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46 CFR Part 170, et al.

Small Passenger Vessel Inspection and Certification; Interim Final Rule

DEPARTMENT OF TRANSPORTATION

Coast Guard

46 CFR Parts 170, 171 and 173 and Chapter I, Subchapter K and T

[CGD 85–080]

RIN 2115–AC 22

Small Passenger Vessel Inspection and Certification

AGENCY: Coast Guard, DOT.

ACTION: Interim final rule with request for comments; notice of public meeting.

SUMMARY: This Interim Final Rule (IFR) completely revises the regulations affecting small passenger vessels. It reflects numerous comments received on both a Notice of Proposed Rulemaking (NPRM), and the Supplemental Notice of Proposed Rulemaking (SNPRM). The Coast Guard believes that an IFR is necessary to address both the need to publish an enforceable rule, and allow the public an opportunity to comment on sections that have been substantially revised from the SNPRM. The changes in this IFR include: The creation of a separate subchapter K for small passenger vessels carrying more than 150 passengers or with overnight accommodations for more than 49 passengers; additional alternatives to certain required lifesaving equipment; greater recognition of existing industry standards; and the establishment of new upper limit breakpoints above which a vessel must comply with the construction and outfitting requirements applicable to a passenger vessel of more than 100 gross tons. These revisions update the existing regulations in Parts 175 through 187 to accommodate the advanced technology, larger size, and increased passenger carrying capacity of the small passenger vessels built today.

DATES: This IFR is effective on March 11, 1996. The Incorporation by Reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of March 11, 1996. Comments on this IFR must be received on or before June 10, 1996. The Coast Guard has determined that the opportunity for oral presentations will aid in this rulemaking, and will hold at least one public hearing during the comment period. The Coast Guard solicits recommendations on dates and locations for a public meeting, and will provide more information about public hearings by a later notice in the Federal Register.

ADDRESSES: Comments may be mailed to the Executive Secretary, Marine Safety Council (G–LRA/3600) (CGD 85–080), U.S. Coast Guard Headquarters, 2100 Second Street, SW., Washington, DC, 20593–0001, or delivered to room 3406 at the same address between 8 a.m. and 4 p.m., Monday through Friday, except holidays. The telephone number is (202) 267–1477.

Comments on collection of information requirements may be mailed also to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street NW, Washington, D.C. 20503, ATTN: Desk Officer, U.S. Coast Guard.

FOR FURTHER INFORMATION CONTACT: Lieutenant Eric P. Christensen, Project Manager, Office of Marine Safety, Security and Environmental Protection, (G–MOS–2), phone (202) 267–1181, telefax (202) 267–4570.

SUPPLEMENTARY INFORMATION:

Drafting Information

The principal persons involved in the drafting of this proposal are Lieutenant Eric P. Christensen, Project Manager; Lieutenant Commander Marc C. Cruder, Project Manager Emeritus, Office of Marine Safety, Security and Environmental Protection; and Mr. Nicholas Grasselli, Project Attorney, Office of Chief Counsel.

Requests For Comments

Interested persons are invited and encouraged to participate in this rulemaking by submitting written views, data, or arguments on the contents of this IFR. Persons submitting comments should include their name and address, reference this IFR (CGD 85–080), give the specific section of the regulations to which each comment applies, and include supporting documents or sufficient detail to indicate the reason for each comment. Persons desiring an acknowledgment that their comments were received should include a stamped, self-addressed envelope or postcard. This IFR may be changed in light of the comments received. All comments received before the expiration of the comment period will be considered before final action is taken on this rulemaking.

Regulatory History

A NPRM, published in the Federal Register (54 FR 4412) of January 30, 1989, contained a proposed revision of subchapter T in 46 CFR. The NPRM contained a description of the small passenger vessel fleet and detailed reasons for the proposed revision of subchapter T. The NPRM also proposed revisions to portions of 46 CFR subchapter S. Subdivision and Stability, that affect small passenger vessels. The NPRM comment period was originally scheduled to expire on May 31, 1989, but was extended to July 31, 1989. The Coast Guard also held six public hearings on the proposed rulemaking in the cities of: Washington, DC; St. Louis, MO; New Orleans, LA; San Francisco, CA; Chicago, IL; and Boston, MA. Over 225 persons attended and 116 members of the public presented their views on the NPRM at the hearings.

The Coast Guard received over 300 comment letters on the NPRM providing both support and criticism of the various proposed changes.

Based on the comments received, the Coast Guard published a SNPRM (59 FR 1994) on January 13, 1994. The SNPRM contained a complete revision of the proposed regulations affecting small passenger vessels. The significant changes proposed in the SNPRM included: (1) The creation of a separate subchapter K for small passenger vessels carrying more than 150 passengers or with overnight accommodations for more than 49 passengers; (2) alternatives to certain required lifesaving equipment; (3) greater recognition of industry standards; and (4) the establishment of new upper limit breakpoints above which a vessel would have to comply with the construction and outfitting requirements applicable to a passenger vessel of more than 100 gross tons. During the 150 day comment period, the Coast Guard received over 160 letters raising over 900 separate issues. Seven public hearings were held on the SNPRM in the cities of: New London, CT; Seattle, WA; Chicago, IL; Annapolis, MD; Tampa, FL; Cincinnati, OH; and Long Beach, CA. Over 225 persons attended and 80 members of the public presented their views on the SNPRM at the hearings.

Background and Purpose

Subchapter T contains the regulations for the inspection and certification of small passenger vessels including construction, outfitting of lifesaving and fire protection equipment, machinery and electrical installations, and operational requirements. These regulations were initially promulgated in the Federal Register of 5 October 1957 (22 FR 7949). Subchapter T originally regulated vessels of 19.8 meters (65 feet) or less in length, measuring more than 15 but less than 100 gross tons, and carrying more than 6 passengers. The major revision to subchapter T was made in 1963 when the scope of the regulations was broadened to include vessels of more than 19.8 meters (65 feet) in length, measuring less than 100 gross tons, and

carrying one or more passengers (28 FR 9733). Only minor revisions have been made to subchapter T since 1963. Significant changes have occurred over the past 30 years affecting the small passenger vessel fleet including: (1) Statutory changes; (2) increases in vessel size and passenger carrying capacity; (3) increases in the services offered by the owners and operators of small passenger vessels; (4) expansion of vessel routes; and (5) technological advances. Consequently, subchapter T requires updating to reflect these changes.

Discussion of Comments and Changes

This IFR completely revises the regulations affecting small passenger vessels. It reflects numerous comments received on both the NPRM and the SNPRM. Comments that are generally applicable to more than one part of the proposed regulations are discussed under ''General Comments to the SNPRM.'' Specific comments on each regulation in subchapter T, subchapter K and Parts 170, 171, and 173 of subchapter S are discussed under ''Comments on Particular Provisions of the SNPRM,'' in numerical order by the section number proposed in the SNPRM. Numerous comments were editorial in nature, and were considered in developing this IFR. However, non-substantial and editorial changes are not discussed in this preamble.

