate, the requirements for both compartments shall be used to determine the amount of carbon dioxide to be provided. The carbon dioxide shall be arranged to discharge into both such compartments simultaneously.

<table>
<thead>
<tr>
<th>Gross volume of compartment, cubic feet</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over</td>
<td>Not over</td>
</tr>
<tr>
<td>500</td>
<td>15</td>
</tr>
</tbody>
</table>
(2) For the purpose of the above requirement of this paragraph, the volume of a machinery space shall be taken as exclusive of the normal machinery casing unless the boiler, internal combustion machinery, or fuel oil installations extend into such space in which case the volume shall be taken to the top of the casing or the next material reduction in casing area, whichever is lower. For installations contracted for on or after October 1, 1959, “normal machinery casing” and “material reduction in casing area” shall be defined as follows:

(i) By “normal machinery casing” shall be meant a casing the area of which is not more than 40 percent of the maximum area of the machinery space.

(ii) By “material reduction in casing area” shall be meant a reduction to at least 40 percent of the casing area.

(3) For vessels on an international voyage contracted for on or after May 26, 1965, the amount of carbon dioxide required for a space containing propulsion boilers or internal combustion propulsion machinery shall be as given by paragraphs (d) (1) and (2) of this section or by dividing the entire volume, including the casing, by a factor of 25, whichever is the larger.

(4) Branch lines to the various spaces shall be as noted in table 76.15–5(d)(4).

(5) Distribution piping within the space shall be proportioned from the supply line to give proper distribution to the outlets without throttling.

(6) The number, type, and location of discharge outlets shall be such as to give a uniform distribution throughout the space.

(7) The total area of all discharge outlets shall not exceed 85 percent nor be less than 35 percent of the nominal cylinder outlet area or the area of the supply pipe, whichever is smaller. The nominal cylinder outlet area in square inches shall be determined by multiplying the factor 0.0022 by the number of pounds of carbon dioxide required, except that in no case shall this outlet area be less than 0.110 square inch.

(8) The discharge of at least 85 percent of the required amount of carbon dioxide shall be complete within 2 minutes.

(e) Spaces specially suitable for vehicles. (1) The number of pounds of carbon dioxide required shall be equal to the gross volume of the largest “tight” space divided by 22. In no case, however, shall it be less than that required by paragraph (c) of this section.

(2) The arrangement of valves and piping shall be such that the required quantity of carbon dioxide may be discharged into any “tight” space. The discharge of the required quantity of carbon dioxide shall be completed within 2 minutes.

(3) Except as noted in paragraphs (e) (1) and (2) of this section, the requirements of paragraph (d) of this section shall apply.

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are used to protect only one hazard, a normally closed stop valve shall be installed between the cylinders and the hazard except for systems of the type indicated in §76.15–5(d) which contain not more than 300 pounds of carbon dioxide.

(c) Distribution piping to the various cargo spaces shall be controlled from not more than two stations. One of the stations controlling the system for the main machinery space shall be located as convenient as practicable to one of the main escapes from the space. All control stations and the individual valves and controls shall be marked as required by §§78.47–15 and 78.47–17 of this subchapter.

(d) Systems of the type indicated in §76.15–5(d) shall be actuated by one control operating the valve to the space and a separate control releasing at least the required amount of carbon dioxide. These two controls shall be located in a box or other enclosure clearly identified for the particular space. Those systems installed without a stop valve shall be operated by one control releasing at least the required amount of carbon dioxide.

(e) Where provisions are made for the simultaneous release of a given amount of carbon dioxide by operation of a remote control, provisions shall also be made for manual control at the cylinders. Where gas pressure from pilot cylinders is used as a means for releasing the remaining cylinders, not less than two pilot cylinders shall be used for systems consisting of more than two cylinders. Each of the pilot cylinders shall be capable of manual control at the cylinder, but the remaining cylinders need not be capable of individual manual control.

(f) Systems of the type indicated in §76.15–5(d), other than systems for tanks, which are of more than 300 pounds of carbon dioxide, shall be fitted with an approved delayed discharge so arranged that the alarm will be sounded for at least 20 seconds before the carbon dioxide is released into the space. Such systems of not more than 300 pounds of carbon dioxide shall also have a similar delayed discharge, except for those systems for tanks and for spaces which have a suitable horizontal escape. This paragraph shall be applicable only to systems installed on or after July 1, 1957.

(g) All distribution valves and controls shall be of an approved type. All controls shall be suitably protected.

(h) Complete but simple instructions for the operation of the systems must be located in a conspicuous place at or near all pull boxes, stop valve controls and in the CO₂ cylinder storage room. On systems in which the CO₂ cylinders are not within the protected space, these instructions must also include a schematic diagram of the system and instructions detailing alternate methods of discharging the system should the manual release or stop valve controls fail to operate. Each control valve to branch lines must be marked to indicate the related space served.

(i) If the space or enclosure containing the carbon dioxide supply or controls is to be locked, a key to the space or enclosure shall be in a break-glass-type box conspicuously located adjacent to the opening.

§ 76.15–15 Piping.

(a) The piping, valves, and fittings shall have a bursting pressure of not less than 6,000 p.s.i.

(b) All piping, in nominal sizes not over ℳ⁄₂ inch, shall be of at least Schedule 40 (standard weight), and in nominal sizes over ℳ⁄₂ inch, shall be of at least Schedule 80 (extra heavy).

(c) All piping, valves, and fittings of ferrous materials shall be protected inside and outside against corrosion unless specifically approved otherwise by the Commandant.

(d) A pressure relief valve or equivalent set to relieve between 2,400 and 2,800 p.s.i. shall be installed in the distributing manifold or such other location as to protect the piping in the event that all branch line shut-off valves are closed.

(e) All dead end lines shall extend at least 2 inches beyond the last orifice and shall be closed with cap or plug.

(f) All piping, valves, and fittings shall be securely supported, and where necessary, protected against injury.

(g) Drains and dirt traps shall be fitted where necessary to prevent the
§ 76.15–20 Carbon dioxide storage.

(a) Except as provided in paragraph (b) of this section, the cylinders shall be located outside the spaces protected, and shall not be located in any space that might be cut off or made inaccessible in the event of a fire in any of the spaces protected.

(b) Systems of the type indicated in §76.15–5(d), consisting of not more than 300 pounds of carbon dioxide, may have the cylinders located within the space protected. If the cylinder stowage is within the space protected, the system shall be arranged in an approved manner to be automatically operated by a heat actuator within the space in addition to the regular remote and local controls.

(c) The space containing the cylinders shall be properly ventilated and designed to preclude an anticipated ambient temperature in excess of 130 degrees F.

(d) Cylinders shall be securely fastened and supported, and, where necessary, protected against injury.

(e) Cylinders shall be so mounted as to be readily accessible and capable of easy removal for recharging and inspection. Provisions shall be available for weighing the cylinders.

(f) Where subject to moisture, cylinders shall be so installed as to provide a space of at least 2 inches between the flooring and the bottom of the cylinders.

(g) Cylinders shall be mounted in an upright position or inclined not more than 30 degrees from the vertical. However, cylinders which are fitted with flexible or bent siphon tubes may be inclined not more than 80 degrees from the vertical.

(h) Where check valves are not fitted on each independent cylinder discharge, plugs or caps shall be provided for closing outlets when cylinders are removed for inspection or refilling.

(i) All cylinders used for storing carbon dioxide must be fabricated, tested, and marked in accordance with §§ 147.60 and 147.65 of this chapter.

§ 76.15–25 Discharge outlets.

(a) Discharge outlets shall be of an approved type.

(b) [Reserved]

§ 76.15–30 Alarms.

(a) Spaces which are protected by a carbon dioxide extinguishing system and are normally accessible to persons on board while the vessel is being navigated, other than paint and lamp lockers and similar small spaces, shall be fitted with an approved audible alarm in such spaces which will be automatically sounded when the carbon dioxide is admitted to the space. The alarm...
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§ 76.15–90 Installations contracted for prior to November 19, 1952.

(a) Installations contracted for prior to November 19, 1952, shall meet the following requirements:

shall be conspicuously and centrally located and shall be marked as required by §78.47–9 of this subchapter. For systems installed on or after July 1, 1957, alarms will be mandatory only for systems required to be fitted with a delayed discharge. Such alarms shall be so arranged as to sound during the 20 second delay period prior to the discharge of carbon dioxide into the space, and the alarm shall depend on no source of power other than the carbon dioxide.

(b) Where natural ventilation is provided for spaces protected by a carbon dioxide extinguishing system, provisions shall be made for closing off the ventilation.

(c) Means shall be provided for closing all openings to the space protected from outside such space. In this respect, relatively tight doors, shutters, or dampers shall be provided for openings in the lower portion of the space. The construction shall be such that openings in the upper portion of the space can be closed off either by permanently installed means or by the use of canvas or other material which is normally carried by the vessel.

§ 76.15–40 Pressure relief.

(a) Where necessary, relatively tight compartments such as refrigeration spaces, paint lockers, etc., shall be provided with suitable means for relieving excessive pressure accumulating within the compartment when the carbon dioxide is injected.

(b) [Reserved]

§ 76.15–35 Enclosure openings.

(a) Where mechanical ventilation is provided for spaces other than cargo and similar spaces which are protected by a carbon dioxide extinguishing system, provisions shall be made so that the ventilation system is automatically shut down with the operation of the system to that space.

(b) Where natural ventilation is provided for spaces protected by a carbon dioxide extinguishing system, provisions shall be made for easily and effectively closing off the ventilation.

(c) Means shall be provided for closing all openings to the space protected from outside such space. In this respect, relatively tight doors, shutters, or dampers shall be provided for openings in the lower portion of the space. The construction shall be such that openings in the upper portion of the space can be closed off either by permanently installed means or by the use of canvas or other material which is normally carried by the vessel.

§ 76.15–50 Lockout valves.

(a) A lockout valve must be provided on any carbon dioxide extinguishing system protecting a space over 6,000 cubic feet in volume and installed or altered after July 9, 2013. “Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

(b) The lockout valve must be a manually operated valve located in the discharge manifold prior to the stop valve or selector valves. When in the closed position, the lockout valve must provide complete isolation of the system from the protected space or spaces, making it impossible for carbon dioxide to discharge in the event of equipment failure during maintenance.

(c) The lockout valve design or locking mechanism must make it obvious whether the valve is open or closed.

(d) A valve is considered a lockout valve if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it.

(e) The master or person-in-charge must ensure that the valve is locked open at all times, except while maintenance is being performed on the extinguishing system, when the valve must be locked in the closed position.

(f) Lockout valves added to existing systems must be approved by the Commandant as part of the installed system.


§ 76.15–60 Odorizing units.

Each carbon dioxide extinguishing system installed or altered after July 9, 2013, must have an approved odorizing unit to produce the scent of wintergreen, the detection of which will serve as an indication that carbon dioxide gas is present in a protected area and any other area into which the carbon dioxide may migrate. “Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

§ 76.17–1

(1) Existing arrangements, materials, and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems shall be in general agreement with §§ 76.15–5 through 76.15–40 insofar as is reasonable and practicable, with the exception of §76.15–5(d) (1) through (3) covering spaces other than cargo spaces, which systems may be installed in accordance with paragraphs (a) (3) through (6) of this section. However, the foregoing exception shall not be permitted for vessels on an international voyage.

(3) In boilerrooms, the bilges shall be protected by a system discharging principally below the floor plates. Perforated pipe may be used in lieu of discharge nozzles for such systems. The number of pounds of carbon dioxide shall be equal to the gross volume of the boiler room taken to the top of the boilers divided by 36. In the event of an elevated boilerroom which drains to the machinery space, the system shall be installed in the engine room bilge and the gross volume shall be taken to the flat on which the boilers are installed.

(4) In machinery spaces where main propulsion internal combustion machinery is installed, the number of pounds of carbon dioxide required shall be equal to the gross volume of the space taken to the underside of the deck forming the hatch opening divided by 22.

(5) In miscellaneous spaces other than cargo and similar spaces, the number of pounds of carbon dioxide required shall be equal to the gross volume of the space divided by 22.

(6) Branch lines to the various spaces other than cargo and similar spaces, shall be as noted in table 76.15–90(a)(6). This table is based on cylinders having discharge outlets and siphon tubes of 3⁄8-inch diameter.

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### TABLE 76.15–90(a)(6)

<table>
<thead>
<tr>
<th>Number of cylinders</th>
<th>Nominal pipe size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over</td>
<td>Not over</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>inches</td>
<td>Type</td>
</tr>
<tr>
<td>2</td>
<td>1⁄4 Standard</td>
</tr>
<tr>
<td>2</td>
<td>3⁄4 Do.</td>
</tr>
<tr>
<td>4</td>
<td>1 Extra heavy</td>
</tr>
<tr>
<td>6</td>
<td>1 1⁄4 Do.</td>
</tr>
<tr>
<td>12</td>
<td>2 1⁄4 Do.</td>
</tr>
<tr>
<td>16</td>
<td>2 1⁄2 Do.</td>
</tr>
<tr>
<td>27</td>
<td>3 Do.</td>
</tr>
<tr>
<td>39</td>
<td>3 1⁄2 Do.</td>
</tr>
<tr>
<td>60</td>
<td>4 Do.</td>
</tr>
<tr>
<td>80</td>
<td>5 Do.</td>
</tr>
</tbody>
</table>

---

(b) [Reserved]


Subpart 76.17—Foam Extinguishing Systems, Details

§ 76.17–1 Application.

(a) Where a foam extinguishing system is installed, the provisions of this subpart, with the exception of §76.17–90, shall apply to all installations contracted for on or after November 19, 1952. Installations contracted for prior to November 19, 1952, shall meet the requirements of §76.17–90.

(b) [Reserved]

§ 76.17–5 Quantity of foam required.

(a) Area protected. (1) For machinery and similar spaces, the system shall be so designed and arranged as to spread a blanket of foam over the entire tank top or bilge of the space protected. The arrangement of piping shall be such as to give a uniform distribution over the entire area protected.

(2) Where an installation is made to protect an oil fired boiler installation on a flat which is open to or can drain to the lower engine room or other space, both the flat and the lower space shall be protected simultaneously. The flat shall be fitted with suitable coamings on all openings other than deck drains to properly restrain the oil and foam at that level. Other installations of a similar nature will be considered in a like manner.

(3) Where a system is installed to protect a tank, it shall be so designed and arranged as to spread a blanket of foam over the entire liquid surface of
the tank within the range of usual trim. The arrangement of piping shall be such as to give a uniform distribution over the entire area protected.

(b) Rate of application. (1) For spaces other than tanks, the rate of discharge to foam outlets protecting the hazard shall be at least as set forth in this subparagraph.

(i) For chemical foam systems with stored "A" and "B" solutions, a total of at least 1.6 gallons per minute of the two solutions shall be discharged for each 10 square feet of area protected.

(ii) For other types of foam systems, the water rate to the dry powder generators or air foam production equipment shall be at least 1.6 gallons per minute for each 10 square feet of area protected.