Comments on the Supplemental Notice of January 13, 1994

(a) General Comments to the SNPRM

While the comments generally recognized the regulations proposed in the SNPRM were a substantial improvement over the regulations proposed in the NPRM published in 1989, there was concern that several areas were not sufficiently addressed. These included:

1. Executive Order 12866

The Comments received questioned whether the SNPRM complied with Executive Order 12866, Regulatory Planning and Review. The comments quoted from four areas of the Executive Order, and claimed that the SNPRM:

(1) did not ''consider incentives for innovation, consistency, predictability, the cost of enforcement and compliance (to the government, regulated entities, and the public), flexibility distributive impacts, and equity'';

(2) was not based on the best reasonably obtainable information concerning the need for, and consequences of the intended regulations;

(3) did not specify performance specifications in lieu of behavior or manner of compliance; and

(4) was not tailored to impose the least burden to society by taking into account the cumulative cost of regulations on the regulated entities.

The Coast Guard generally agrees and as a result:

(1) The IFR includes more alternatives and equivalences than were proposed in the SNPRM.

(2) The Coast Guard reexamined its casualty statistics, and concluded that the casualty statistics included in the document A Study of Lifesaving Systems for Small Passenger Vessels and those referred to in the draft Regulatory Evaluation do not, on their own, appear to show sufficient need for some of the proposed changes. However, the genesis of this rulemaking results from more than casualty statistics. Therefore, the IFR was revised and the regulations eased to more closely reflect the focus of the small passenger vessel casualty history, and reduce the emphasis on the perceived risk of casualties yet to come.

(3) The IFR has also been revised to reduce the prescriptive language intended to regulate behavior, and to incorporate performance based specifications. This is particularly true in the areas of Structural Fire Protection for vessels carrying more than 150 passengers, and in the operations sections in parts 122 and 185.

(4) The Coast Guard did not fully examine the cumulative cost of regulation prior to publication of the SNPRM. The SNPRM had been drafted before Executive Order 12866 was issued. However, the Coast Guard is sensitive to the small passenger vessel industry's concerns about being overregulated, or regulated out of business due to these cumulative costs. As a result, the revisions to the IFR were designed to reduce the cumulative impact of regulations. These revisions are estimated to substantially reduce the cost of this rulemaking when compared to the regulations proposed in the SNPRM, and thereby contribute to reducing the cumulative cost of regulation.

2. Americans with Disabilities Act (ADA)

The ADA, enacted on July 26, 1990, has not been fully applied to vessels in the marine transportation environment. Regulations for ferries, excursion boats, and other vessels were reserved and not addressed in the final rule published by the Department of Transportation on September 6, 1991 (56 FR 45530). Comments pointed to the extreme liability that vessel operators may be subject to by not complying with this act because compliance is at times in direct conflict with existing Coast Guard regulations.

Although the Coast Guard agrees with many of the comments received on this issue, specific regulations addressing the ADA are not included in this rulemaking. There are no Department of Transportation regulations or Access Board guidelines specifically covering access to vessels at this time. The Coast Guard understands the industry's concerns in this area. Since the Department of Transportation anticipates a future rulemaking on this issue, the Coast Guard is currently working with the Department to study the feasibility of how to apply the requirements of the ADA to passenger vessels.

3. High Speed Craft (HSC) Code

The definition of Dynamically Supported Craft (DSC) used in the SNPRM was based primarily on the International Maritime Organization (IMO) ''Code of Safety for Dynamically Supported Craft'' (DSC Code). Recognizing the unique design and operational characteristics of DSC, the DSC Code was developed by IMO to provide a level of safety for DSC on international voyages equivalent to that provided by load line requirements and the International Convention for Safety of Life at Sea, 1974, as amended by the articles of Protocol of 1978 and the amendments of 1981, and 1983 (SOLAS). Recently, the DSC Code was revised to address the growth in both size and type of advanced marine craft that has occurred since adoption of the DSC Code in 1977. The revised code is titled ''International Code of Safety for High Speed Craft'' (HSC Code). New criteria based on speed and volumetric Froude number are used to delineate those craft to which the code applies from other more conventional craft. This IFR incorporates defining criteria for High Speed Craft (HSC) that are consistent with the new IMO HSC Code.

The HSC Code was developed to address the design and operation of a wide range of advanced marine vehicle types. HSC designs include air cushion vessels, hydrofoil vessels, side wall vessels, and other types of craft essentially within the spectrum existing between ships and aircraft. Many existing regulations were not practicable or sufficient for design or safety reasons. Due to their high speeds, maneuverability, normal dynamic support, airplane like operations, necessary light weight, and unique machinery, HSC may need alternative

requirements. Other vessels, such as certain catamarans, may also have operating characteristics different enough from conventional displacement vessels to necessitate alternative measures to ensure safe and proper operation. These characteristics include high speed, the need for lightweight structure, and a planning mode of operation.

In order to establish a level of safety equivalent to displacement vessels, the HSC Code contains specific provisions in many areas including advanced methods of design and analysis; weather conditions that might restrict operations; areas of operation; radio communications; evacuation of passengers; rescue services; and vessel maintenance. To prevent piecemeal application of the HSC Code, which might result in a system imbalance that is hazardous to passengers, the HSC Code states that full compliance with all applicable provisions of the code is required if the HSC Code is to be used as an equivalency to the international conventions.

The Coast Guard position is that, in general, the provisions of the HSC Code are only suitable for vessels that are of lightweight construction with a need to operate at the high speeds typical of an HSC. Vessels that meet the definition of an HSC are not required to comply with the HSC Code; however, this Code may be proposed as an equivalent standard for vessel design, construction, and operational requirements under new § § 114.540(b) and 175.540(b). The HSC Code is not considered equivalent to SOLAS or the U.S. regulations for vessels which do not meet the definition of an HSC. The Coast Guard is no longer proposing to incorporate the provisions of the HSC Code by reference by listing it in § § 114.600 and 175.600.

One comment noted that the regulations should specifically indicate in which sections the HSC Code would be an acceptable equivalent. The comment also noted that the HSC Code should only be applied in its entirety to avoid creating potential ''imbalances.'' The Coast Guard agrees. This IFR provides, in those areas where the HSC Code does not contain specific provisions or items are left to the satisfaction of the Administration, the requirements of subchapters T and K apply. It also provides that the HSC Code can only be used in its entirety as an equivalency since it is based on a ''systems engineering'' approach to design. In general terms, the use of the HSC Code as an equivalency will supplant the sections of the CFR that it addresses. The HSC Code is intended to be an option for equivalency to the requirements of subchapter T and K, and a vessel designer may determine if it is advantageous to apply the Code in place of the corresponding subchapter T and K sections.

Another comment pointed out that the required speed of the craft should meet the IMO HSC Code criteria rather that the speed/length formula from the DSC Code. The Coast Guard agrees that the definitions of HSC used in these regulations should be consistent with the international criteria. The use of term DSC is discontinued and the term HSC is adopted to maintain consistency with the IMO HSC Code.

One comment expressed concern that the proposed definition of DSC included an overly large population of moderate speed planing vessels as a result of the speed formula in the SNPRM. The Coast Guard notes that these crafts have been approved in the past using these rules and have had an acceptable safety record. The comment went on to state that proposed § 182.130(a), excluded the use of American Boat and Yacht Council (ABYC) rules for DSC's. The Coast Guard disagrees. Section 182.130(a) applies to propulsion and machinery. The ABYC rules are referenced in the regulatory text, and have been satisfactorily applied to DSC in the past.

Vessels meeting the HSC definition in the IFR that will be certified for international voyages must comply with the provisions of the HSC Code, or otherwise, all applicable provisions of SOLAS. This is in keeping with the intent of the HSC Code. Vessels meeting the HSC definition in this IFR that will not be certified for international voyages, would be required to comply with the applicable U.S. regulations, but may request substitution of the HSC Code for applicable U.S. regulations. Vessels that meet the HSC definition in this IFR, which will not be certificated for international voyages, and which the owners choose to design in compliance with the applicable U.S. regulations in lieu of the HSC Code, may be subject to additional requirements determined by the cognizant Officer in Charge, Marine Inspection (OCMI). The cognizant OCMI may require operational controls, or additional safety equipment under new §§ 115.110, 116.700(a), 16.800(f), 121.100(b), 176.110, 177.700(a), 177.800(f), and 184.100(b). For example, seat belts, which are specified in the HSC Code but are not specifically required on all small passenger vessels by subchapters T or K, may be required by the cognizant OCMI on a case-by-case basis. The above sections are further discussed in the comments for each specific section.

The Coast Guard is retaining proposed § § 114.540(b) and 175.540(b) to state that the Commandant may accept the provisions of the HSC Code as an equivalent to the applicable requirements in subchapter T or K. Requests to use the HSC Code as an equivalent to the regulations will be handled on a case-by-case basis by the Marine Safety Center, and will be carefully evaluated to ensure that system safety, as envisioned in the HSC Code is maintained. Where the HSC Code does not contain provisions equivalent to the specific requirements proposed in subchapters T and K, or where the Code leaves determinations up to the Administration, such as the specific wiring requirements in § § 120.340 and 183.340, a vessel would be expected to comply with the requirements in the applicable U.S. regulations.

The SNPRM proposed restrictions on routes for DSC. The proposed sections, § § 115.110(b) and 176.110(b), have been removed. The OCMI may restrict routes for vessels built and operated under the HSC Code, and may impose additional requirements if necessary to ensure safety.

In addition to the above comments received concerning the HSC Code, the Coast Guard received one comment concerning the proposed requirements for the location of passenger and crew accommodation spaces in subchapters T and K (§§ 177.700, 177.800 and 116.700, 116.800 respectively). The comment noted that the relationship between the deck and deepest load line is acceptable, but no further ''regulation like'' policy should be applied without opportunity for comment. This IFR adopts the regulations proposed in the SNPRM concerning the location of accommodation spaces without change. For subchapter T and K vessels, the requirement for crew and passenger accommodation space location follow the breakpoints for application in Table 114.100(f), with the exception that vessels more than 19.8 meters (65 feet) in length with overnight accommodations for more than 49 passengers must comply with subchapter H requirements. Subchapter K' vessels (vessels carrying more than 600 passengers, or with overnight accommodations for more than 150 passengers, or 200 feet or greater in length) must also comply with subchapter H requirements for crew and passenger accommodation space location.

(b) Comments on Particular Provisions of the SNPRM

Parts 114 and 175 General Provisions

Sections 114.110 and 175.110 General applicability. Three comments stated that the passenger breakpoint between subchapter K and K' should be raised from 600 to 1000 passengers because the adoption of subchapter H standards for construction, lifesaving, and fire fighting is overly burdensome. One comment stated, ''Provisions of subchapter H are written to govern large passenger ships carrying overnight passengers and are not reasonable for vessels that do not carry overnight passengers.'' The Coast Guard disagrees. The 600 passenger breakpoint was based on comments on the NPRM and existing subdivision breakpoints. The Coast Guard believes that the application of subchapter H for construction, lifesaving, and fire fighting standards is appropriate for the risks associated with high capacity passenger vessels, including vessels of less than 100 gross tons. Additionally, the guidelines contained in Navigation and Vessel Inspection Circular (NVIC) No. 8–93 ''Equivalent Alternatives to 46 CFR subchapter H Requirements Related to Means of Escape, Safe Refuge Areas, and Main Vertical Zone Length'' provides guidance on compliance with certain structural fire protection provisions of subchapter H in order to reduce the burden to industry.

Several comments stated that the use of gross tonnage as a criteria for regulations should be eliminated. As gross tonnage thresholds are established by statute, changes based on these comments are beyond the scope of this rulemaking.

Sections 114.400 and 175.400 Definitions of terms used in this subchapter. Many definitions in these sections have been revised based on comments received on other sections.

In response to a comment which recommended that the space designations in Tables 116.415 (b) and (c) should be consistent with those in subchapter H, many definitions relating to the application of the structural fire protection tables in § 116.415 have been amended. The discussion of the changes to § 116.415 provides additional information, including the rationale behind amendment of the structural fire protection tables.

Accommodation spaces have been divided into two categories, low risk and high risk. Low risk accommodation spaces are defined as accommodation spaces that contain a fire load of not more than 15 kilograms per square meter (3 pounds per square foot). High risk accommodation spaces are defined as those with a fire load greater than 15 kilograms per square meter (3 pounds per square foot). Furnishings in low risk accommodations spaces are limited by the definition in § 114.400 to fire resistant furnishings, while furnishings in high risk accommodation spaces are not limited to those with fire resistant construction; see the discussion of § 116.427 for additional information.

Additionally, washrooms and toilet spaces have been removed from the definition of accommodation space in subchapter K, and grouped into the category of low risk service space (type 8). Washrooms and toilet spaces typically have a very low fire load, and it is appropriate to include them in a space category that would require a lesser degree of structural fire protection. Toilets and washrooms are considered type 8 spaces in subchapter H.

One comment on § 116.415 stated that food and drink service bars could be considered a ''low risk service space'' and that they should be included in the definition of ''accommodation areas,'' and not be subject to the structural fire protection restrictions for a ''galley.'' The Coast Guard concurs, and a provision is included in the definition of an accommodation space to indicate that a microwave or other similar ''low heat'' cooking appliance is permitted in an accommodation space. This is consistent with interpretations of SOLAS.

A definition is added for the term ''area of refuge.'' This definition recognizes that an area of refuge is intended to serve as a safe area where passengers can wait, in the event of an emergency, until they can disembark. This definition explicitly states that the standards for protection of areas of refuge are performance oriented, in that the areas of refuge need only provide a safe haven for as long as they may reasonably be expected to be occupied. The maximum time limit of one hour for an area of refuge is consistent with structural fire protection requirements that do not require any boundaries with fire endurance of over one hour. It is not the Coast Guard's intent that this definition add any additional requirements to those proposed in the SNPRM for an area of refuge.

The definition of ''atrium'' is amended to clarify that atriums are only permitted in accommodation spaces.

In response to a comment that indicated that the structural fire protection requirements for an ''auxiliary machinery space'' as defined in subchapter H are less stringent than those proposed in the SNPRM, a definition is added that is consistent with subchapter H. For application of the structural fire protection tables, these areas would be included in the category of ''voids, fuel tanks, and water tanks,'' instead of the category ''machinery space,'' if the space contains a fire load of less than 2.5 kilograms per square meter (0.5 pounds per square foot).