(2) For tanks, the rate of discharge to foam outlets protecting the hazard shall be as set forth in paragraph (b)(1) of this section except that the value of 1 gallon per minute shall be substituted in both cases for the value of 1.6 gallons per minute.

(c) Supply of foam producing material.

(1) There shall be provided a quantity of foam producing material sufficient to operate the equipment at the discharge rate specified in paragraph (b) of this section for a period of at least 3 minutes for spaces other than tanks, and for at least 5 minutes for tanks.

(2) A separate supply of foam agent need not be provided for each space protected. The total available supply shall be at least sufficient for the space requiring the greatest amount.

(3) Where pumps are required, the water supply shall be from outside the space protected and shall in no way be dependent upon power from the space protected.

§ 76.17–20 Discharge outlets.

(a) Discharge outlets shall be of an approved type.

(b) [Reserved]

§ 76.17–25 Additional protection required.

(a) In order that any residual fires above the floor plates may be extinguished when a foam system is installed for the protection of spaces other than tanks, at least 2 fire hydrants, in addition to those required for the machinery space by subpart 76.10, shall be installed outside of the machinery space entrances. Such hydrants shall be fitted with sufficient hose so that any part of the machinery space may be reached with at least 2 streams of water, and each hose shall be equipped with an approved combination nozzle, applicator, and self-cleaning strainer as described in §76.10–10(j)(3).

(b) [Reserved]
§ 76.17–90 Installations contracted for prior to November 19, 1952.

(a) Installation contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems shall be in general agreement with §§76.17–5 through 76.17–20, with the exception of §76.17–5(a)(2), insofar as is reasonable and practicable. A 6-inch blanket of foam in 5 minutes for tanks and 3 minutes for other spaces will be considered as meeting the requirements of §76.17–5.

(b) [Reserved]

§ 76.23–5 Zoning.

(a) Separate zones may be used for each deck, and on any particular deck, spaces separated by “A” or “B” Class bulkheads may be separately zoned.

(b) On any particular deck, large common areas may be zoned in accordance with table 76.23–5(b). All such zones within one common area shall be of approximately the same size. Zones of this type shall overlap in such a manner that the end sprinkler heads of both adjoining zones will cover the identical area.

Table 76.23–5(b)

<table>
<thead>
<tr>
<th>Square feet of common deck area</th>
<th>Maximum number of zones</th>
</tr>
</thead>
<tbody>
<tr>
<td>over 800</td>
<td>1</td>
</tr>
<tr>
<td>800 to 1,800</td>
<td>2</td>
</tr>
<tr>
<td>1,800 to 3,000</td>
<td>3</td>
</tr>
<tr>
<td>3,000 to 5,000</td>
<td>4</td>
</tr>
<tr>
<td>5,000 to 9,000</td>
<td>5</td>
</tr>
<tr>
<td>9,000 to 16,000</td>
<td>6</td>
</tr>
<tr>
<td>16,000 to 30,000</td>
<td>7</td>
</tr>
<tr>
<td>30,000</td>
<td>8</td>
</tr>
</tbody>
</table>

§ 76.23–10 Quantity, pipe sizes, and discharge rates.

(a) General. (1) The system shall be so designed and arranged that the overhead is effectively sprayed and all portions of the deck are covered. The capacity shall be such that at least 12 gallons of water per minute are applied to each 100 square feet of deck area.

(2) Piping, fittings, sprinkler heads, and pumps installed in accordance with the remainder of this section will be considered as meeting the above requirements. If alternate sizes or arrangements are used, it shall be demonstrated that these minimum requirements have been met.

(b) Sprinkler heads. (1) Three-eighth inch open type sprinkler heads shall be used. Sprinkler heads shall be so arranged that no portion of the overhead is more than 7 feet from a sprinkler head.

(c) Pipe sizes. (1) The various pipe sizes shall be in proportion to the number of heads served. Minimum pipe sizes shall be as given in table 76.23–10(c).

Table 76.23–10(c)

<table>
<thead>
<tr>
<th>Number of ¾ inch heads served</th>
<th>Minimum nominal pipe sizes, inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over</td>
<td>Not over</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>¾</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>1 ½</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>2 ½</td>
</tr>
<tr>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>30</td>
<td>3 ½</td>
</tr>
<tr>
<td>46</td>
<td>4</td>
</tr>
<tr>
<td>66</td>
<td>5</td>
</tr>
</tbody>
</table>

(d) Fire pumps. (1) The fire pumps may be used for the sprinkling system
Coast Guard, DHS

provided there is sufficient total capacity to operate the largest zone of the sprinkling system with a Pitot tube pressure of at least 15 p.s.i. at all heads and at the same time to deliver water from the two highest fire hose outlets in a manner similar to that described in §76.10–5(c). In addition, on vessels over 750 gross tons, there shall be sufficient pumping capacity to also operate the second largest zone.

§ 76.23–15 Controls.

(a) The controls for the system shall be outside the spaces protected, and shall not be located in such space as might be cut off or made inaccessible in the event of fire in any of the spaces protected. The control space shall be marked as required by §78.47–18 of this subchapter. It shall not be necessary to start the pumps from the control space.

(b) Distribution piping to the various zones shall be controlled from one station. Each branch line to the various zones shall be fitted with a stop valve which shall be marked as required by §78.47–15 of this subchapter.


§ 76.23–20 Piping.

(a) All piping, valves, and fittings shall meet the applicable requirements of subchapter F (Marine Engineering) of this chapter.

(b) All piping, valves, and fittings of ferrous materials shall be protected inside and outside against corrosion unless specifically approved by the Commandant.

(c) All piping, valves, fittings, and sprinkler heads shall be securely supported, and where necessary, protected against injury.

(d) Drains and dirt traps shall be fitted where necessary to prevent the accumulation of dirt or moisture.

(e) Piping shall be used for no other purpose.

§ 76.23–25 Sprinkler heads.

(a) Sprinkler heads shall be of an approved type.

(b) [Reserved]

§ 76.23–90 Installations contracted for prior to November 19, 1952.

(a) Installations contracted for prior to November 19, 1952, shall meet the following requirements:

1) Existing arrangements, materials, and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and replacements may be made to the same standards as the original installation.

2) The details of the system shall be in general agreement with §76.23–5 through 76.23–25 insofar as is reasonable and practicable. Existing piping, pumping facilities, and sprinkler heads or perforated pipes may be retained provided all portions of the overhead are effectively sprayed and all portions of the deck are covered.

(b) [Reserved]
Subpart 76.27—Fire Detection and Alarm System, Details

§ 76.27–1 Application.

(a) Where a fire detection and alarm system is installed, the provisions of this subpart, with the exception of §§76.27–80 and 76.27–90, apply to all installations contracted for on or after July 22, 2021. Installations contracted for on or after November 19, 1952, and prior to July 22, 2021 must meet the requirements of §76.27–80. Installations contracted for prior to November 19, 1952, must meet the requirements of §76.27–90.

(b) The design, manufacture, installation, and operation of fire detection and alarm systems must be in accordance with either:

(1) Sections 76.27–5 through 76.27–35; or

(2) SOLAS Chapter II–2, Regulation 7 and FSS Code Chapter 9 (both incorporated by reference, see §76.01–2) as detailed in §76.27–70.

§ 76.27–5 General.

(a) Detectors, manual alarm stations, control panels, cabinets, alarms, and other notifying devices must be of approved types.

(b) The fire detection and alarm system must be capable of immediate operation at all times that the vessel is in service.

(c) The fire detection and alarm system must control and monitor input signals for all connected detectors and manual pull stations or call points.

(d) The fire detection and alarm system must provide fire or fault output signals to the pilothouse or fire control station.

(e) The fire detection and alarm system must notify crew and passengers of a fire when appropriate.

(f) The fire detection and alarm system must be so arranged and installed that the presence of a fire in any of the protected spaces will be automatically registered visibly and audibly in the pilothouse or fire control station. The visible notice must indicate the zone in which the alarm originated. On vessels of more than 150 feet (45.72 meters) in length, there must also be an audible alarm in the engine room.

§ 76.27–10 Operation.

(a) Means to manually acknowledge all alarm and fault signals must be provided at the control panel. The audible alarm on the control panel may be manually silenced. The control panel must clearly distinguish between normal, alarm, acknowledged alarm, fault, and silence conditions.

(b) The activation of any detector or manual pull station must cause an audible and visual fire detection alarm signal at the control panel. If the alarm signal has not been acknowledged within 2 minutes, an audible fire alarm must be automatically sounded throughout the crew accommodations and service spaces, control stations, and manned machinery spaces.

(c) A fire detection and alarm system must automatically reset to a normal operating condition after alarm and fault situations are cleared.

(d) Detectors in certain spaces, such as workshops during hot work and ro-ro spaces during on- and off-loading, may be disabled. The system must be restored automatically to normal surveillance after a predetermined time. Spaces must be manned when any detectors are disabled. Detectors in all other spaces must remain operational.

(e) In fire detection and alarm systems with addressable detectors and manual pull stations, every fault (such as an open circuit, short circuit, or ground fault) must be monitored and must not prevent the continued individual identification of the remaining detectors and manual pull stations.

(f) In fire detection and alarm systems with addressable detectors and manual alarm stations, the initiation of the first fire detector and resulting alarm must not prevent any other detector from responding.

(g) Fire detection and alarm systems without addressable detectors and manual alarm stations must identify
the zone that contains the activated
detector or station upon activation of a
detector or manual pull station.

(h) Fire detection and alarm systems
may output signals to other fire safety
systems including, but not limited to,
paging systems, fire alarm or public
address systems, fan stops, fire doors,
fire dampers, sprinkler systems, smoke
extraction systems, low-location light-
ing systems, fixed local application fire
extinguishing systems, and closed-cir-
cuit television systems.

(i) Fire detection and alarm systems
may accept signals from other safety
systems. For example, a signal initi-
ated from actuation of an automatic
sprinkler valve may be sent to a fire
detection and alarm system.

(j) The fire detection and alarm sys-
tem may be connected to a decision
management system provided that—
(1) The decision management system
is compatible with the fire detection
and alarm system;

(2) The decision management system
can be disconnected without affecting
the performance of the fire detection
and alarm system; and

(3) Any malfunction of the interfaced
and connected decision management
equipment must not render the fire de-
tection and alarm system ineffective.

§ 76.27–15 Detectors.

(a) Detectors must be responsive to
heat, smoke, or other products of com-
bustion, flame, or any combination of
these factors. Detectors responsive to
other indicators of incipient fires may
be used if approved.

(b) Detectors must be capable of
being triggered or tested and restored
to service without the replacement of
any component.

(c) Heat detectors must be rated not
lower than 130 °F (54 °C) and not higher
than 172 °F (78 °C). The operating tem-
perature of heat detectors located in
spaces of high normal ambient tem-
peratures may be up to 260 °F (130 °C).
The operating temperatures of heat de-
tectors in saunas may be up to 284 °F
(140 °C).

(d) Fire detectors fitted in passenger
cabins must also emit, or cause to be
emitted, an audible alarm within the
cabin when activated.

(e) The required sensitivity and other
performance criteria of detectors must
be as set forth in 46 CFR 161.002.

§ 76.27–20 Alarm indicators.

(a) Audible alarms must generate
sound pressure levels as set forth in 46
CFR 161.002 and must:

(1) Be at least 75 dBA as measured at
the sleeping position in cabins;

(2) Be at least 10 dBA above ambient
noise levels existing during normal op-
eration with the ship under way in
moderate weather when measured at a
point 5 feet (1.5 meters) above the fin-
ished floor and at least 3 feet (1 meter)
from the source;

(3) Not exceed 120 dBA; and

(4) The sound pressure level must be
measured in the third octave band
about the fundamental frequency.

(b) Visual alarms must generate light
of an intensity and period as set forth
in 46 CFR 161.002.

(c) All audible and visual alarms
must be audible and visible throughout
the spaces they are intended to alert.

§ 76.27–25 Power and circuitry.

(a) The power supply and emergency
power supply for all fire detection and
alarm systems must be in accordance
with 46 CFR chapter I, subchapter J
(Electrical Engineering). At the end of
the required period for which the fire
detection and alarm system must re-
main operable under emergency power,
the system must remain capable of op-
erating all audible and visual fire
alarm signals for an additional period
of 30 minutes.

(b) All wiring and electrical circuits
and equipment must be in accordance
with 46 CFR chapter I, subchapter J
(Electrical Engineering).

(c) All fire detection and alarm sys-
tems must monitor power supplies and
circuits necessary for the operation of
the system during loss of power and
fault conditions.

§ 76.27–30 Zoning.

(a) The fire detection system must be
divided into separate zones to restrict
the area covered by any particular
alarm signal.

(b) The fire detection zone must not
include spaces in more than one main
vertical zone, except on cabin balconies.

(c) The fire detection zone must not include spaces on more than one deck, except—

(1) Adjacent and communicating spaces on different decks at the ends of the vessel having a combined ceiling area of not more than 3,000 sq ft;
(2) Isolated rooms or lockers in such spaces as mast houses or wheelhouse tops, which are easily communicable with the area of the fire detection circuit to which they are connected; and
(3) Systems with addressable detectors and manual alarm stations that can have their status individually determined.

(d) Any fire detection zone with non-addressable detectors and manual pull stations must not contain more than 25 protected rooms or spaces.

§ 76.27–35 Installation.

(a) Detectors must be located in all spaces except those having little or no fire risk such as void spaces with no stowage of combustibles, private bathrooms, public toilets, fire extinguishing medium storage rooms, deck spaces, and enclosed promenades that are naturally ventilated by permanent openings.

(b) The detectors must be located on the overhead in the space protected at a minimum distance of 18 in (0.5 m) away from bulkheads, except in corridors, lockers, and stairways. Positions near beams and ventilation ducts, or other positions where patterns of air flow could adversely affect performance should be avoided. Where liable to physical damage, the detector must be suitably protected.

(c) Detectors must be located in accordance with spacing requirements as tested and approved.

(d) Detectors in stairways must be located at least at the top level of the stairs and at every second level beneath.

(e) There must be at least one manual alarm station in each zone.

(f) Manual alarm stations must be located in main passageways, stairway enclosures, public spaces, or similar locations where they will be readily available and easily seen in case of need.

(g) A sufficient number of manual alarm stations must be employed to enable a person escaping from any space to find a manual alarm station on his or her normal escape route.

(h) Cables that form part of a fire detection and alarm system must be arranged to avoid galleys and machinery and other high fire risk spaces except where it is necessary to provide for fire detection and alarms in such spaces or to connect to an appropriate power supply.

(i) Clear information about the installation and operation of a fire detection and alarm system must be displayed on or adjacent to its control panels.

(j) The audible alarms must be identified as required by §78.47–13 of this subchapter.

(k) The entire main vertical zone containing an atrium must be protected throughout with smoke detectors.

§ 76.27–70 Application of SOLAS and FSS Code.

When the design, manufacture, installation, and operation of a fire detection and alarm system is to be in accordance with SOLAS Chapter II–2, Part C, Regulation 7 and FSS Code Chapter 9 (both incorporated by reference, see §76.01–2) as allowed by §76.27–1(b)(2), the following requirements apply:

(a) The periodic testing of fire detection and alarm systems required in SOLAS Chapter II–2, Regulation 7.3.2 must be conducted as part of the annual inspection mandated in subpart 71.25 of this subchapter.

(b) Control stations must be included among the spaces to be protected by a fire detection and alarm system under SOLAS Chapter II–2, Regulation 7.5.3.

(c) The Commanding Officer of the U.S. Coast Guard Marine Safety Center will determine whether a cargo space in a passenger vessel is inaccessible and whether or not it is reasonable to provide fire detection for the space under SOLAS Chapter II–2, Regulation 7.6.

(d) The Commanding Officer of the U.S. Coast Guard Marine Safety Center will determine whether or not there is risk of fire originating in concealed...
and inaccessible places that otherwise would require access of a fire patrol under SOLAS Chapter II–2, Regulation 7.8.2.

(e) Any detectors operated by factors other than heat, smoke, or other products of combustion, or flame as addressed in FSS Code Chapter 9.2.3.1.1. may be used if they are approved types.

(f) Notwithstanding the provisions of FSS Code Chapter 9.2.3.1.2, the required sensitivity and other performance criteria of smoke detectors must be as set forth in 46 CFR 161.002.

(g) Notwithstanding the provisions of FSS Code Chapter 9.2.3.1.3, the required sensitivity and other performance criteria of heat detectors must be as set forth in 46 CFR 161.002.

(h) As addressed in FSS Code Chapter 9.2.4.1.3, when a fire detection and alarm system does not include means for identifying each detector individually, no section of detectors and manually operated call points may include more than 25 enclosed spaces.

(i) Footnotes to SOLAS Chapter II–2, Regulation 7.9 and FSS Code Chapter 9.2.5.1 refer to the Code on Alarms and Indicators, 2009, as adopted by IMO Resolution A.1021(26) (incorporated by reference, see §76.01–2). The provisions of the Code on Alarms and Indicators are recommended but not required under the option in §76.27–1(b).

§ 76.27–80 Installations contracted for on or after November 19, 1952 and prior to July 22, 2021.

Installations contracted for on or after November 19, 1952 and prior to July 22, 2021, must meet the following requirements:

(a) Location and spacing of detectors.

(1) The detectors must be located close to the overhead in the space protected. Where prone to physical damage, the detector(s) must be suitably protected.

(2) Unless specifically approved otherwise, every point on the overhead of a protected space must be within 10 feet (3.05 meters) of a detector. Where beams or girders extend below the ceiling, or where the ceiling is installed at more than one level, the detectors must be so located as to be most effective.

(b) Operation and installation. (1) The system must be so arranged and installed that the presence of a fire in any of the protected spaces will be automatically registered visibly and audibly in the pilothouse or fire control station. The visible notice must indicate the zone in which the alarm originated. On vessels of more than 150 feet (45.72 meters) in length, there must also be an audible alarm in the engine room.

(2) The detectors, the fire detection cabinet, and alarms must be of an approved type.

(3) In general, the detectors must be rated not lower than 135 °F and not higher than 165 °F. However, in spaces where a high ambient temperature may be expected, detectors must be rated not lower than 175 °F and not higher than 225 °F.

(4) The fire detection system must be used for no other purpose, except that it may be integrated with the manual alarm system.

(5) All wiring and electrical circuits and equipment must meet the applicable requirements of 46 CFR chapter I, subchapter J (Electrical Engineering) of this chapter.

(6) A framed chart or diagram must be installed in the wheelhouse or control station adjacent to the detecting cabinet indicating the location of the various detecting zones and giving instructions for the operation, maintenance, and testing of the system. This chart, or a separate card or booklet to be kept near the chart, must have tabulated spaces for the date and signature of the licensed officer of the vessel who must witness or conduct the periodic tests.

(7) The audible alarms must be identified as required by §78.47–13 of this subchapter.

(c) Zoning. (1) The fire detection system must be divided into separate zones to restrict the area covered by any particular alarm signal.

(2) All spaces in a fire detection zone must be accessible from one to another without leaving the deck involved. All
doors in watertight subdivision bulkheads and main vertical zone bulkheads must be assumed closed for the purpose of this requirement.

(3) The fire detection zone must not include spaces on more than one deck, except:
   (i) Adjacent and communicating spaces on different decks at the ends of the vessel having a combined ceiling area of not more than 3,000 sq ft;
   (ii) Isolated rooms or lockers in such spaces as mast houses, wheelhouse top, etc., which are easily communicable with the area of the fire detection circuit to which they are connected; and
   (iii) Systems with indicators for individual spaces.

(4) The fire detection zone must not contain more than 50 protected rooms or spaces.

(d) Repair of existing systems. (1) If the status of the approval for the system is other than “Former—Do not use”, the system may be repaired by the following means:
   (i) Repair in kind using the same components as installed and listed on the approved drawings;
   (ii) Repair using equivalent components from the authorized component list for the type approval for that system;
   (iii) Repair using equivalent components from the authorized component list for the type approval for another fire detection system, provided that the replacement devices are compatible with the installed system; and
   (iv) Repair using devices that are currently type approved, provided that the replacement devices are compatible with the installed system.

(2) Any changes to the system that will result in the fire detection system not complying with the approved drawings require the drawings to be revised and submitted to the Marine Safety Center for review.

### Table 76.27–80—Installations

<table>
<thead>
<tr>
<th>Space</th>
<th>Detecting systems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Safety Areas</strong></td>
<td></td>
</tr>
<tr>
<td>Wheelhouse or fire-control room</td>
<td>None required.</td>
</tr>
<tr>
<td>Stairway and elevator enclosures</td>
<td>None required.</td>
</tr>
<tr>
<td>Communication corridors</td>
<td>None required.</td>
</tr>
<tr>
<td>Lifeboat embarkation and lowering stations</td>
<td>None required.</td>
</tr>
<tr>
<td>Radio room</td>
<td>None required.</td>
</tr>
<tr>
<td><strong>Accommodations</strong></td>
<td></td>
</tr>
<tr>
<td>Staterooms, toilet spaces, isolated pantries, etc</td>
<td>None required.</td>
</tr>
<tr>
<td>Offices, lockers, and isolated storerooms</td>
<td>Electric, pneumatic, or automatic sprinkling.</td>
</tr>
<tr>
<td>Public spaces</td>
<td>None required with 20-minute patrol. Electric, pneumatic, or automatic sprinkling with 1 hour patrol.</td>
</tr>
<tr>
<td>Open decks or enclosed promenades</td>
<td>None required.</td>
</tr>
<tr>
<td><strong>Service Spaces</strong></td>
<td></td>
</tr>
<tr>
<td>Galley</td>
<td>None required.</td>
</tr>
<tr>
<td>Main pantries</td>
<td>None required.</td>
</tr>
<tr>
<td>Motion picture booths and film lockers</td>
<td>Electric, pneumatic, or automatic sprinkling.</td>
</tr>
<tr>
<td>Paint and lamp rooms</td>
<td>Smoke detecting.</td>
</tr>
<tr>
<td>Inaccessible baggage, mail, and specie rooms and storerooms</td>
<td>Electric, pneumatic, or automatic sprinkling.</td>
</tr>
<tr>
<td>Accessible baggage, mail, and specie rooms and storerooms</td>
<td>None required.</td>
</tr>
<tr>
<td>Carpentry, valet, photographic, and printing shops, sales rooms, etc.</td>
<td>Electric, pneumatic, or automatic sprinkling.</td>
</tr>
<tr>
<td><strong>Machinery Spaces</strong></td>
<td></td>
</tr>
<tr>
<td>Coal fired boilers: Bunker and boiler space</td>
<td>None required.</td>
</tr>
<tr>
<td>Oil fired boilers: Spaces containing oil fired boilers either main or auxiliary, their fuel oil service pumps, and/or such other fuel oil units as the heaters, strainers, valves, manifolds, etc., that are subject to the discharge pressure of the fuel oil service pumps, together with adjacent spaces to which oil can drain.</td>
<td>None required.</td>
</tr>
<tr>
<td>Internal combustion or gas turbine propelling machinery spaces</td>
<td>None required.</td>
</tr>
<tr>
<td>Electric propulsive motors or generators of open type</td>
<td>None required.</td>
</tr>
</tbody>
</table>
TABLE 76.27–80—INSTALLATIONS—Continued

<table>
<thead>
<tr>
<th>Space</th>
<th>Detecting systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclosed ventilating systems for motors and generators of electric propelling machinery.</td>
<td>None required.</td>
</tr>
<tr>
<td>Auxiliary spaces, internal combustion or gas turbine</td>
<td>None required.</td>
</tr>
<tr>
<td>Auxiliary spaces, electric motors or generators</td>
<td>None required.</td>
</tr>
<tr>
<td>Auxiliary spaces, steam</td>
<td>None required.</td>
</tr>
<tr>
<td>Trunks to machinery spaces</td>
<td>None required.</td>
</tr>
<tr>
<td>Fuel tanks</td>
<td>None required.</td>
</tr>
</tbody>
</table>

Cargo Spaces

Inaccessible during voyage (combustible cargo), including trunks (excluding tanks).

<table>
<thead>
<tr>
<th>Space</th>
<th>Detecting systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicular deck (except where no overhead deck is 30 feet (9.14 meters) in length or less).</td>
<td>None required.</td>
</tr>
<tr>
<td>Cargo oil tanks</td>
<td>None required.</td>
</tr>
<tr>
<td>Specially suitable for vehicles</td>
<td>Smoke detecting, electric, pneumatic or automatic sprinkling.</td>
</tr>
</tbody>
</table>

1 Vessels of 100 GT or more contracted for on or before May 27, 1936, and having combustible joiner work must be fitted with an automatic sprinkler system, except in relatively incombustible spaces.

2 Sprinkler heads may be attached to a sanitary system provided electrical or pneumatic detecting is installed.

3 On vessels contracted for prior to January 1, 1962, a steam smothering system may be accepted. However, although existing steam smothering systems may be repaired, replaced, or extended, no new system contracted for on or after January 1, 1962, will be permitted.

§ 76.27–90 Installations contracted for prior to November 19, 1952.

(a) Installations contracted for prior to November 19, 1952, must meet the following requirements:

(1) Existing arrangements, materials, and equipment previously approved will be considered satisfactory so long as they meet the minimum requirements of this paragraph, and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems must be in general agreement with §§ 76.27–5 through 76.27–15 as is reasonable and practicable.

(b) [Reserved]

Subpart 76.30—Pneumatic Fire Detection System, Details

§ 76.30–1 Application.

(a) Where a pneumatic fire detection system is installed, the provisions of this subpart, with the exception of §76.30–90, must apply to all installations contracted for on or after November 19, 1952, and prior to July 22, 2021. Installations contracted for prior to November 19, 1952, must meet the requirements of §76.30–90.

(b) [Reserved]

§ 76.30–5 Zoning.

(a) The fire detection system must be divided into separate zones to restrict the area covered by any particular alarm signal.

(b) All spaces in a fire detection zone must be accessible from one to another without leaving the deck involved. All doors in watertight subdivision bulkheads and main vertical zone bulkheads must be assumed closed for the purpose of this requirement.

(c) The fire detection zone must not include spaces on more than one deck, except:

(1) Adjacent and communicating spaces on different decks in the ends of the vessel, having a combined deck area of not more than 3,000 feet.

(2) Isolated rooms or lockers in such spaces as mast houses, wheelhouse top, etc., which are easily communicable with the area of the fire-detection circuit to which they are connected.

(d) The fire detection zone must not include more than 50 protected rooms or spaces.

(e) Individual tubing circuits must not contain more than 1,000 feet of pneumatic tubing or its equivalent. However, more than one tubing circuit
§ 76.30–10 Location and spacing of tubing.

(a) The tubing must be located on the overhead or within 12 inches of the overhead on the bulkheads. Where liable to physical damage, the tubing must be suitably protected.

(b) In each enclosed space or separate room there must be exposed at least 5 percent of the total length of tubing in that circuit, but in no case may the amount be less than 25 feet.

(c) No spot on the overhead of a protected space may be more than 12 feet from the nearest point of tubing. Where beams or girders extend below the ceiling, or where the ceiling is installed at more than one level, the tubing must be located so as to be most effective.

§ 76.30–15 Operation and installation.

(a) The system must be so arranged and installed that the presence of a fire in any of the protected spaces will automatically be registered visibly and audibly in the pilothouse or fire control station. The visible notice must automatically indicate the zone in which the alarm originated. On vessels greater than 150 feet in length, there must also be an audible alarm in the engine room.

(b) The tubing or detecting devices, pneumatic-electric converting units, detecting cabinets, and alarms must be of an approved type.

(c) In general, the system must be adjusted to operate at a temperature rise of approximately 40 °F per minute at the center of the circuit.

(d) The fire detection system must be used for no other purpose except that it may be incorporated with the manual alarm system.

(e) All wiring and electrical circuits and equipment must meet the applicable requirements of subchapter J (Electrical Engineering) of this chapter.

(f) A framed chart or diagram must be installed in the wheelhouse or control station adjacent to the detecting cabinet indicating the location of the various detecting zones and giving instructions for the operation, maintenance, and testing of the system. This chart, or a separate card or booklet to be kept near the chart, must have tabulated spaces for the date and signature of the licensed officer of the vessel who must witness or conduct the periodic tests.

(g) The audible alarms must be identified as required by §78.47–13 of this subchapter.

§ 76.30–90 Installations contracted for prior to November 19, 1952.

(a) Installations contracted for prior to November 19, 1952, must meet the following requirements:

(1) Existing arrangements, materials, and equipment previously approved will be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems must be in general agreement with §§76.27–5 through 76.27–35 insofar as is reasonable and practicable.

(b) [Reserved]

§ 76.33–1 Application.

(a) Where a smoke detection system is installed, the provisions of this subpart, with the exception of §76.33–90, apply to all installations contracted for on or after November 19, 1952, and prior to July 22, 2021. Installations contracted for prior to November 19, 1952, must meet the requirements of §76.33–90 of this subpart.
§ 76.33–20 Operation and installation.

(a) The system must be so arranged and installed that the presence of smoke in any of the protected spaces will automatically be indicated visually to an observer directly in front of the detection cabinet. The visible notice must automatically indicate the zone in which the smoke originated. The detection cabinet must normally be located in the pilothouse or fire control station. On vessels greater than 5,000 gross tons, there must also be an automatic audible alarm in the wheelhouse together with an auxiliary audible alarm in the engine room.