The definition of a ''balcony'' is amended because of changes in § 116.439. See the discussion on § 116.439 for additional information.

The definition of a ''cargo space'' is amended to specifically state that a vehicle space is included in this category for purposes of application of the structural fire protection tables.

The definition of a ''fire control boundary'' is amended by adding ''C'-class'' to the definition. See the discussion on § 116.415 for additional information.

The definition of ''fire load'' is amended to delete reference to ''wood equivalent weight'' to make the definition consistent with Coast Guard policy contained the revision to NVIC No. 6–80.

The definition of ''hazardous condition'' is added to §§ 114.400 and 175.400 as a result of the revision to the casualty reporting requirements contained in §§ 122.202 and 185.202, respectively. See the discussion on §§ 122.202 and 185.202 for additional information.

Definitions of ''high risk service space'' and ''low risk service space'' are amended to make these spaces consistent with type (8) and (9) spaces in subchapter H, respectively. The definition of ''High risk service spaces'' includes the same spaces as ''galleys, main pantries, storerooms, and workshops'' as found in subchapter H; and the definition of ''low risk service spaces'' includes the same spaces as ''washrooms, toilet spaces, and isolated pantries'' in subchapter H. Small or large pantries and storerooms may be included in either category depending on fire load.

One comment suggested that the temperature cutoff for a galley should be increased from 121° C (250° F) to 232° C (450° F). The Coast Guard does not agree. Many cooking oils have a flash point below 232° C (450° F), and therefore require the level of fire protection associated with a galley.

Several comments stated that the definition of ''major conversion'' should be changed because it was too restrictive and not consistent with the definition used in 46 CFR 28.50 for commercial fishing vessels. In addition, the comments believed that paragraph (1) of

the definition would be subject to inconsistent interpretation by the Coast Guard, and result in the upgrading of an existing vessel to more stringent standards even for slight changes to the vessel's structure. Two comments suggested that a percentage (5–10%) be assigned to the changes in length, breadth, and height for determining when a change is a major conversion. One comment stated that the changing of gross tonnage should not be used as a measure of determining a major conversion because of the way it can be manipulated in the tonnage rules. The Coast Guard partially agrees. The definition of ''major conversion'' for commercial fishing vessels was derived from the definition contained in 46 United States Code (U.S.C.) 2101, and modified to reflect the unique nature of commercial fishing vessels. In order to reduce the confusion associated with creating new definitions the Coast Guard decided to adopt the more flexible definition contained in 46 USC 2101 as written. This revision allows for minor changes to the structure and carrying capacity of a vessel. The Coast Guard believes that since every vessel is different, the determination of what is a major conversion should be made on a case-by-case basis, by the Commandant, taking changes to the dimensions and effects on stability into consideration rather than assigning an arbitrary percentage.

The definition of ''means of escape'' is amended by replacing the term ''passageways'' with ''corridors'' to make it consistent with subchapter H.

The definition of ''passenger'' is updated to reflect the changes made in the Passenger Vessel Safety Act of 1993, and the definition of ''passenger for hire'' was added.

The definition of a ''stairtower'' is amended to clarify that all stairways in a stairtower must be contained in a common enclosure.

A definition of ''safety areas'' is added that is consistent with subchapter H.

Sections 114.560 and 175.560 Appeals. Several comments stated that these sections should be revised to require the Coast Guard to respond to appeals within 30 days of receipt. The comments believed that since the Coast Guard imposes a 30 day response time on industry, it is only reasonable that the Coast Guard respond in kind. The Coast Guard disagrees. These sections reference 46 CFR 1.03, and that part is not under revision at this time. However, the Coast Guard will consider actions to correct the perceived lack of timely response.

Sections 114.600 and 175.600 Incorporation by reference. One comment was received from the National Fire Protection Association indicating that the standards proposed for adoption by reference were not the most recent edition, and suggested that the most recent edition of each standard be adopted. The Coast Guard concurs, as the most recent standards typically allow greater flexibility by recognizing new design technology. Sections 114.600 and 175.600 have been amended to adopt the most recent editions of standards where appropriate. Additionally, several new standards have been added to these sections due to amendments to other sections. See the discussion on other sections as appropriate for the rationale behind these additions.

1. Parts 115 and 176—Inspection and Certification

Half of the over 90 comments received on these parts applied to subchapter T vessels, and focused on the drydock interval requirements in Part 176 Subpart F. Within Subpart F, comments specifically addressed the reduced interval of one year for hulls of wood construction over 20 years old.

Some comments believed the 20 year age requirement was arbitrary and not supported by fact or casualty statistics. Others believed that age had nothing to do with the condition of a well maintained vessel, regardless of the hull material. Still others claimed that if Coast Guard inspectors knew what they were looking at, ill-maintained vessels would be found, and all wood vessels would not have to be targeted.

The reduced drydock interval for wood vessels over 20 years old is a reflection of the casualty history cited in the Coast Guard study A Study of Lifesaving Systems for Small Passenger Vessels. As noted in this study, wood vessels accounted for over 90% of all casualties resulting in the loss of the vessel or a loss of life. Of the wood vessels included in the study, the average age was approximately 26 years old. Those specifically reported as flooding, foundering, or hull failure casualties average 38 years old.

These statistics notwithstanding, the Coast Guard agrees with the comments that a reduced drydocking interval should not be required for all wooden vessels, as the degree and extent of vessel maintenance certainly figures into the structural condition of any wood vessel. Since the *EL TORO II* casualty in December, 1993, the Coast Guard has revised Navigational and Vessel Inspection Circular (NVIC) No. 1–63 ''Notes on Inspection and Repair of Wooden Hulls'' to provide more detailed and current guidance on the inspection of wooden hulls. This should enable Coast Guard OCMIs to better target the marginally maintained wooden vessels within their zones, and allow them to reduce the drydock inspection interval on select vessels when there is sufficient cause or evidence of lack of maintenance.

As a result of the Coast Guard's NVIC revision, the industry's comments, and the changes in the lifesaving equipment requirements in Table 180.200(c), the Coast Guard deleted proposed § 176.600(d), which would have required that wood vessels over 20 years old undergo an annual drydock exam. In addition, proposed §§ 115.600(d), and 176.600(e) [now (d)], have been revised to emphasize the OCMI's existing discretion to decrease vessel drydock intervals as necessary to monitor a vessel's structural condition.

Forty-seven comments received focused on the wording of §§ 115.840 and 176.840. The comments believed that the OCMI was being given too much authority to require additional tests and inspections without reasonable cause. A few comments stated that adding the word ''reasonable'' to the language of this section would satisfy their concerns.

The Coast Guard does not agree that OCMIs would abuse their authority, and require additional tests and inspections without reasonable cause. However, the word ''reasonable'' has been added to the language of §§ 115.840, and 176.840.

Several other comments focused on the requirement of the owner or operator to notify the OCMI whenever a vessel is drydocked or hauled out above and beyond the required drydock interval. The comments stated that the requirement to contact the OCMI whenever the vessel is drydocked, for whatever reasons, contradicted a subsequent section with a more reasonable notification requirement.