(b) If the detection cabinet is not located in the pilothouse or fire control station, it must be located in convenient proximity to the valve control station of the extinguishing system. In this case, there must be in the pilothouse or fire control station automatic visual alarms, one for each zone in which an alarm may originate, as well as an automatic audible alarm. There must also be an auxiliary audible alarm in the engine room. For installations contracted for on or after January 1, 1962, where detection cabinets are not located in the pilothouse or an adjacent fire control station having direct access to the pilothouse, an efficient means of direct communication between the tank and the detection cabinet so that the line may be shut off when liquids are carried. When the smoke detection system is combined with a fire extinguishing system, the operation of the valve must not affect the operation of the fire extinguishing system.

(c) Each separate space must be considered as a zone, except that two or three small adjacent spaces having a combined volume not exceeding 5,000 cubic feet may be connected on the same zone.

(d) Where a space is of such size that one accumulator is not sufficient, not more than two accumulators may be combined in one zone.

(e) Drains and dirt traps must be fitted where necessary to prevent the accumulation of dirt or moisture.

§ 76.33–15 Piping.

(a) Individual pipes must be not less than ¾-inch standard pipe size.

(b) All piping, valves, and fittings of ferrous materials must be protected inside and outside against corrosion unless specifically approved otherwise by the Commandant.

(c) Where a smoke detection system serves a space used alternately for liquid and dry cargo, a valve must be installed between the tank and the detection cabinet so that the line may be shut off when liquids are carried.
§ 76.33–90 Installations contracted for prior to November 19, 1952.
(a) Installations contracted for prior to November 19, 1952, must meet the following requirements:

1. Existing arrangements, material, and equipment previously approved will be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(c) No exhaust from the detection cabinet may be discharged in the vicinity of the cabinet to permit the detection of fire by odor. Instead, the exhaust must be directed to the outside. Vessels must comply with this requirement not later than July 22, 2021.

(d) The smoke detection system must be used for no other purpose except that it may be incorporated with the fire extinguishing system to the spaces covered by the smoke detection system.

(e) The accumulators, detection cabinet, interconnecting valves with the fire extinguishing system, alarms, and indicating devices must be of an approved type.

(f) All wiring and electrical circuits and equipment must meet the applicable requirements of subchapter J (Electrical Engineering) of this chapter.

(g) A framed chart or diagram must be installed adjacent to the detection cabinet and auxiliary panel indicating the location of the various zones and giving instructions for the operation, maintenance, and testing of the system. The chart at the cabinet location or a separate card or booklet to be kept near the chart, must have tabulated spaces for the date and signature of the licensed officer of the vessel who must witness or conduct the periodic tests.

(b) The audible smoke detection alarms must be identified as required by §76.47–13 of this subchapter.

Subpart 76.35—Manual Alarm System, Details
§ 76.35–1 Application.
(a) Where a manual alarm system is installed, the provisions of this subpart, with the exception of §76.35–90, must apply to all installations contracted for on or after November 19, 1952, and prior to July 22, 2021. Installations contracted for prior to November 19, 1952, must meet the requirements of §76.35–90.

(b) [Reserved]

§ 76.35–5 Zoning.
(a) The zoning of the manual alarm system must meet the same requirements as those for the fire detection system set forth in §76.27–15(d).

(b) [Reserved]

§ 76.35–10 Location and spacing of manual alarm stations.
(a) There must be at least one manual alarm station in each zone.

(b) Manual alarms must be located in main passageways, stairway enclosures, public spaces, or similar locations where they will be readily available and easily seen in case of need.

(c) In general, a sufficient number of manual alarm stations must be employed that a person escaping from any space would find a manual alarm station convenient on his normal route of escape.

§ 76.35–15  Operation and installation.

(a) The system must be so arranged and installed that the presence of a fire may be reported from any of the protected spaces and be automatically registered visibly and audibly in the pilothouse or fire control station. The visible notice must indicate the zone in which the alarm originated. There must also be an audible alarm in the engine room.

(b) The manual alarm stations, cabinet, and alarms must be of an approved type.

(c) The manual alarm system must be used for no other purpose, except that it may be incorporated with the fire detection system.

(d) All wiring and electrical circuits and equipment must meet the applicable requirements of subchapter J (Electrical Engineering) of this chapter.

(e) A framed chart or diagram must be installed in the wheelhouse or control station adjacent to the detection cabinet indicating the location of the various detection zones and giving instructions for the operation, maintenance, and testing of the system. This chart, or a separate booklet to be kept near the chart, must have tabulated spaces for the date and signature of the licensed officer of the vessel who must witness or conduct the periodic tests.

(f) The manual alarm stations and bells must be identified as required by § 78.47–10 of this subchapter.


§ 76.35–90  Installations contracted for prior to November 19, 1952.

(a) Installations contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Existing arrangements, materials, and equipment previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph, and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems shall be in general agreement with §§ 76.35–5 through 76.35–15 insofar as is reasonable and practicable.

(b) [Reserved]
TABLE 76.50—10(a)—CARRIAGE OF PORTABLE AND SEMI-PORTABLE FIRE EXTINGUISHERS

<table>
<thead>
<tr>
<th>Space</th>
<th>Fire extinguishing</th>
<th>Minimum required rating</th>
<th>Quantity and location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Safety Area</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheelhouse or fire control room</td>
<td>20–B:C</td>
<td>1 of each classification on vessels over 1,000 GT. (Not required in both spaces.) (Multiple classifications may be recognized.)</td>
<td></td>
</tr>
<tr>
<td>Stairway and elevator enclosures</td>
<td>2–A</td>
<td>1 in each main corridor in each main vertical zone. (May be located in stairway enclosures.)</td>
<td></td>
</tr>
<tr>
<td>Communicating corridors</td>
<td></td>
<td>None required.</td>
<td></td>
</tr>
<tr>
<td>Lifeboat embarkation and lowering stations</td>
<td></td>
<td>None required.</td>
<td></td>
</tr>
<tr>
<td>Radio room</td>
<td>20–B:C</td>
<td>2 in the vicinity of the exit.</td>
<td></td>
</tr>
<tr>
<td><strong>Accommodations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staterooms, toilet spaces, isolated pantries, etc</td>
<td></td>
<td>None required.</td>
<td></td>
</tr>
<tr>
<td>Offices, lockers, and isolated storerooms</td>
<td>2–A</td>
<td>None required.</td>
<td></td>
</tr>
<tr>
<td>Public spaces</td>
<td></td>
<td>1 for each 2,500 sq ft or fraction thereof located in vicinity of the exits, except that none are required for spaces under 500 sq ft.</td>
<td></td>
</tr>
<tr>
<td>Open decks or enclosed promenades</td>
<td></td>
<td>None required.</td>
<td></td>
</tr>
<tr>
<td><strong>Service Spaces</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Galley</td>
<td>40–B:C</td>
<td>1 for each 2,500 sq ft or fraction thereof suitable for hazards involved.</td>
<td></td>
</tr>
<tr>
<td>Main pantries</td>
<td>2–A</td>
<td>1 for each 2,500 sq ft or fraction thereof located in the vicinity of the exits.</td>
<td></td>
</tr>
<tr>
<td>Motion picture booths and film lockers</td>
<td>10–B:C</td>
<td>1 outside the vicinity of the exit.</td>
<td></td>
</tr>
<tr>
<td>Paint and lamp rooms</td>
<td>40–B</td>
<td>1 outside space in the vicinity of the exit.</td>
<td></td>
</tr>
<tr>
<td>Accessible baggage, mail, and specie rooms, and storerooms.</td>
<td>2–A</td>
<td>None required.</td>
<td></td>
</tr>
<tr>
<td>Refrigerated storerooms</td>
<td>2–A</td>
<td>1 for each 2,500 sq ft or fraction thereof located in the vicinity of the exits, either inside or outside the spaces.</td>
<td></td>
</tr>
<tr>
<td>Carpenter, valet, photographic, printing shops sales rooms, etc.</td>
<td>2–A</td>
<td>1 outside the space in the vicinity of the exit.</td>
<td></td>
</tr>
<tr>
<td><strong>Machinery Spaces</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coal-fired boilers: Bunker and boiler space</td>
<td></td>
<td>None required.</td>
<td></td>
</tr>
<tr>
<td>Oil-fired boilers: Spaces, containing oil fired boilers, either main or auxiliary, or their fuel oil units.</td>
<td>40–B</td>
<td>2 required.</td>
<td></td>
</tr>
<tr>
<td>Internal combustion or gas turbine propelling machinery spaces.</td>
<td>160–B</td>
<td>1 required.</td>
<td></td>
</tr>
<tr>
<td>Electric propulsive motors or generators of open type.</td>
<td>40–B</td>
<td>1 for each 1,000 brake horsepower, but not less than 2 or more than 6.</td>
<td></td>
</tr>
<tr>
<td>Enclosed ventilating systems for motors and generators of electric propelling machinery.</td>
<td>120–B</td>
<td>1 required.</td>
<td></td>
</tr>
<tr>
<td>Auxiliary spaces, internal combustion or gas turbine.</td>
<td>40–B:C</td>
<td>1 for each propulsion motor or generator unit.</td>
<td></td>
</tr>
<tr>
<td>Auxiliary spaces, electric emergency motors or generators.</td>
<td></td>
<td>None required.</td>
<td></td>
</tr>
<tr>
<td>Auxiliary spaces, steam.</td>
<td>40–B</td>
<td>None required.</td>
<td></td>
</tr>
<tr>
<td>Fuel tanks</td>
<td></td>
<td>None required.</td>
<td></td>
</tr>
<tr>
<td><strong>Cargo Spaces</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inaccessible during voyage, including trunks (excluding tanks).</td>
<td></td>
<td>None required.</td>
<td></td>
</tr>
<tr>
<td>Accessible during voyage</td>
<td>2–A</td>
<td>1 for each 1,200 sq ft or fraction thereof.</td>
<td></td>
</tr>
<tr>
<td>Vehicular spaces (covered by a sprinkler system)</td>
<td>40–B</td>
<td>1, plus 1 for each 6,000 sq ft or fraction thereof.</td>
<td></td>
</tr>
<tr>
<td>Vehicular spaces (not covered by a sprinkler system).</td>
<td>40–B</td>
<td>1, plus 1 for each 1,500 sq ft or fraction thereof.</td>
<td></td>
</tr>
<tr>
<td>Cargo oil tanks</td>
<td></td>
<td>None required.</td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 76.50—10(a)—CARRIAGE OF PORTABLE AND SEMI-PORTABLE FIRE EXTINGUISHERS—Continued

<table>
<thead>
<tr>
<th>Space</th>
<th>Fire extinguishing</th>
<th>Minimum required rating</th>
<th>Quantity and location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spare Units</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2–A</td>
<td></td>
<td>10 percent of the required number for public spaces rounded up.</td>
<td></td>
</tr>
<tr>
<td>40–B</td>
<td></td>
<td>10 percent of the required number for cargo spaces rounded up.</td>
<td></td>
</tr>
<tr>
<td>40–B:C</td>
<td></td>
<td>1.</td>
<td></td>
</tr>
</tbody>
</table>

1. In any case, on vessels of 150 feet (45.72 meters) in length and over, there must be at least two 2–A units on each passenger deck.
2. For vessels on an international voyage, substitute 1 20–B:C in the vicinity of the exit.
3. Vessels of less than 1,000 GT and not on an international voyage may substitute 1 160–B.
4. If an oil-burning donkey boiler is fitted in the space, the 160–B previously required for the protection of the boiler room may be substituted. Not required on vessels of less than 300 GT if the fuel has a flashpoint of 110 °F or lower except those on an international voyage.
5. Not required on vessels of less than 300 GT if the fuel has a flashpoint higher than 110 °F.
6. Two 5–B units may be substituted for 1 20–B unit.
7. The location of the equipment must be to the satisfaction of the Officer in Charge, Marine Inspection. Nothing in this paragraph should be construed as limiting the Officer in Charge, Marine Inspection, from requiring such additional equipment as he or she deems necessary for the proper protection of the vessel.

(c) Semi-portable fire extinguishing systems must be located in the open so as to be readily seen.

(d) If portable fire extinguishers are not located in the open or behind glass so that they may be readily seen, they may be placed in enclosures together with the firehose, provided such enclosures are marked as required by §78.47–20 of this subchapter.

(e) Portable fire extinguishers and their stations must be numbered in accordance with §78.47–30 of this subchapter.

(f) Portable or semi-portable extinguishers, which are required on their nameplates to be protected from freezing, must not be located where freezing temperatures may be expected.

§ 76.50–20 Semi-portable fire extinguishers.

(a) The frame or support of each semi-portable fire extinguisher required by table 76.50–10(a) must be welded or otherwise permanently attached to a bulkhead or deck.

(b) If an approved semi-portable fire extinguisher has wheels and is not required by table 76.50–10(a), it must be securely stowed when not in use to prevent it from rolling out of control under heavy sea conditions.

(c) Each semi-portable extinguisher must be fitted with a suitable hose and nozzle, or other practicable means, so that all areas of the space can be protected.

§ 76.50–80 Locations and number of fire extinguishers required for vessels constructed prior to January 18, 2017.

(a) Vessels contracted for prior to January 18, 2017, must meet the following requirements:

1. Previously installed extinguishers with extinguishing capacities smaller than are required in Table 76.50–10(a) of this subpart need not be replaced and may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection; and

2. All new equipment and installations must meet the applicable requirements in this subpart for new vessels.

§ 76.50–90 Vessels contracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

1. The provisions of §§76.50–5 through 76.50–15 shall be met with the exception that existing installations in
§ 76.60–1  
safety areas, accommodations, service spaces, and cargo spaces may be main-
tained if in the opinion of the Officer in
Charge, Marine Inspection, they are in
general agreement with the standard of
safety prescribed by table 76.50–10(a). In
such cases, minor modifications may
be made to the same standards as the
original installation, provided that in
no case will a greater departure from
the standards of table 76.50–10(a) be
permitted than presently exists.
(2) [Reserved]
(b) [Reserved]

Subpart 76.60—Fire Axes

§ 76.60–1 Application.
(a) The provisions of this subpart
shall apply to all vessels.
(b) [Reserved]

§ 76.60–5 Number required.
(a) All vessels except barges shall
carry at least the minimum number of
fire axes as set forth in table 76.60–5(a).
Nothing in this paragraph shall be con-
strued as limiting the Officer in
Charge, Marine Inspection, from re-
quiring such additional fire axes as he
deems necessary for the proper protec-
tion of the vessel.

(b) Covered barges shall carry at
least three fire axes and uncovered
barges shall carry at least two fire
axes.

§ 76.60–10 Location.
(a) Fire axes shall be distributed
throughout the spaces available to pas-
sengers and crew so as to be most read-
ily available in the event of emer-
gency.
(b) If fire axes are not located in the
open or behind glass so that they may
be readily seen, they may be placed in
enclosures together with the fire hose,
provided such enclosures are marked as
required by §78.47–20 of this sub-
chapter.

PART 77—VESSEL CONTROL AND
MISCELLANEOUS SYSTEMS AND
EQUIPMENT

Subpart 77.01—Application
Sec.
77.01–1 General.
77.01–3 Incorporation by reference.

Subpart 77.03—Marine Engineering
Systems
77.03–1 Installation and details.

Subpart 77.05—Electrical Engineering and
Interior Communication Systems
77.05–1 Installation and details.

Subpart 77.06—Lifesaving Appliances and
Arrangements
77.06–1 Installation.

Subpart 77.07—Anchors, Chains, and
Hawsers
77.07–1 Application.
77.07–5 Ocean, coastwise, or Great Lakes
service.
77.07–10 Lakes, bays, and sounds, or river
service.
77.07–90 Vessels contracted for prior to No-
vember 19, 1962.

Subpart 77.09—Radar
77.09–1 When required.

Subpart 77.11—Magnetic Compass and
Gyrocompass
77.11–1 When required.

Subpart 77.27—Sounding Equipment
77.27–1 When required.

Subpart 77.30—Emergency Equipment
77.30–1 Application.
77.30–5 General.
77.30–10 Stowage.
77.30–15 Spare charges.
77.30–90 Vessels contracted for before No-

Subpart 77.35—Fireman’s Outfit
77.35–1 Application.
77.35–5 General.
77.35–10 Fireman’s outfit.
77.35–15 Stowage.
Subpart 77.01—Application
§ 77.01–1 General.
(a) The provisions of this part shall apply to all vessels except as specifically noted.
(b) [Reserved]

§ 77.01–3 Incorporation by reference.
(a) Certain materials are incorporated by reference into this part with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a). To enforce any edition other than the one listed in paragraph (b) of this section, notice of the change must be published in the Federal Register and the material made available to the public. All approved material is on file at the Office of the Federal Register, Washington, DC 20408, and at Coast Guard Headquarters. Contact Commandant (CG-ENG), Attn: Office of Design and Engineering Systems, U.S. Coast Guard Stop 7509, 2703 Martin Luther King Jr. Avenue, SE., Washington, DC 20593-7509. The material is also available from the address indicated in paragraph (b).
(b) The material approved for incorporation by reference in this part, and the sections affected is:

American Society for Testing and Materials
(ASTM)
100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.
ASTM F 1014-92, Standard Specification for Flashlights on Vessels—77.35–5

Subpart 77.03—Marine Engineering Systems
§ 77.03–1 Installation and details.
(a) The installation of all systems of a marine engineering nature, together with the details of design, construction, and installation, shall be in accordance with the requirements of subchapter F (Marine Engineering) of this chapter. Systems of this type include the following:

- Steering systems.
- Power for going astern.
- Bilge and ballast systems.
- Tank vent and sounding systems.
- Overboard discharges and shell connections.
- Pipe and pressure systems.

(b) [Reserved]

Subpart 77.05—Electrical Engineering and Interior Communication Systems
§ 77.05–1 Installation and details.
(a) The installation of all systems of an electrical engineering or interior communications nature, together with the details of design, construction, and installation, shall be in accordance with the requirements of subchapter J (Electrical Engineering) of this chapter. Systems of this type include the following:

- Ship’s service generating systems.
- Ship’s service power distribution systems.
- Ship’s lighting systems.
- Electric propulsion and propulsion control systems.
- Emergency lighting and power systems.
- Electric lifeboat winch systems.
- Electric steering gear and steering control systems.
- Fire detecting and alarm systems.
- Sound powered telephone and voice tube systems.
- Engine order telegraph systems.
- Rudder angle indicator systems.
- Refrigerated spaces alarm systems.
- Navigation lights systems.
- Daylight signaling lights.
- Miscellaneous machinery alarms and controls.
- General alarm systems.

(b) Electrical equipment installed in spaces “specially suitable for vehicles” shall be in accordance with subchapter
Subpart 77.06—Lifesaving Appliances and Arrangements

§ 77.06–1 Installation.

The installation of all lifesaving appliances and arrangements must be in accordance with the requirements of subchapter W (Lifesaving Appliances and Arrangements) of this chapter.

Subpart 77.07—Anchors, Chains, and Hawses

§ 77.07–1 Application.

(a) The provisions of this subpart, with the exception of §77.07–90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of §77.07–90.

(b) [Reserved]

§ 77.07–5 Ocean, coastwise, or Great Lakes service.

(a) Vessels in ocean, coastwise, or Great Lakes service shall be fitted with anchors, chains, and hawses in general agreement with the standards established by the American Bureau of Shipping, see subpart 70.35 of this subchapter.

(b) In addition to the provisions of paragraph (a) of this section, the following requirements and alternatives also apply:

(1) The American Bureau of Shipping rules relating to anchor equipment are mandatory, not a guide.

(2) Vessels under 200 feet (61 meters) in length and with an American Bureau of Shipping equipment number of less than 150 may be equipped with either—

(i) One anchor of the tabular weight and one-half the tabulated length of anchor chain listed in the applicable standard, or

(ii) Two anchors of one-half the tabular weight with the total length of anchor chain listed in the applicable standard provided both anchors are in a position that allows for ready use at all times and the windlass is capable of heaving in either anchor.

(c) Standards of other recognized classification societies may be used, in lieu of those established by the American Bureau of Shipping, upon approval by the Commandant.

Subpart 77.09—Radar

§ 77.09–1 When required.

All mechanically propelled vessels of 1,600 gross tons and over in ocean or coastwise service must be fitted with a marine radar system for surface navigation. Facilities for plotting radar readings must be provided on the bridge.

[CGD 75–074, 42 FR 5963, Jan. 31, 1977]
§ 77.11—Magnetic Compass and Gyrocompass

§ 77.11–1 When required.
(a) All mechanically propelled vessels in ocean, coastwise or Great Lakes service must be fitted with a magnetic compass.
(b) All mechanically propelled vessels 1,600 gross tons and over in ocean or coastwise service must be fitted with a gyrocompass in addition to the magnetic compass.
(c) Each vessel must have an illuminated repeater for the gyrocompass required under paragraph (b) of this section, that is at the main steering stand unless the gyrocompass is illuminated and is at the main steering stand.

(CGFR 75–74, 42 FR 5963, Jan. 31, 1977)

Subpart 77.27—Sounding Equipment

§ 77.27–1 When required.
All mechanically propelled vessels of 500 gross tons and over to ocean or coastwise service, and all mechanically propelled vessels of 500 gross tons and over in Great Lakes service and certificated for service on the River St. Lawrence eastward of the lower exit of the St. Lambert Lock at Montreal, Canada, must be fitted with an efficient electronic deep-sea sounding apparatus.

(CGFR 75–74, 42 FR 5963, Jan. 31, 1977)

Subpart 77.30—Emergency Equipment

§ 77.30–1 Application.
This subpart, except § 77.30–90, applies to each vessel that is not on an international voyage and is contracted for on or after November 23, 1992. Each vessel that is not on an international voyage and is contracted for before November 23, 1992, must satisfy § 77.30–90.


§ 77.30–5 General.
(a) Each self-contained breathing apparatus must be of the pressure-demand, open-circuit type, approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH), and have at a minimum a 30-minute air supply and a full facepiece.
(b) The self-contained breathing apparatus required as part of the emergency outfit may be used as protection against gas leaking from a refrigeration unit.
(c) All flame safety lamps shall be of an approved type, constructed in accordance with subpart 160.016 of subchapter Q (Specifications) of this chapter.
(d) All emergency equipment shall be maintained in an operative condition, and it shall be the responsibility of the master and chief engineer to ascertain that a sufficient number of the crew are familiar with the operation of the equipment.


§ 77.30–10 Stowage.
(a) The equipment set forth in table 77.30–10(a), together with such other items as the master may deem necessary, shall be stowed in convenient, accessible locations for use in case of emergency.

<table>
<thead>
<tr>
<th>Service</th>
<th>Number of passenger state-rooms</th>
<th>Self-contained breathing apparatus</th>
<th>Self-contained breathing apparatus for refrigeration</th>
<th>Flame safety lamps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ocean and coastwise, not on an international voyage</td>
<td>0 to 49</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 to 100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Over 100</td>
<td>6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Great Lakes, and lakes, bays, and sounds</td>
<td>0 to 49</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 to 100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Over 100</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Rivers</td>
<td>0 to 49</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 to 100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
§ 77.30–10(a)—Continued

<table>
<thead>
<tr>
<th>Service</th>
<th>Number of passenger state-rooms</th>
<th>Self-contained breathing apparatus</th>
<th>Self-contained breathing apparatus for refrigeration(^1)</th>
<th>Flame safety lamps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 100</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Required only on vessels equipped with any refrigeration unit using ammonia to refrigerate any space with a volume of more than 20 cubic feet or with any refrigeration unit using fluorocarbons to refrigerate any space with a volume of more than 1000 cubic feet.

(b) If a separate self-contained breathing apparatus is maintained for protection against gas leaking from a refrigeration unit, it must be stowed convenient to, but outside of, the spaces containing the refrigeration equipment.

(c) Half of the remaining equipment set forth in table 77.30–10(a) shall be stowed in or near the pilothouse together with a fire axe and the hand portable fire extinguishers required by table 76.50–10(a) for that location. The other half of the equipment shall be stowed in a convenient accessible location, remote from the pilothouse, and preferably adjacent to the main entrance to the machinery space. Where only one of an item is required, it shall be stowed in the pilothouse.


§ 77.30–15 Spare charges.

(a) A complete recharge shall be carried for each gas mask and self-contained breathing apparatus. The spare charge shall be stowed in the same location as the equipment it is to reactivate.

(b) [Reserved]

§ 77.30–90 Vessels contracted for before November 23, 1992.

Vessels contracted for before November 23, 1992, must meet the following requirements:

(a) Each vessel must satisfy §§77.30–5 through 77.30–15 concerning the number of items and the method of stowage of equipment.

(b) Items of equipment previously approved, but not meeting the applicable specifications set forth in §77.30–5, may continue in service as long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection; but each item in an installation or a replacement must meet all applicable specifications.

(c) After November 23, 1994, each respirator must either satisfy §77.30–5(a) or be a self-contained compressed-air breathing apparatus previously approved by MSHA and NIOSH under part 160, subpart 160.011, of this chapter.

[CGD 86–036, 57 FR 48324, Oct. 23, 1992]

Subpart 77.35—Fireman’s Outfit

§ 77.35–1 Application.

This subpart, except §77.35–90, applies to each vessel that is on an international voyage and is contracted for on or after November 23, 1992. Each vessel that is on an international voyage and is contracted for before November 23, 1992, must satisfy §77.35–90.

§ 77.35–5 General.

(a) All flame safety lamps shall be of an approved type, constructed in accordance with subpart 160.016 of subchapter Q (Specifications) of this chapter.

(b) Each self-contained breathing apparatus must be of the pressure-demand, open-circuit type, approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH), and have at a minimum a 30-minute air supply and a full facepiece.

(c) Flashlights shall be Type II or Type III, constructed and marked in accordance with ASTM F 1014 (incorporated by reference, see §77.01–3).

(d) All lifelines shall be of steel or bronze wire rope. Steel wire ropes shall
§ 77.35–90


Vessels contracted for before November 23, 1992, must meet the following requirements:

(a) Each vessel must satisfy §§77.35–5 through 77.35–20 concerning the number of items and the method of stowage of equipment.

(b) Items of equipment previously approved, but not meeting the applicable specifications set forth in §77.35–5, may continue in service as long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection; but each item in an installation or a replacement must meet all applicable specifications.

Coast Guard, DHS

§ 77.35–10 Fireman’s outfit.

(a) Each fireman’s outfit must consist of one self-contained breathing apparatus, one lifeline with a belt or a suitable harness, one flashlight, one flame safety lamp, one rigid helmet, boots and gloves, protective clothing, and one fire ax. In lieu of the flame safety lamp, vessels may carry an oxygen depletion meter which is listed by a Coast Guard recognized independent laboratory as intrinsically safe.

(b) The number of fireman’s outfits required are as set forth in table 77.35–10(b).

§ 77.35–15 Stowage.

(a) The fireman’s outfit, together with such other items of equipment as the master may deem necessary, shall be stowed in convenient, accessible locations for use in case of emergency. One outfit shall be stowed in or near the pilothouse. Where additional outfits are required by table 77.35–10(b), one of the additional outfits shall be stowed preferably adjacent to the main entrance to the machinery space. Other additional outfits shall be stowed in convenient accessible locations remote from the pilothouse.

(b) [Reserved]

§ 77.35–20 Spare charges.

(a) A complete recharge shall be carried for each self-contained breathing apparatus, and a complete set of spare batteries shall be carried for each flashlight. The spares shall be stowed in the same location as the equipment it is to reactivate.

(b) [Reserved]

§ 77.35–90 Vessels contracted for before November 23, 1992.

Vessels contracted for before November 23, 1992, must meet the following requirements:

(a) Each vessel must satisfy §§77.35–5 through 77.35–20 concerning the number of items and the method of stowage of equipment.

(b) Items of equipment previously approved, but not meeting the applicable specifications set forth in §77.35–5, may continue in service as long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection; but each item in an installation or a replacement must meet all applicable specifications.
§ 77.40—1

(c) After November 23, 1994, each respirator must either satisfy §77.35–5(b) or be a self-contained compressed-air breathing apparatus previously approved by MSHA and NIOSH under part 160, subpart 160.011, of this chapter.


Subpart 77.40—Pilot Boarding Equipment

§ 77.40–1 Pilot boarding equipment.

(a) This section applies to each vessel that normally embarks or disembarks a pilot from a pilot boat or other vessel.

(b) Each vessel must have suitable pilot boarding equipment available for use on each side of the vessel. If a vessel has only one set of equipment, the equipment must be capable of being easily transferred to and rigged for use on either side of the vessel.

(c) Pilot boarding equipment must be capable of resting firmly against the vessel’s side and be secured so that it is clear from overboard discharges.

(d) Each vessel must have lighting positioned to provide adequate illumination for the pilot boarding equipment and each point of access.

(e) Each vessel must have a point of access that has—

(1) A gateway in the rails or bulwark with adequate handholds; or

(2) Two handhold stanchions and a bulwark ladder that is securely attached to the bulwark rail and deck.

(f) The pilot boarding equipment required by paragraph (b) of this section must include at least one pilot ladder approved under subpart 163.003 of this chapter. Each pilot ladder must be of a single length and capable of extending from the point of access to the water’s edge during each condition of loading and trim, with an adverse list of 15°.

(g) Whenever the distance from the water’s edge to the point of access is more than 30 feet, access from a pilot ladder to the vessel must be by way of an accommodation ladder or equally safe and convenient means.

(h) Pilot hoists, if used, must be approved under subpart 163.002 of this chapter.

[CGD 79–032, 49 FR 25455, June 21, 1984]
Coast Guard, DHS

Subpart 78.19—Auto Pilot

78.19–1 Use of auto pilot.

Subpart 78.21—Maneuvering Characteristics

78.21–1 Data required.

Subpart 78.23—Whistling

78.23–1 Unnecessary whistling prohibited.

Subpart 78.27—Searchlights

78.27–1 Improper use prohibited.