The Coast Guard agrees with comments that proposed §§ 115.600(e) and 176.600(f) contradict §§ 115.612 and 176.612, respectively, which contain specific requirements for the owner or operator to contact the OCMI whenever a vessel is drydocked or hauled out for repairs affecting the safety of the vessel. Therefore the Coast Guard deleted proposed §§ 115.600(e) and 176.600(f).

In addition to changes made as a result of comments, the Coast Guard has modified the requirements for vessels operating as other than inspected small passenger vessels. Under the Passenger Vessel Safety Act of 1993, a vessel of less than 100 gross tons may be chartered without crew as a recreational vessel and carry twelve passengers. The

Coast Guard has clarified the conditions under which an inspected passenger vessel may operate as an uninspected vessel by revising §§ 115.114 and 176.114 to be consistent with the Passenger Vessel Safety Act of 1993.

2. Parts 116 and 177—Construction and Arrangement

These parts generated the most public comment. Comments on both parts focused on the proposed plan submittal requirements. The majority of the comments addressed the structural fire protection requirements in Part 116, Subpart D, which apply to vessels carrying over 150 passengers, and vessels with accommodations for more than 49 overnight passengers. Within Subpart D, comments fell into four areas: Use of polyurethane foam; fire control boundaries; ceiling and interior finishes; and stairway, stairtower and ladder arrangements.

Sections 116.202 and 177.202 Plans and information required. Over 70 comments objected to the requirement to submit a complete set of plans to the cognizant Officer in Charge, Marine Inspection (OCMI) prior to the start of construction. The comments considered this to be an unreasonable interference with the private sector, and cited contractual, financial or other reasons to start construction early. The majority of the comments suggested that the provisions in proposed paragraph (c) would adequately cover the owner's or builders's risks of starting construction early and that the working regarding plan submittal should be the same as that in existing 46 CFR 177.05–1. The Coast Guard revised these sections to require only Outboard Profile, Inboard Profile and Arrangement plans to be submitted prior to the start of construction. The remainder of the plans must be submitted for approval before the vessel receives a Certificate of Inspection. In addition, references in subchapter K to OCMI approval of plans were removed, and replaced with Commanding Officer, Marine Safety Center approval. The Marine Safety Center has been responsible for the plan review of vessels: 65 feet in length and greater; carrying over 150 passengers; or a unusual design for several years. The deletion of OCMI approval clarifies the Marine Safety Center's role as the plan review center for vessels constructed in accordance with subchapter K.

The remaining comments focus on the increased number of plans required to be submitted. The comments believed that the increased number of plans required, from (9) to (25), would delay the Coast Guard review process, and add expense to the construction of a vessel. The intent of the rewording in the SNPRM was to better explain the details already required on plans submitted for review. The intent was not to require three times the number of plans to be submitted for review. In response to the comments, the Coast Guard revised these sections, and has grouped required plan details under general headings similar to those in existing § 177.05–1.

Section 116.300 Structural design. Several comments expressed concern that this section did not allow the use of fiberglass reinforce plastic (FRP) or composite construction. Other comments suggested that this section should identify a recognized design standard for FRP or composite construction. The Coast Guard does not wish to prohibit the use of these materials; however, there is currently no recognized design standard that provides an equivalent level of safety to vessels constructed in accordance with this part. Consequently, vessels constructed of FRP or composite materials and subject to the provisions of subchapter K are considered to be constructed of ''special materials.'' These vessels will be considered and reviewed in accordance with the provisions in § 116.340 for alternate design considerations. No changes have been made from the proposed regulations.

Section 116.400 Application. Several comments pointed out that paragraph (a)(2) should read ''Vessels with overnight accommodations for more than 49 passengers but not more than 150 passengers'' and that paragraph (b) should read ''Vessels with overnight accommodations for more than 150 passengers must comply with § 72.05 of this chapter.'' The Coast Guard agrees and has revised this section accordingly.

Section 116.405 General arrangement and outfitting. One comment discussed the testing of mattresses and proposed the use of California Technical Bulletin 129 (CAL TB 129), ''Flammability Test Procedure for Mattresses for Use in Public Buildings.'' The Coast Guard agrees that materials should not be limited prescriptively, but the use of a standard based on a single State's regulation is generally not acceptable in a national and international industry. However, the Coast Guard will pursue development of similar standards through a recognized national forum. It is expected that Underwriters Laboratories (UL) or American Society for Testing and Materials (ASTM) will develop similar acceptable standards. For example UL 1056, ''Fire Test of Upholstered Furniture,'' is similar to Cal TB 133, ''Flammability Test Procedure for Seating Furniture Used in Public Occupancies.'' However, the International Maritime Organization (IMO) Resolution A.688(17), ''Fire Test Procedures for Ignitability of Bedding Components, '' is an international maritime standard that sufficiently test the ignitability of mattresses and the associated blankets using a cigarette and an open flame. The IMO standard does not prohibit the use of polyurethane foam. In an attempt to harmonize industry standards worldwide, the IMO standard has been incorporated for the testing of mattresses on U.S. vessels. The regulatory text is amended to add the alternative of compliance with IMO Resolution A.688(17). Compliance with the U.S. Department of Commerce (FF 4–72.16) ''Standard for Mattress Flammability'' is still acceptable provided the mattress does not contain polyurethane foam. The proposed complete prohibition on the use of polyurethane foam is removed.

Section 116.415 Fire control boundaries. Several comments recommended that an automatic 10 percent extension of the 40 meter (131 foot limit) on main vertical zone (MVZ) length be incorporated into the regulations because subchapter K vessels do not operate in the same environment as SOLAS vessels and Coast Guard policy has permitted extensions of MVZ length. The Coast Guard agrees, in part, and has added a provision to the IFR which allows the Commanding Officer, Marine Safety Center to extend the MVZ length to 44 meters (144 feet). The maximum allowable MVZ horizontal step size has also been changed to be consistant with current policy. The provisions to allow extension of MVZ length, although not automatic, will help provide vessel owners with the necessary design flexibility. The decision to grant an extension of MVZ length is not automatic and should only be made after considering the effect on the overall level of safety. Recent amendments to SOLAS allow the length and width of MVZ's to be further extended to a maximum of 48 meters (157 feet) provided that the total area of the main vertical zone is not greater than 1,600 square meters (17,200 square feet) on any deck; however, SOLAS also requires full sprinkler systems for passenger spaces. The Coast Guard has also published guidance applicable to passenger vessels on protected routes that explicitly details requirements necessary for vessels to be designed with ''long MVZs.'' This guidance is

published in Navigation and Vessel Inspection Circular (NVIC) NO. 8–93) ''Equivalent Alternatives to 46 CFR subchapter H Requirements Related to Means of Escape, Safe Refuge Areas, and Main Vertical Zone Length.'' Subchapter K vessels may, through the equivalency provisions in 46 CFR 114.540, build to the structural fire protection provisions in subchapter H, part 72.05 and, if on a protected route, the long MVZ alternative in NVIC 8–93, in lieu of the provisions in 46 CFR Part 116. The Coast Guard has and will continue to consider proposals for the extension of MVZ length, beyond regulatory limits, if a proposal provides an equivalent overall level of safety. Extensions of MVZ length up to 44 meters (144 feet) will generally be made to allow the ends of MVZs to coincide with watertight subdivision bulkheads or in order to accommodate a large public space extending for the whole length of the main vertical zone. For extensions of MVZ length beyond 44 meters, additional features such as a heat detection system, a smoke detection system, a sprinkler system and/or additional emergency escape routes, may provided the necessary compensating provisions for subchapter K vessels. The type and number of compensating provisions will be determined on a case-by-case basis if the vessel does not comply with the published guidance.