Subpart 78.30—Lookouts, Pilothouse Watch, Patrolmen, and Watchmen

78.30–5 Pilothouse watch.
78.30–10 Supervised patrol.
78.30–15 Watchmen.
78.30–20 Master's and officer's responsibility.

Subpart 78.33—Reports of Accidents, Repairs, and Unsafe Equipment

78.33–1 Repairs of boiler and pressure vessels.
78.33–5 Accidents to machinery.
78.33–10 Notice required before repairs.

Subpart 78.35—Communication Between Deckhouses

78.35–1 When required.

Subpart 78.36—Work Vests

78.36–1 Application.
78.36–5 Approved types of work vests.
78.36–10 Use.
78.36–15 Shipboard stowage.
78.36–20 Shipboard inspections.
78.36–25 Additional requirements for hybrid work vests.

Subpart 78.37—Logbook Entries

78.37–1 Application.
78.37–3 Logbooks and records.
78.37–5 Actions required to be logged.
78.37–10 Official log entries.

Subpart 78.40—Vehicular Ferries

78.40–1 Stowage of vehicles.
78.40–5 Securing of vehicles.
78.40–10 No smoking permitted.

Subpart 78.45—Display of Plans

78.45–1 When required.
§ 78.01–1

Subpart 78.65—Exhibition of Merchant Mariner Credential

78.65–1 Licensed officers.

Subpart 78.70—De-Energizing of Cargo Hold Lighting Circuits When Grain or Other Combustible Bulk Cargo Is Carried

78.70–1 Master’s responsibility.
78.70–5 Warning notice posted.

Subpart 78.83—Operation of Vehicles in Enclosed Locations

78.83–1 Special operating conditions.

Subpart 78.90—Pilot Boarding Operations

78.90–1 Pilot boarding operation.

Subpart 78.95—Person in Charge of Transfer of Liquid Cargo in Bulk

78.95–1 General.


Subpart 78.01—Application

§ 78.01–1 General; preemptive effect.

(a) The provisions of this part shall apply to all vessels except as specifically noted.

(b) The regulations in this part have preemptive effect over State or local regulations in the same field.


§ 78.01–2 Incorporation by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in paragraph (b) of this section, the Coast Guard must publish notice of change in the FEDERAL REGISTER; and the material must be available to the public. All approved material is available for inspection at the National Archives and Records Administration (NARA), and at Coast Guard Headquarters. Contact Commandant (CG–ENG–4), Attn: Lifesaving and Fire Safety Division, U.S. Coast Guard Stop 7509, 2703 Martin Luther King Jr. Avenue SE., Washington, DC 20593–7509. The material is also available from the sources indicated in paragraph (b) of this section. For information on the availability of this material at NARA, call 202–741–6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(b) The material approved for incorporation by reference in this part and the sections affected are as follows:

American Society for Testing and Materials (ASTM)

100 Barr Harbor Drive, West Conshohocken, PA 19428–2959.

ASTM D 93–97, Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester—78.17–75

International Maritime Organization (IMO)

Publications Section, 4 Albert Embankment, London, SE1 7SR United Kingdom. Resolution A.654(16), Graphical Symbols for Fire Control Plans—78.45–1


Subpart 78.05—Notice to Mariners and Aids to Navigation

§ 78.05–1 Duty of officers.

(a) Licensed deck officers are required to acquaint themselves with the latest information published by the Coast Guard and the National Geospatial-Intelligence Agency regarding aids to navigation. Neglect to do so is evidence of neglect of duty. It is desirable that all vessels have available in the pilothouse for convenient reference at all times a file of the applicable Notice to Mariners.

(b) Local Notices to Mariners, published by each U.S. Coast Guard District, contain announcements and information on changes in aids to navigation and other marine information affecting the safety of navigation on oceans and coastwise and the Great
Subpart 78.10—Persons Allowed in Pilothouse and on Navigation Bridge

§ 78.10–1 Persons excluded.
Masters and pilots shall exclude from the pilothouse and navigation bridge while underway, all persons not connected with the navigation of the vessel. However, licensed officers of vessels, persons regularly engaged in training, regulating, evaluating or learning the profession of pilot, officials of the United States Coast Guard, United States Navy, National Geospatial-Intelligence Agency, National Ocean Service, United States Army Corps of Engineers, Maritime Administration, and National Transportation Safety Board may be allowed in the pilothouse or upon the navigation bridge upon the responsibility of the master or pilot.


Subpart 78.12—Stability Information

§ 78.12–1 Posting of stability letter.
If a stability letter is issued under §170.120 of this chapter, it must be posted under glass or other suitable transparent material in the pilothouse of the vessel.


Subpart 78.13—Station Bills

§ 78.13–1 Muster lists, emergency signals, and manning.
The requirements for muster lists, emergency signals, and manning must be in accordance with subchapter W (Lifesaving Appliances and Arrangements) of this chapter.

[CGD 84–069, 61 FR 25288, May 20, 1996]

Subpart 78.15—Doors Closed at Sea

§ 78.15–1 Subdivision bulkheads.
(a) All watertight doors in subdivision bulkheads shall be kept closed.
§ 78.16–1

during navigation except when necessarily opened for working of the vessel, and in such cases they shall always be ready to be immediately closed.

(b) [Reserved]

Subpart 78.16—Port Lights

§ 78.16–1 General.

If port lights are fitted in spaces used alternatively for the carriage of cargo or passengers as permitted by § 171.116(d) of this chapter, dead covers must be fitted on the port lights when cargo is carried.

(CGD 79–023, 48 FR 51007, Nov. 4, 1983)

Subpart 78.17—Tests, Drills, and Inspections

§ 78.17–1 Application.

(a) Except as specifically noted, the provisions of this subpart shall apply to all vessels.

(b) [Reserved]

§ 78.17–3 Watertight doors.

(a) It shall be the duty of the master to see that all watertight doors in subdivision bulkheads that may be opened at sea, and all mechanisms, remote controls, and indicators connected therewith, shall be periodically inspected at least once in each week that the vessel is navigated to be assured that they are in proper operating condition. On vessels in which the voyage exceeds one week in duration, these doors shall be operated before the vessel leaves port. All such doors shall be operated daily.

(b) The date of the test and the condition of the equipment shall be noted in the official logbook.

§ 78.17–5 Valves and closing appliances.

(a) It shall be the duty of the master to see that all valves, including cross connecting valves where fitted, and other appliances such as port lights, closing mechanism of scuppers, ash chutes, and rubbish chutes, the closing of which is necessary to make a compartment watertight, are operated at least once in every week that the vessel is navigated to be assured that they are in proper operating condition. Any remote controls or indicating mechanisms shall be inspected at this time to test their efficiency. Where such valves are accessible, they shall be inspected at this time, otherwise, they shall be inspected at the first opportunity when they are accessible. On vessels in which the voyage exceeds one week in duration, these appliances shall be operated before the vessel leaves port.

(b) The date of the test and the condition of the equipment shall be noted in the official logbook.

§ 78.17–10 Loudspeaker system.

(a) Where fitted, the complete loudspeaker system shall be tested at least once every week. This test shall be made by an officer of the vessel.

(b) The date of the test and the condition of the equipment shall be noted in the official logbook.

Cross Reference: See subchapter J (Electrical Engineering) of this chapter for details.


§ 78.17–15 Steering gear, whistle, and means of communication.

(a) On all vessels making a voyage of more than 48 hours’ duration, the entire steering gear, the whistle, and the means of communication between the bridge or pilothouse and the engine room shall be examined and tested by an officer of the vessel within a period of not more than 12 hours prior to departure. On all other vessels similar examinations and tests shall be made at least once every week.

(b) The date of the test and the condition of the equipment shall be noted in the official logbook.

§ 78.17–20 Drafts and load line markings.

(a) The master of every vessel on an ocean, coastwise, or Great Lakes voyage shall enter the drafts of the vessel, forward and aft, in the official logbook when leaving port.

(b) On vessels subject to the requirements of subchapter E (Load Lines) of this chapter, at the time of departure from port on an ocean, coastwise, or Great Lakes voyage, the master shall
insert in the official logbook a statement of the position of the subdivision load line mark, port and starboard, in relation to the surface of the water in which the vessel is then floating.

(1) When the draft of the vessel is limited by a seasonal load line located below the subdivision load line, the position of the applicable seasonal load line shall be entered in relation to the surface of the water in which the vessel is floating.

(2) When an allowance for draft is made for density of the water in which the vessel is floating, this density is to be noted in the official logbook.

§ 78.17–22 Verification of vessel compliance with applicable stability requirements.

(a) After loading and prior to departure and at all other times necessary to assure the safety of the vessel, the master shall determine that the vessel complies with all applicable stability requirements in the vessel’s trim and stability book, stability letter, Certificate of Inspection, and Load Line Certificate, as the case may be, and then enter an attestation statement of the verification in the log book. The vessel may not depart until it is in compliance with these requirements.

(b) When determining compliance with applicable stability requirements the vessel’s draft, trim, and stability must be determined as necessary and any stability calculations made in support of the determination must be retained on board the vessel for the duration of the voyage.

(CGD 89–037, 57 FR 41822, Sept. 11, 1992)

§ 78.17–25 Sanitation.

(a) It shall be the duty of the master and chief engineer to see that the vessel and, in particular, the passenger and crew quarters are in a clean and sanitary condition. The chief engineer shall be responsible only for the sanitary condition of the engineering department.

(b) [Reserved]

§ 78.17–30 Examination of boilers and machinery.

It shall be the duty of the chief engineer when assuming charge of the boilers and machinery of a vessel to examine them thoroughly. If any parts thereof are in bad condition, the fact shall immediately be reported to the master, owner or agent, and the Officer in Charge, Marine Inspection.


§ 78.17–33 Loading doors.

(a) The master of a vessel fitted with loading doors shall assure that all loading doors are closed watertight and secured during the entire voyage except that—

(1) If a door cannot be opened or closed while the vessel is at a dock, it may be open while the vessel approaches and draws away from the dock, but only as far as necessary to enable the door to be immediately operated.

(2) If needed to operate the vessel, or embark and disembark passengers when the vessel is at anchor in protected waters, loading doors may be open provided that the master determines that the safety of the vessel is not impaired.

(b) For the purposes of this section, “loading doors” include all weather-tight ramps, bow visors, and openings used to load personnel, equipment, and stores, located in the collision bulkhead, the side shell, or the boundaries of enclosed superstructures that are continuous with the shell of the vessel.

(c) The master shall enter into the log book the time and door location of every closing of the loading doors.

(d) The master shall enter into the log book any opening of the doors in accordance with paragraph (a)(2) of this section setting forth the time of the opening of the doors and the circumstances warranting this action.

(CGD 89–037, 57 FR 41822, Sept. 11, 1992)

§ 78.17–35 Hatches and other openings.

(a) It shall be the responsibility of the master to assure himself before leaving protected waters that all exposed cargo hatches of his vessel are closed and made properly tight.

(b) The following doors, portable plates, ports, and other openings shall be kept closed while the vessel is being navigated, and shall be closed before the vessel commences a voyage:
(1) Watertight doors between cargo spaces prescribed in §170.275 of this chapter.

(2) Portable plates in watertight bulkheads prescribed in §171.111(b) of this chapter.

(3) Gangway, cargo, and coaling ports fitted below the margin line that is determined in accordance with §171.015 of this chapter.

(4) On ocean, coastwise, or Great Lakes vessels of 150 gross tons and over, all opening type port lights in a 'tween deck, if the sill of any port light in that 'tween deck, is below a line drawn parallel to the bulkhead deck at side and having its lowest point 4½ feet plus 2½ percent of the breadth of the vessel above the water when the vessel departs from port. The Commandant may indicate the limiting mean draft which would allow such port lights to be opened at sea.

(5) Port lights that are not accessible during navigation. Dead covers on such port lights shall also be secured.

(6) Port lights in spaces appropriated alternately to the carriage of cargo and passengers, when cargo is carried. Dead covers on such port lights shall also be secured.

(c) The time of opening and closing of hatches and other openings noted in this section shall be entered in the official logbook. In the event that the master at his discretion does not secure the hatches, a notation of this fact shall be made in the official logbook. If it becomes essential for the safety of the vessel to open any of the fittings noted in this section while at sea, the circumstances and the time of opening and closing shall be entered in the official logbook.

(d) The time of opening, closing, and securing, at sea, of watertight doors fitted between bunkers for the purpose of trimming coal, shall be entered in the official logbook.

§ 78.17–50 Emergency training, musters, and drills.

Onboard training, musters, and drills must be in accordance with subchapter W (Lifesaving Appliances and Arrangements) of this chapter.

§ 78.17–65 Smoke detecting system.

(a) It shall be the duty of the master to see that the smoke inlets in cargo holds are examined at least once in each 3 months by the ship’s personnel to determine if the inlets are obstructed by corrosion, paint, dust, or other extraneous matter. Smoke tests shall be made in all holds and the system found or made operable. The date of the test and condition of the system shall be entered in the log.

(b) [Reserved]

§ 78.17–75 Requirements for fuel oil.

(a) It shall be the duty of the chief engineer to cause an entry in the log to be made of each supply of fuel oil received on board, stating the quantity received, the name of the vendor, the name of the oil producer, and the flashpoint (Pensky-Martens Closed Cup Method, ASTM D 93 (incorporated by reference, see §78.01–2(a)) for which it is certified by the producer.
§ 78.21–1 Data required.

For each ocean and coastwise vessel of 1,600 gross tons and over, the following apply:

(a) The following maneuvering information must be prominently displayed in the pilothouse on a fact sheet:

1. For full and half speed, a turning circle diagram to port and starboard that shows the time and the distance of advance and transfer required to alter the course 90 degrees with maximum rudder angle and constant power settings.

2. The time and distance to stop the vessel from full and half speed while maintaining approximately the initial heading with minimum application of rudder.

3. For each vessel with a fixed propeller, a table of shaft revolutions per minute for a representative range of speeds.

4. For each vessel with a controllable pitch propeller a table of control settings for a representative range of speeds.

5. For each vessel that is fitted with an auxiliary device to assist in maneuvering, such as a bow thruster, a table of vessel speeds at which the auxiliary device is effective in maneuvering the vessel.

(b) The maneuvering information must be provided in the normal load and normal light condition with normal trim for a particular condition of loading assuming the following—

(b) Conditions of restricted visibility;

(c) All other hazardous navigational situations, the master shall ensure that—

1. It is possible to immediately establish manual control of the ship’s steering;

2. A competent person is ready at all times to take over steering control;

3. The changeover from automatic to manual steering and vice versa is made by, or under, the supervision of the officer of the watch.

Subpart 78.21—Maneuvering Characteristics
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(1) Calm weather—wind 10 knots or less, calm sea;
(2) No current;
(3) Deep water conditions—water depth twice the vessel’s draft or greater;
(4) Clean hull.
(c) At the bottom of the fact sheet, the following statement must appear:

WARNING

The response of the (name of the vessel) may be different from those listed above if any of the following conditions, upon which the maneuvering information is based, are varied:
(1) Calm weather—wind 10 knots or less, calm sea;
(2) No current;
(3) Water depth twice the vessel’s draft or greater;
(4) Clean hull; and
(5) Intermediate drafts or unusual trim.
(d) The information on the fact sheet must be:
(1) Verified six months after the vessel is placed in service; or
(2) Modified six months after the vessel is placed into service and verified within three months thereafter.
(e) The information that appears on the fact sheet may be obtained from:
(1) Trial trip observations;
(2) Model tests;
(3) Analytical calculations;
(4) Simulations;
(5) Information established from another vessel of similar hull form, power, rudder and propeller; or
(6) Any combination of the above.

§ 78.23–1 Unnecessary whistling prohibited.

(a) The unnecessary sounding of the vessel’s whistle is prohibited within any harbor limits of the United States.
(b) [Reserved]

Subpart 78.27—Searchlights

§ 78.27–1 Improper use prohibited.

(a) No person shall flash or cause to be flashed the rays of a searchlight or other blinding light onto the bridge or into the pilothouse of any vessel under way.
(b) [Reserved]

Subpart 78.30—Lookouts, Pilothouse Watch, Patrolmen, and Watchmen

§ 78.30–5 Pilothouse watch.

(a) In addition to the licensed deck officer or pilot, there shall be at least one member of the crew also on watch in or near the pilothouse at all times when the vessel is being navigated.
(b) [Reserved]

§ 78.30–10 Supervised patrol.

(a) The provisions of this section shall apply to all vessels on an international voyage, and to all other vessels having berthed or stateroom accommodations for passengers. This section shall be applicable at all times when passengers are on board.
(b) Between the hours of 10 p.m. and 6 a.m., a supervised patrol shall be maintained so as to completely cover all parts of the vessel accessible to passengers or crew, excepting occupied sleeping accommodations and machinery spaces and similar spaces where a regular watch is maintained.
(c) Clocks, keys, and recording apparatus shall be of an approved type. The station boxes shall have seals placed over the securing screws in order to leave evidence of removal or tampering.
(d) Clocks or key stations shall be so arranged throughout the vessel so as to assure complete coverage of all accessible spaces required by paragraph (b)
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of this section. The number and location of recording stations, the order in which they are visited, and the number undertaken by one patrolman shall be specifically approved. The stations shall be numbered as required by §78.47–23. Sufficient watchmen shall be available so that each space will be covered at least once in every hour except as follows:

(1) On existing vessels not constructed in general agreement with §§72.05–5 through 72.05–60, of this subchapter, the supervised patrol shall cover all spaces required by paragraph (b) of this section at least once in every 20 minutes.

(2) Public spaces constructed in general agreement with §§72.05–5 through 72.05–60, of this subchapter, shall have either an approved fire detecting system installed in such spaces or the supervised patrol shall cover these spaces at least once in every 20 minutes.

(e) The patrolman shall report to the bridge at least once an hour on vessels where the supervised patrol system is not equipped with a recording apparatus in the control station. In vessels requiring more than one patrol route, one patrolman may contact others and make a joint report to the bridge. Failure of a patrolman to follow a prescribed route, or to record each station within the specified time, shall be entered on the record along with the reason for the irregularity.

(f) The patrolman while on duty shall wear a distinctive uniform or badge, and shall have in his possession at all times an efficient flashlight.

§ 78.30–15 Watchmen.

(a) The provisions of this section shall apply to all vessels not required to have a supervised patrol under the provisions of §78.30–10. This section shall be applicable at all times when passengers are on board.

(b) During the nighttime, a suitable number of watchmen shall be stationed in the passenger accommodation areas on each deck.

(c) Watchmen shall be under the direct charge of the master or officer in command of the vessel, and shall report to such officer at the pilothouse at fixed intervals not exceeding one hour. Watchmen shall not be required to perform any other duties while on watch.

(d) The uniform of the night watchman shall be conspicuously different from other persons so as to be readily distinguished. A rating badge marked “Watchman” shall be worn on the left sleeve and the front of the cap shall also be marked “Watchman”.

(e) The watchman shall have in his possession at all time while on duty an efficient flashlight.

§ 78.30–20 Master’s and officer’s responsibility.

(a) Nothing in this part shall exonerate any master or officer in command from the consequences of any neglect to keep a proper lookout or to maintain a proper fire watch or from any neglect of any precaution which may be required by the ordinary practice of seamen or by the special circumstances of the case. When circumstances require it, additional watches shall be maintained to guard against fire or other danger and to give an alarm in case of accident or disaster.

(b) [Reserved]

Subpart 78.33—Reports of Accidents, Repairs, and Unsafe Equipment

§ 78.33–1 Repairs of boiler and pressure vessels.

(a) Before making any repairs to boilers or unfired pressure vessels, the chief engineer shall submit a report covering the nature of the repairs to the Officer in Charge, Marine Inspection, at or nearest the port where the repairs are to be made.

(b) [Reserved]

§ 78.33–5 Accidents to machinery.

(a) In the event of an accident to a boiler, unfired pressure vessel, or machinery tending to render the further use of the item unsafe until repairs are made, or if by ordinary wear such items become unsafe, a report shall be made by the chief engineer immediately to the Officer in Charge, Marine Inspection, or if at sea, immediately upon arrival at port.

(b) [Reserved]
§ 78.33–10 Notice required before repairs.

(a) No repairs or alterations, except in an emergency, shall be made to any lifesaving or fire detecting or extinguishing equipment without advance notice to the Officer in Charge, Marine Inspection. When emergency repairs or alterations have been made, notice shall be given to the Officer in Charge, Marine Inspection, as soon as practicable.

(b) [Reserved]

Subpart 78.35—Communication Between Deckhouses

§ 78.35–1 When required.

On all vessels navigating in other than protected waters, where the distance between deckhouses is more than 46 meters (150 feet) a fixed means of facilitating communication between both ends of the vessel, such as a raised fore and aft bridge or side tunnels, must be provided. Previously approved arrangements may be retained so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection.

[CGD 95–027, 61 FR 26004, May 23, 1996]

Subpart 78.36—Work Vests

§ 78.36–1 Application.

(a) Provisions of this subpart shall apply to all vessels inspected and certified in accordance with this subchapter.

(b) [Reserved]

§ 78.36–5 Approved types of work vests.

(a) Each buoyant work vest carried under the permissive authority of this section must be approved under—

(1) Subpart 160.033 of this chapter; or

(2) Subpart 160.077 of this chapter as a commercial hybrid PFD.

(b) [Reserved]


§ 78.36–10 Use.

(a) Approved buoyant work vests are considered to be items of safety apparel and may be carried aboard vessels working near or over the water under favorable working conditions. They shall be used under the supervision and control of designated ship’s officers. When carried, such vests shall not be accepted in lieu of any portion of the required number of approved life preservers and shall not be substituted for the approved life preservers required to be worn during drills and emergencies.

(b) [Reserved]

§ 78.36–15 Shipboard stowage.

(a) The approved buoyant work vests shall be stowed separately from the regular stowage of approved life preservers.

(b) The locations for the stowage of work vests shall be such as not to be easily confused with that for approved life preservers.

§ 78.36–20 Shipboard inspections.

(a) Each work vest shall be subject to examination by a marine inspector to determine its serviceability. If found to be satisfactory, it may be continued in service, but shall not be stamped by a marine inspector with a Coast Guard stamp. If a work vest is found not to be in a serviceable condition, then such work vest shall be removed from the vessel. If a work vest is beyond repair, it shall be destroyed or mutilated in the presence of a marine inspector so as to prevent its continued use as a work vest.

(b) [Reserved]


§ 78.36–25 Additional requirements for hybrid work vests.

(a) In addition to the other requirements in this subpart, commercial hybrid PFD’s must be—

(1) Used, stowed, and maintained in accordance with the procedures set out in the manual required for these devices by §160.077–29 of this chapter and any limitation(s) marked on them; and

(2) Of the same or similar design and have the same method of operation as each other hybrid PFD carried on board.

(b) [Reserved]

Subpart 78.37—Logbook Entries

§ 78.37–1 Application.
(a) Except as specifically noted, the provisions of this subpart shall apply to all vessels.
(b) [Reserved]

§ 78.37–3 Logbooks and records.
(a) The master or person in charge of a vessel that is required by 46 U.S.C. 11301 to have an official logbook shall maintain the logbook on form CG–706. When the voyage is completed, the master or person in charge shall file the logbook with the Officer in Charge, Marine Inspection.
(b) The master or person in charge of a vessel that is not required by 46 U.S.C. 11301 to have an official logbook, shall maintain, on board, an unofficial logbook or record in any form desired for the purposes of making entries therein as required by law or regulations in this subchapter. Such logs or records are not filed with the Officer in Charge, Marine Inspection, but must be kept available for review by a marine inspector for a period of 1 year after the date to which the records refer. Separate records of tests and inspections of fire fighting equipment must be maintained with the vessel’s logs for the period of validity of the vessel’s certificate of inspection.

§ 78.37–5 Actions required to be logged.
The actions and observations noted in this section shall be entered in the official log book. This section contains no requirements which are not made in other portions of this subchapter, the items being merely grouped together for convenience.
(a) Onboard training, musters, and drills: held in accordance with subchapter W (Lifesaving Appliances and Arrangements) of this chapter.
(b) Watertight door operation: Daily and Weekly. See §78.17–3.
(c) Valve and closing appliance operation: Weekly. See §78.17–5.
(d) Loudspeaker system: Weekly. See §78.17–10.
(e) Steering gear, whistle, and means of communication: Prior to departure. See §78.17–15.
(f) Drafts and load line markings: Prior to leaving port, ocean, coastwise, and Great Lakes services only. See §78.17–20.
(g) Verification of vessel compliance with applicable stability requirements. After loading and prior to departure and at all other time necessary to assure the safety of the vessel. See §78.17–22.
(h) Loading doors. Where applicable, every closing and any opening when not docked. See §78.17–33.
(i) Hatches and other openings: All openings and closings, or leaving port without closing, except vessels on protected waters. See §78.17–35.
(j) Emergency lighting and power systems: Weekly and semiannually. See §78.17–45.
(k) Smoke Detecting System: Once every three months. See §78.17–65.
(l) Fuel oil data: Upon receipt of fuel oil on board. See §78.17–75.
(m) Cargo gear inspections: At least once a month. See §71.47–70 of this subchapter.

§ 78.37–10 Official log entries.
(a) In addition to other items required to be entered in the official logbook on every vessel where an official logbook is required, all items relative to the crew and passengers, including the count of passengers carried, and to casualties shall also be entered.
(b) Except as noted in paragraph (b)(1) of this section, on any vessel where an official logbook is not required, the master shall keep a record of the correct count of all the passengers received and delivered from day to day. This record shall be open to inspection by the Coast Guard at all times. The aggregate number of the passengers carried shall be furnished to the Coast Guard whenever requested. The information shall be available for a period of one year after the date to which the records refer.

1. The provisions of the paragraph shall not apply to ferry vessels.
§ 78.40–1 Stowage of vehicles.
(a) Automobiles or other vehicles shall be stowed in such a manner as to permit both passengers and operators to get out and away from them freely in the event of fire or other disaster. Where there is insufficient clearance to provide for easy egress at all times, both passengers and operators shall be directed to leave their vehicles and to occupy other spaces reserved for them during the crossing. The decks, where necessary, shall be definitely marked with painted lines to indicate the vehicle runways and the aisle spaces.

(b) [Reserved]

§ 78.40–5 Securing of vehicles.
(a) The master shall take all necessary precautions to see that automobiles or other vehicles have their motors turned off when the ferry is under way, and the motors shall not be started until the ferry is secured to the landing. In addition, the vehicles at each end shall have their wheels securely blocked, while the vessel is being navigated.

(b) [Reserved]

§ 78.40–10 No smoking permitted.
(a) The master shall have appropriate “No Smoking” signs posted and shall take all necessary precautions to prevent smoking or carrying of lighted or smoldering cigars, cigarettes, etc., in the deck area assigned to automobiles or other vehicles.

(b) [Reserved]

Subpart 78.45—Display of Plans

§ 78.45–1 When required.
(a) Vessels of 1,000 gross tons and over, and vessels of any tonnage on an international voyage shall have permanently exhibited for the guidance of the officer in charge of the vessel the following plans:
(1) General arrangement plans showing for each deck the fire control stations, the various sections enclosed by fire-resisting bulkheads, together with particulars of the fire alarms, detecting systems, the sprinkler installation (if any), the fire extinguishing appliances, means of access to different compartments, decks, etc., and the ventilating systems including particulars of the master fan controls, the positions of dampers, the location of the remote means of stopping fans, and identification numbers of the ventilating fans serving each section. If cargo compartments are “specially suitable for vehicles,” they shall be so indicated on the plan. Alternatively, at the discretion of the Commandant, the listed details may be set out in a different medium, such as a booklet or on computer software, provided that the details are available to each officer and a written copy is retained on board at all times and is accessible during emergencies.

(2) For vessels constructed on or after September 30, 1997, and for existing vessels which have their plans redrawn, the symbols used to identify the aforementioned details shall be in accordance with IMO Assembly resolution A.654(16). The identical symbols can be found in ASTM Adjunct F 1626.

(3) Plans showing clearly for each deck and hold the boundaries of the watertight compartments, the openings therein with the means of closure and position of any controls thereof, and the arrangements for the correction of any list due to flooding.

(4) The aforementioned information required for this section shall be kept up-to-date, any alteration being recorded in the applicable medium as soon as practicable.

§ 78.47–1 Application.
(a) The provisions of this subpart with the exception of §78.47–90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of §78.47–90.

(b) [Reserved]
§ 78.47–3 General.
  (a) It is the intent of this subpart to provide such markings as are necessary for the guidance of the persons on board in case of emergency. In any specific case, and particularly on small vessels, where it can be shown to the satisfaction of the Officer in Charge, Marine Inspection, that the prescribed markings are unnecessary for the guidance of the persons on board in case of emergency, such markings may be modified or omitted.
  (b) In addition to English, all state-room notices, directional signs, etc., shall be printed in languages appropriate to the service of the vessel or other action be taken to achieve the same purpose.
  (c) Where in this subpart red letters are specified, letters of a contrasting color on a red background will be accepted.

§ 78.47–5 General alarm contact makers.
  Each general alarm contact maker must be marked in accordance with the requirements in subchapter J (Electrical Engineering Regulations) of this chapter.

(CGDD 74–125A, 47 FR 15232, Apr. 4, 1982)

§ 78.47–7 General alarm bells.
  (a) All general alarm bells shall be identified by red lettering at least $\frac{1}{2}$ inch high: “GENERAL ALARM—WHEN BELL RINGS GO TO YOUR STATION.”
  (b) [Reserved]

§ 78.47–9 Carbon dioxide and clean agent alarms.
  Each carbon dioxide or clean agent fire extinguishing alarm must be conspicuously marked: “WHEN ALARM SOUNDS VACATE AT ONCE. CARBON DIOXIDE OR CLEAN AGENT BEING RELEASED.”.