Several comments recommended that this section be revised to incorporate the existing Coast Guard guidance published in NVIC 8–93 and Marine Technical and Hazardous Materials Division Policy File Memorandum (MTH PFM) No. 3–89 regarding the omission of draft stops in certain situations. The Coast Guard agrees and has adopted the guidance into this IFR.

Seven comments disagreed with the proposal in the SNPRM to eliminate the two categories of accommodation spaces proposed in the NPRM and replace them with one accommodation space category. One comment requested that space designations be modified to be consistent with subchapter H, and one comment requested that Tables 116.415 (b) and (c) be clearly labeled ''bulkheads'' and ''decks'' respectively. In response to the comments received, § 116.415 is amended to include a low fire load option in line with a type 5 space as defined in subchapter H. Tables 116.415 (b) and (c) are also amended so that space designations are more consistent between subchapters H and K. Additionally, the terms ''bulkheads'' and ''decks'' have been added to the tables as appropriate.

Since the publication of the SNPRM, a new low fire load policy was developed with extensive industry input and published in MTH PFM No. 1–94 on November 15, 1994. A copy of this policy may be obtained by calling Commandant (G–MMS–4) at (202) 267–1076. MTH PFM 1–94 provides the marine industry with an alternative that supplements the regulations and provides the minimum structural insulation and bulkhead classifications for certain vessels containing low risk passenger accommodation spaces with very low fire loads of not more than 5 kilograms per square meter (1 pound per square foot) fire loading. This policy primarily benefits builders of aluminum vessels because of the need to insulate bare aluminum structure for it to be considered equivalent to steel. MTH PFM 1–94 provides guidelines for the design and construction of passenger vessels with extremely low fire loading, fire resistant furnishings and greatly reduced quantities of structural insulation. This low fire load alternative applies to subchapter K vessels and the Coast Guard plans to adopt it into the final rule following an evaluation period currently underway.

The two categories of accommodation and public spaces proposed in the 1989 NPRM were low risk (fire load of 15 kilograms per square meter (3 pounds per square foot) or less) and high risk (fire load of 30 kilograms per square meter (6 pounds per square foot) or less). In an attempt to simplify design and construction requirements, and to maintain a uniform measure of structural fire protection on small passenger vessels, these two NPRM categories were revised in the SNPRM to one designation with a maximum fire load of 37.5 kilograms per square meter (7.5 pounds per square foot). As discussed above, a number of comments objected to this proposal and citing the need for both additional alternatives in the selection of furnishings and for reductions in structural insulation.

Subchapter H includes three categories of accommodation and public spaces: those with incombustible veneers and trim and fire resistant furnishings (type 5), those under 46 square meters (500 square feet) with combustible furnishings (type 6), and those over 46 square meters (500 square feet) with combustible furnishings (type 7). As stated in NVIC 6–80 ''Guide to Structural Fire Protection Aboard Merchant Vessels,'' rooms containing combustible furnishings are considered to have a fire load of 50 kilograms per square meter (10 pounds per square foot): 37.5 kilograms per square meter (7.5 pounds per square foot) of furnishings, and 12.5 kilograms per square meter (2.5 pounds per square foot) of passengers' effects.

In this IFR, to simplify the structural fire protection tables from subchapter H, type 6 spaces [staterooms and public spaces of 46 square meters (500 square feet) or less with combustible furnishings, and isolated storerooms] are not included. In § 116.415, for structural fire protection purposes, accommodation spaces will be differentiated only on the basis of fire load and type of furnishings. Type 6 spaces, as defined in subchapter H, would be included in the category of type 7 spaces in subchapter K. The insulation requirements for type 5 and type 7 spaces were taken from the tables in subchapter H.

Nine comments concerned the requirement for ''A–0'' bulkheads and decks on aluminum vessels in areas separating low fire load spaces [spaces with a fire load less than 2.5 kilograms per square meter (0.5 pounds per square foot)]. Under the guidance contained in NVIC 6–80, bulkheads and decks separating water tanks, void spaces containing less than 2.5 kilograms per square meter (0.5 pounds per square foot), and ballast tanks from open deck spaces may be constructed of uninsulated aluminum. The IMO High Speed Craft Code contains a similar provision. As indicated in the SNPRM, it is the Coast Guard's intent to permit uninsulated aluminum construction in similar areas on subchapter K vessels. Therefore, § 116.415 (b) & (c) have been amended to indicate that C'–Class construction is permitted in boundaries separating open decks, voids containing less than 2.5 kilograms per square meter (0.5 pounds per square foot) fire load, water tanks, and embarkation stations. C'-Class construction must be a noncombustible structural division that also resists the passage of smoke between adjacent spaces. The establishment of a C'-Class barrier rating is not intended to preclude the use of vents for ballast tanks or voids.

One comment noted the proposed requirement that all MVZ bulkheads meet A–30 construction exceeds the requirements of subchapter H in some cases, and this requirement should be modified so that it is not more severe than the one in subchapter H. The Coast Guard agrees in part. Accordingly, 0116.415(d) is amended to permit A–0 MVZ construction where a Type 8, 12, or 13 space is on one side of the division. This approach is also consistent with the MVZ philosophy contained in the 1992 amendments to SOLAS 74.

Two comments requested that higher fire and smoke rated loads or a reduction in structural fire protection requirements be permitted if a vessel is fully sprinklered. The Coast Guard does not concur. Active fire protection systems are generally less reliable than passive fire protection measures. However, there are instances where an active fire protection system is considered equivalent to passive measures provided the expected reliability of the active system does not significantly affect the overall level of safety. An example where it is acceptable to substitute active systems for passive measures is the balcony and atrium requirements contained in 0116.439 and 0116.440. However, fire casualty experience has demonstrated that sprinklers are not in all cases an acceptable substitute for limits on fire and smoke rated loading or basic fire integrity of bulkheads and decks. No changes were made to the proposed fire load or interior finish requirements when a vessel is fully sprinklered.

Three comments asked that the proposed requirement in § 116.415(a)(1) that the hull, structural bulkheads, columns and stanchions, superstructures, and deckhouses must be composed of steel or equivalent material be changed to steel or aluminum. As stated above, boundaries of several low fire risk spaces are now permitted to be C'-Class construction, which could be met by the use of uninsulated aluminum. However, as stated in the SNPRM, since aluminum has a much lower fire endurance than steel, aluminum will require insulation in areas where there is a substantial fire risk. The requirement for steel or equivalent is modified to reflect that where specifically permitted by Tables 116.415 (b) and (c), steel or equivalent is not required, and noncombustible material may be used.