§ 78.47–10 Manual alarm boxes.
  (a) In all new installations, manual alarm boxes shall be clearly and permanently marked “IN CASE OF FIRE BREAK GLASS.” Existing boxes not so marked with the same or equivalent wording, shall be identified either on the box or adjacent bulkhead in at least $\frac{1}{2}$ inch letters “IN CASE OF FIRE BREAK GLASS.” All manual alarm boxes shall be numbered in red on the adjacent bulkhead with at least $\frac{1}{2}$ inch figures. The number shall agree with the number of the zone.
  (b) [Reserved]

§ 78.47–11 Carbon dioxide warning signs.
  Each entrance to a space storing carbon dioxide cylinders, a space protected by carbon dioxide systems, or any space into which carbon dioxide might migrate must be conspicuously marked as follows:
  (a) Spaces storing carbon dioxide—“CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. VENTILATE THE AREA BEFORE ENTERING. A HIGH CONCENTRATION CAN OCCUR IN THIS AREA AND CAN CAUSE SUF-FOCATION.”.
  (b) Spaces protected by carbon dioxide—“CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED, DO NOT ENTER UNTIL VENTILATED. LOCK OUT SYSTEM WHEN SERVICING.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.
  (c) Spaces into which carbon dioxide might migrate—“CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. DISCHARGE INTO NEARBY SPACE CAN COLLECT HERE. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED VACATE IMMEDIATELY.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.


§ 78.47–13 Fire and automatic sprinkler alarm indicators.
  (a) The fire detection, alarm, and automatic sprinkler indicators in the engine room must be identified by at least 1-inch red lettering as “FIRE ALARM” or “SPRINKLER ALARM” as appropriate. Where such alarm indicators on the bridge or in the fire control

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§ 78.47–15 Fire extinguishing system branch lines.

(a) The branch line valves of all fire extinguishing systems shall be plainly and permanently marked indicating the spaces served.

(b) [Reserved]

[USCG–2012–0196, 81 FR 48261, July 22, 2016]

§ 78.47–17 Fire extinguishing system controls.

Each control cabinet or space containing valves or manifolds for a fire extinguishing system must be distinctly marked in conspicuous red letters at least 2 inches high: "[CARBON DIOXIDE/STEAM/FOAM/WATER SPRAY/MANUAL SPRINKLING/AUTOMATIC SPRINKLING/CLEAN AGENT—as appropriate] FIRE SYSTEM.".


§ 78.47–20 Fire hose stations.

(a) Each fire hydrant shall be identified in red letters and figures at least 2 inches high "FIRE STATION NO 1," "2," "3," etc. Where the hose is not stowed in the open or behind glass so as to be readily seen, this identification shall be so placed as to be readily seen from a distance.

(b) [Reserved]

§ 78.47–23 Supervised patrol stations.

(a) Each supervised patrol clock or key station shall be numbered.

(b) [Reserved]

§ 78.47–25 Emergency squad equipment.

(a) Lockers or spaces containing equipment for the use of the emergency squad shall be marked "EMERGENCY SQUAD EQUIPMENT."

(b) [Reserved]

§ 78.47–27 Self-contained breathing apparatus.

Lockers or spaces containing self-contained breathing apparatus shall be marked "SELF-CONTAINED BREATHING APPARATUS."


§ 78.47–30 Hand portable fire extinguishers.

(a) Each hand portable fire extinguisher shall be marked with a number and the location where stowed shall be marked with a corresponding number at least ½ inch high. Where only one type and size of hand portable fire extinguisher is carried, the numbering may be omitted.

(b) [Reserved]

§ 78.47–33 Emergency lights.

(a) All emergency lights shall be marked with a letter "E" at least ½ inch high.

(b) [Reserved]

§ 78.47–35 Fire doors.

(a) All doors in main vertical zone bulkheads or stairway enclosures, except from individual rooms such as staterooms, fan rooms, lockers, etc., shall be numbered conspicuously on an etched plate or equivalent in not less than ¾ inch letters and figures "F. S. D. 1," "2," "3," etc. If stenciled or similar notice is used, the letters and figures shall be at least 1 inch high. The number shall be conspicuous with the door in the open position.

(b) [Reserved]

§ 78.47–37 Watertight doors.

(a) All watertight doors in subdivision bulkheads shall be numbered conspicuously on both sides on an etched plate or equivalent in not less than ¾ inch letters and figures "W. T. D. 1," "2," "3," etc. If a stenciled or similar notice is used, the letters and figures shall be at least 1 inch high. If the construction is such that the number cannot be seen with the door in the open position, a similar number shall be placed on the frame or other location immediately adjacent to the door. All watertight door remote control stations shall be marked in the same manner, and in addition, the direction of operation of the lever or wheel to open and close the door shall be conspicuously marked.
§ 78.47–75 Ventilation alarm failure.

(a) The alarm required by §72.15–15 (c)(4) of this subchapter, which indicates the loss of required ventilation in spaces specially suitable for vehicles, shall be marked with a conspicuous

(b) [Reserved]
§ 78.47–90  

sign in at least 1⁄4-inch letters “VENTILATION FAILURE IN VEHICLE SPACE.”

(b) [Reserved]

[CGFR 66–33, 31 FR 15284, Dec. 6, 1966]

§ 78.47–90  Vessels contracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the requirements of this paragraph.

1. The requirements of §§ 78.47–5 through 78.47–75 shall be met with the exception that existing signs and markings containing the same general intent, but not necessarily identical wording or exact letter type, size, or color, may be retained so long as they are in good condition to the satisfaction of the Officer in Charge, Marine Inspection.

(2) [Reserved]

(b) [Reserved]


Subpart 78.50—Markings on Vessels

§ 78.50–1 Application.

(a) The provisions of this subpart shall apply to all vessels except as specifically noted in this subpart.

(b) [Reserved]

§ 78.50–5 Hull markings.

Vessels shall be marked as required by parts 67 and 69 of this chapter.

[CGD 72–104R, 37 FR 14233, July 18, 1972]

§ 78.50–10 Draft marks and draft indicating systems.

(a) All vessels must have draft marks plainly and legibly visible upon the stem and upon the sternpost or rudderpost or any place at the stern of the vessel as may be necessary for easy observance. The bottom of each mark must indicate the draft.

(b) The draft must be taken from the bottom of the keel to the surface of the water at the location of the marks.

(c) In cases where the keel does not extend forward or aft to the locations of the draft marks, due to raked stem or cut-away skeg, the datum line from which the draft shall be taken shall be obtained by projecting the line of the bottom of keel forward or aft, as the case may be, to the location of the draft marks.

(d) In cases where a vessel may have a skeg or other appendage extending locally below the line of the keel, the draft at the end of the vessel adjacent to such appendage shall be measured to a line tangent to the lowest part of such appendage and parallel to the line of the bottom of the keel.

(e) Draft marks must be separated so that the projections of the marks onto a vertical plane are of uniform height equal to the vertical spacing between consecutive marks.

(f) Draft marks must be painted in contrasting color to the hull.

(g) In cases where draft marks are obscured due to operational constraints or by protrusions, the vessel must be fitted with a reliable draft indicating system from which the bow and stern drafts can be determined.


§ 78.50–15 Load line marks.

(a) Vessels assigned a load line shall have the deck line and the load line marks permanently scribed or embossed as required by subchapter E (Load Lines) of this chapter.

(b) [Reserved]

Subpart 78.55—Carrying of Excess Steam

§ 78.55–1 Master and chief engineer responsible.

It shall be the duty of the master and the engineer in charge of the boilers of any vessel to require that a steam pressure is not carried in excess of that allowed by the certificate of inspection, and to require that the safety valves, once set by the inspector, are in no way tampered with or made inoperative.

Subpart 78.57—Routing Instructions

§ 78.57–1 All personnel must comply.

All licensed masters, officers, and certificated seamen on United States vessels shall strictly comply with routing instructions issued by competent naval authority.

[CGD 95–027, 61 FR 26005, May 23, 1996]

Subpart 78.60—Compliance With Provisions of Certificate of Inspection

§ 78.60–1 Master or person in charge responsible.

(a) It shall be the duty of the master or other person in charge of the vessel to see that all of the provisions of the certificate of inspection are strictly adhered to. Nothing in this subpart shall be construed as limiting the master or other person in charge of the vessel, at his own responsibility, from diverting from the route prescribed in the certificate of inspection or taking such other steps as he deems necessary and prudent to assist vessels in distress or for other similar emergencies.

(b) [Reserved]

§ 78.70–5 Warning notice posted.

(a) As a precaution against any subsequent unintentional re-energizing of the circuits specified above, an appropriate notice shall be posted at the location where the control is effected warning against re-energizing these circuits. Such notice shall remain posted while this bulk cargo remains within the vessel.

(b) [Reserved]

Subpart 78.65—Exhibition of Merchant Mariner Credential

§ 78.65–1 Officers.

All officers on a vessel must have their licenses or officer endorsements conspicuously displayed.


Subpart 78.70—De-Energizing of Cargo Hold Lighting Circuits When Grain or Other Combustible Bulk Cargo is Carried

§ 78.70–1 Master’s responsibility.

(a) Before loading bulk grain, or similar combustible bulk cargo, the master shall have the lighting circuits to cargo compartments in which the bulk cargo is to be loaded de-energized at the distribution panel or panel board. He shall thereafter have periodic inspections made of the panel or panel board as frequently as necessary to ascertain that the affected circuits remain de-energized while this bulk cargo remains within the vessel.

(b) [Reserved]

§ 78.83–1 Special operating conditions.

(a) The operation of self-propelled vehicles in enclosed locations shall be permitted only when the other conditions in this section have been met.

(b) Spaces exposed to carbon monoxide or other hazardous vapors from exhausts of power-operated industrial trucks shall have adequate ventilation. The senior deck officer shall see that tests of the carbon monoxide content of the atmosphere are made as frequently as conditions require to insure that dangerous concentrations do not develop. Such tests shall be made in the area in which persons are working, by persons acquainted with the test equipment and procedure. The carbon monoxide concentration in the holds and intermediate decks where persons are working shall be maintained at not more than 50 parts per million (0.005%) as a time-weighted average, and persons shall be removed from the area if the concentration exceeds 75 parts per million (0.0075%). When necessary, portable blowers of adequate size and location shall be utilized.

§ 78.90–1 Pilot boarding operation.

(a) The master shall ensure that pilot boarding equipment is maintained as follows:

(1) The equipment must be kept clean and in good working order.

(2) Each damaged step or spreader step on a pilot ladder must be replaced in kind with an approved replacement step or spreader step, prior to further use of the ladder. The replacement step or spreader step must be secured by the method used in the original construction of the ladder, and in accordance with manufacturer instructions.

(b) The master shall ensure compliance with the following during pilot boarding operations:

(1) Only approved pilot boarding equipment may be used.

(2) The pilot boarding equipment must rest firmly against the hull of the vessel and be clear of overboard discharges.

(3) Two man ropes, a safety line and an approved lifebuoy with an approved water light must be at the point of access and be immediately available for use during boarding operations.

(4) Rigging of the equipment and embarkation/debarkation of a pilot must be supervised in person by a deck officer.

(5) Both the equipment over the side and the point of access must be adequately lit during night operations.

6. If a pilot hoist is used, a pilot ladder must be kept on deck adjacent to the hoist and available for immediate use.

[CGD 79–032, 49 FR 23455, June 21, 1984]

Subpart 78.95—Person in Charge of Transfer of Liquid Cargo in Bulk

§ 78.95–1 General.

A qualified person in charge of a transfer of liquid cargo in bulk shall be designated in accordance with subpart C of 33 CFR part 155.

[CGD 79–116, 60 FR 17157, Apr. 4, 1995]
§ 80.20 Exception to requirements.
(a) This part does not apply to vessels that comply with the safety standards set forth in the International Convention for Safety of Life at Sea, 1974.
(b) If the exception in paragraph (a) of this section applies, the country of registry must appear in printed advertising or promotional literature as described in §80.30(a), in a type no smaller than six points, American point system.

§ 80.25 Notification of safety standards.
(a) Each owner, operator, agent, or other person, selling passage for a coastwise or an international voyage embarking passengers at a United States port shall give to a prospective passenger, in writing, at the time of or before passage is booked, separately from any promotional literature or advertising used, a document containing the following information for each vessel concerned—
(1) The name of the vessel;
(2) The country of registry;
(3) One of the following statements as appropriate:
   (i) This vessel complies with international safety standards, except the 1966 fire safety standards.
   (ii) This vessel complies with international safety standards developed prior to 1960. There is (or, is not) an automatic sprinkler system fitted in the passenger living and public spaces. The hull, decks, deckhouses, structural bulkheads, and internal partitions are (or, are not) composed of combustible materials.
   (iii) This vessel does not comply with any international safety standard. There is (or, is not) an automatic sprinkler system fitted in the passenger living and public spaces. The hull, decks, deckhouses, structural bulkheads, and internal partitions are (or, are not) composed of combustible materials.
(b) The information required in paragraph (a) of this section must be printed in a type no smaller than six points, American point system.
(c) The information required in paragraph (a) of this section must be headed—
   (1) “SAFETY INFORMATION”;
   (2) With each letter in the heading capitalized; and
   (3) In boldfaced type of a size equal to the size of the text required in paragraph (a) of this section.

§ 80.30 Promotional literature or advertising.
(a) Except as provided in paragraph (f) of this section, all promotional literature or advertising in or over any medium of communication within the United States that offers passage or solicits passengers for ocean voyages anywhere in the world must contain the safety information statement prescribed in paragraph (b) of this section if—
   (1) A vessel is named; or
   (2) A voyage is described by—
      (i) A stated port or area of departure;
      (ii) A stated port or area of destination; or
      (iii) A schedule of days of departure or arrival.
(b) The safety information statement required in paragraph (a) of this section must include—
   (1) The name of the vessel;
   (2) The country of registry; and
   (3) One of the following statements, as appropriate:
      (i) This vessel complies with international safety standards, except the 1966 fire safety standards.
      (ii) This vessel complies with international safety standards developed prior to 1960. There is (or, is not) an automatic sprinkler system fitted in the passenger living and public spaces. The hull, decks, deckhouses, structural bulkheads, and internal partitions are (or, are not) composed of combustible materials.
      (iii) This vessel does not comply with any international safety standard. There is (or, is not) an automatic sprinkler system fitted in the passenger living and public spaces.
§ 80.40  Civil penalty.

For each violation of the regulations in this part, the owner, operator, agent, or other person involved is subject to the penalties prescribed in 46 U.S.C. 3504.


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All changes in this volume of the Code of Federal Regulations (CFR) that were made by documents published in the Federal Register since January 1, 2011 are enumerated in the following list. Entries indicate the nature of the changes effected. Page numbers refer to Federal Register pages. The user should consult the entries for chapters, parts and subparts as well as sections for revisions.


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