Section 116.422 Ceilings, linings, trim, interior finish and decorations. There were numerous comments questioning the necessity for the proposed requirement that ceiling panels be retained by continuous flanges of steel or equivalent material on the exposed side of the panel. This requirement would essentially rule out the use of typical ''snap-in'' type construction. The Coast Guard has reconsidered the need for this requirement and has deleted it from the regulations.

One comment addressed the use of gypsum wallboard for interior linings. All construction and interior linings are required to be noncombustible. Gypsum wallboard is required to be approved in accordance with § 164.009 in 46 CFR subchapter Q, and listed in Commandant Instruction M16714.3E (Coast Guard Equipment List). Any finishings added to the surface must meet the requirements for finish materials in § 164.012 of subchapter Q. Any reference to a specific building material, such as ''paper-faced gypsum'' wallboard, is not necessary and has been removed from the regulations.

One comment expressed concern over the potential loss of strength of paper-faced wallboard during or after a fire. The Coast Guard believes that if the wallboard is part of the fire rated wall construction, this concern is already addressed since the barrier is required to meet the furnace test requirements in American Society for Testing and Materials (ASTM) Standard E–119 ''Standard Test Methods for Fire Tests of Building Construction and Materials.'' If a lining is not part of the wall for the purpose of fire rating then its fire integrity is not a concern under the current regulations. Therefore, the requirements in § 116.422 have been amended to be consistent with the existing requirements in subchapter H for noncombustible construction and interior finish.

Several comments suggested changing the flame spread/smoke generated performance requirements for approved interior finishes in the ASTM E–84 ''Test for Surface Burning Characteristics of Building Materials'' tunnel test from 20/10 to 20/25. The Coast Guard disagrees and believes that the 20/10 standard maintains an appropriate level of safety. However, the Coast Guard will consider industry research that provides data indicating an alternative requirement will not degrade the current level of safety.

Several comments addressed using other test methods for testing the flammability of wall lining materials. The Coast Guard notes that research is being conducted into the feasibility of other test methods, including International Organization for Standardization (ISO) 9705 ''Fire Tests—Full-Scale Room Test for Surface Products.'' However, the International Maritime Organization (IMO) has not yet set the performance requirements for this test. The test prescribed in subchapter K will not be changed; however, any similar test procedure, as outlined by SOLAS, will be considered as an acceptable substitute.

One comment suggested allowing wool carpet to be used as a wall lining material because of claims that it is self extinguishing in the vertical direction. Wool could theoretically be used if it met the requirements for bulkhead linings or veneers including the thickness limitation and the flame spread and smoke generation rating. These performance requirements limit the material's contribution to fire growth and fire severity after flashover. This interpretation is consistent with the intentions of the performance standards and does not specifically address any single material.

Section 116.423 Furniture and furnishings. There were numerous comments regarding the use of California Technical Bulletin 133 (CAL TB 133) and other flammability tests for upholstered furniture. The Coast Guard is currently researching the acceptability of a number of flammability tests for upholstered furniture. Research thus far indicates that UL 1056 is an acceptable alternative wherever fire resistant furnishings are required. UL 1056 is essentially option B of CAL TB 133, and it is envisioned that furniture tested to UL 1056 will be accepted by the state of California and vice versa, thus reducing the burden on industry. Therefore, § 116.423 is amended to allow the acceptance of furniture meeting UL 1056 in all accommodation spaces. Furniture meeting UL 1056 is also acceptable where fire resistant furnishings or furnishings constructed of approved fire resistant materials are required.

Several comments objected to the prohibition of polyurethane foam in furniture and furnishings. The Coast Guard agrees that this restriction is not necessary and has deleted this requirement from § 116.405(k). It is noted that furniture meeting the performance criteria in UL 1056 may contain polyurethane foam. Other uses of foams will be limited by existing regulations. The requirements in § 116.423 for furniture and furnishings have been amended to make them consistent with subchapter H requirements.

Several comments addressed the issue of accepting either small scale or large scale test procedures for National Fire Protection Association (NFPA) 701 ''Methods of Fire Tests For Flame-Resistant Textiles and RM Films.'' Either method is acceptable in light of work done by the respective committee to make both methods consistent. Section 116.423 is amended to reflect that either the small or large scale tests will be acceptable.

Section 116.425 Deck coverings. One comment asked that the Coast Guard reconsider the acceptance of carpets constructed of wool blends with synthetics. Subchapter H prohibits the use of carpets that are not wool or equivalent in spaces where fire resistant furnishings are required. As previously discussed, subchapter K is revised to

allow the construction of either high risk or low risk accommodation spaces corresponding to type 7 and type 5 accommodation spaces in subchapter H. Wool or equivalent carpet is still required in low risk (type 5) accommodation spaces, and in corridors and stairways. Other types of carpeting, including wool blends, may be used in high risk (type 7) accommodation spaces.

Also, to be consistent with the format of subchapter H and guidance in NVIC 6–80, the section on rugs and carpets is moved to § 116.423.

Section 116.427 Fire load of accommodation spaces. Two comments asked how to account for interior finish in fire load calculations. One comment suggested a new method of calculating fire load that would allow the use of wall and surface finishes that are considerably thicker than allowed in subchapter H. The Coast Guard has great concern about the contribution of combustible wall lining and surface finishing materials to a fire in a particular space, and has not relaxed the requirement in subchapter K for surface finishes to be approved in accordance with § 164.012. Research continues in this area and new methods will be introduced when properly researched and validated as to the level of safety obtained by the method. As proposed in the SNPRM, all combustibles in a space must be included in the fire load calculations, including interior finishes.

Nine comments asked for an option to allow the design of a space for a low fire load with an appropriate reduction in structural fire protection. The Coast Guard agrees and has amended § 116.427 to indicate wherever an accommodation space is a low risk accommodation space (see § 114.400 for definition), fire load calculations must be submitted to the Marine Safety Center. This section is also amended to indicate that where a space is designated as a low risk service space, the OCMI may require the submission of fire load calculations to the Marine Safety Center. The reason for this change is that amendments to the definition of a low risk service space permit certain pantries to be considered as low risk service space if the fire load is less than 15 kilograms per square meter (3 pounds per square foot). When an OCMI is concerned that the fire load in a pantry categorized as a low risk service space is higher than 15 kilograms per square meter (3 pounds per square foot), the OCMI may require the submission of fire load calculations. See discussion on § 116.415 for additional information regarding the low fire load option.

One comment suggested that fire load should be calculated on the basis of gross deck area without excluding aisles and equipment. Since the method of calculation required by this section computes fire load by dividing the total weight of combustibles by the total deck area, no modifications are required.

Section 116.433 Window and airports in fire control boundaries. One comment concurred with the requirements proposed in this section.

Two comments questioned the proposed minimum height of 900 millimeters (3 feet) for the bottom of a window when adjacent to a passageway since dinner tables are often installed adjacent to windows fitted in the sideshell of the vessel. As noted in the preamble of the SNPRM, the intent of this requirement is to prevent people from tripping over the frame or lower support structure of a window or falling through the glass. Similar land based criteria, found in the NFPA Life Safety Code, requires placement of guards at least 1100 millimeters (42 inches) high in new construction, and 900 millimeters (36 inches) high in existing construction. Furthermore, the proposed requirement only applies to windows that are installed adjacent to a passageway, and the minimum height requirement does not apply if a storm rail is installed adjacent to the glass. The proposed requirement was not changed.

Four comments concerned the protection of windows adjacent to an embarkation station, escape route, or survival craft storage area. Of the four comments, three said that this requirement is not practicable, and one said that the requirement should be a minimum. SOLAS requires that ''special attention'' be given to windows fitted in similar areas, recognizing that the failure of these windows could impede the launching or embarkation of life saving appliances. The proposed requirement was not changed.

One comment said that since glazing material in windows accessible to passengers and crew should not produce a hazard to passengers and crew, the tempered glass required by § 116.433 should be a minimum, and that laminated glass should also be accepted. The Coast Guard agrees, and § 116.433(a) indicates that either tempered or laminated glass is acceptable.

Section 116.435 Doors. One comment questioned the need for loading doors that lead over the side to be fire rated. The Coast Guard's position is that a door must maintain the integrity of the barrier. The rating of the barrier is determined by the fire hazards within the space and the resultant barrier rating determines the rating of the opening. The U.S. still continues to specify, prescriptively, requirements for doors in each type of division such as is done in this section and in § 72.05–25 of subchapter H. The Coast Guard does not intend to change these requirements at this time. Research continues on determining the hazards associated with exterior doors and openings that could allow smoke and flame spread up the outside of the vessel.

One comment suggested accepting UL rated doors as an alternative to the current Coast Guard requirements. The Coast Guard is currently researching the acceptance of UL rated doors as an alternative for the current requirements. If found satisfactory, the Coast Guard will incorporate UL 10B ''Fire Tests of Door Assemblies'' by reference in the final rule.

Section 116.438 Stairtowers, stairways, ladders, and elevators. Many comments were received about the proposed requirement in paragraph (a) that stairways, stairtowers, ladders, elevators, and landings be composed of steel, thus prohibiting the use of a aluminum. The Coast Guard agrees that requiring all stairways to be composed of steel may be too strict and exceeds the requirements of subchapter H. Subchapter H requires that all stairways, ladders, and elevators within main machinery spaces and cargo holds be made of steel; stringers, treads, platforms, and landings of all stairways, except exterior stairways, be of solid steel construction; and risers be of approved noncombustible material. The Coast Guard requires steel because it exhibits good fire endurance, especially when compared to non-insulated aluminum. Although aluminum decks and bulkheads can be insulated to provide adequate fire performance, it is impractical to similarly insulate stairways treads and support structures. The Coast Guard strongly believes that the need to ensure vessel designs provide an adequate means of vertical egress is paramount. The integrity of these egress facilities is required for both personnel egress and fire fighter access. The Coast Guard has revised § 116.438(a) to provide additional guidance and to clarify the requirements for stairtower and stairway material requirements and to allow the use of noncombustible materials in certain stairway designs.

One comment suggested rewording § 116.438(e) so it would read as a positive statement. Paragraph (e) is revised to indicate that curved and spiral stairs require specific approval of the Commandant.

One comment objected to the zero tolerance allowed for the tread and the height of riser measurements in an individual flight of stairs. The Coast Guard agrees. Section 116.438(f) is revised to allow a 4.8 millimeter (3/16 inch) variation in the depth of adjacent treads or in the height of adjacent risers as allowed in the NFPA Life Safety Code.

One comment requested that the requirement in proposed § 116.438(i) be changed to allow the inclination of stairways to exceed 40 degrees for smaller boats. The Coast Guard believes stairways with very high inclinations are an undesirable design for escapes because they may be unusable to many passengers, including the elderly, disabled, those unfamiliar with vessel construction, or those disoriented by fire, smoke, or other emergency. However, this paragraph was revised to give the Commanding Officer, Marine Safety Center discretion to increase the allowable stairway inclination for circumstances that have severe space constraints.

A few comments suggested that the proposed requirement in § 116.438(l) that each main vertical zone have at least one stairtower for all persons served in the zone, was too arduous for smaller passenger vessels. The Coast Guard strongly believes that the need for vertical egress is paramount. However, the Coast Guard understands that the formal stairtower requirement may be difficult to satisfy when designing smaller passenger vessels. The Coast Guard has revised § 116.438(l) to provide alternate stairtower arrangements for smaller passenger vessels, similar to existing Coast Guard policy in NVIC 8–93, while still maintaining appropriate means of escape.

Paragraph 116.438(m)(3) is revised to include egress routes to area of refuge and make the minimum tread width requirement more practical by taking into account the use of excess landing areas and areas of refuge to reduce the width of a stairway.

Section 116.439 Balconies. Two comments were received on this section. Each requested a 10% increase in the permissible equivalent main vertical zone length over the 40 meters (131 feet) specified in proposed § 116.415(d)(1)(i). The Coast Guard does not agree. Current shipbuilding practice in the U.S. passenger vessel industry has evolved such that many balcony spaces resemble ''two deck atriums,'' where two decks of approximately equal size are connected by a relatively small opening between the decks. The original intent of the balcony provision was to permit a short space that overlooks a larger space, similar to a balcony in a movie theater, without imposing additional requirements. Section 116.439(c) permits this arrangement without requiring additional fire protection measures. When a multilevel space may be considered a two deck atrium, additional measures are required to maintain the intended level of safety as discussed below.

Both of the above-mentioned comments also requested the consideration of other equivalences such as the acceptance of a 46 meter (150 foot) main vertical zone for spaces with low fire loads. The Coast Guard concurs, and balconies with a main vertical zone length greater than allowed by § 116.415(d)(1)(i) will be permitted if a sprinkler system is installed. The requirement proposed in the SNPRM that the actual length of the space not to exceed the length specified by § 116.415(d)(1)(i) is retained.

As was noted in the SNPRM, the Coast Guard is concerned that this provision could be interpreted to allow the joining of two effectively separate spaces by small openings. Based on this concern, a requirement has been added in § 116.439(e) that where the balcony area is less than 93 square meters (1000 square feet), the opening must be protected in accordance with the criteria of NFPA 13 ''Standard for the Installation of Sprinkler Systems.'' This standard includes requirements for draft stops and closely fitted sprinklers around the opening.

Also, the proposed requirement for a smoke detection system in balcony areas is withdrawn, since this requirement is in excess of SOLAS and subchapter H requirements.

These changes harmonize the balcony requirements with land based criteria and current policy interpretations. These changes also harmonize the balcony criteria with chapter II–2 regulation 29.1.1 of SOLAS, which permits balcony openings without size restriction where both spaces are clearly utilized for the same purpose (e.g., dining or gaming).

Section 116.440 Atriums. Four comments were received on this section, each objecting to the proposed requirement for not more than 7.5 kilograms per square meter (1.5 pounds per square foot) fire load. The Coast Guard concurs, and has withdrawn the proposed fire load restriction for atriums on vessels with conventional size MVZs.

This section also proposed a requirement for a smoke detection system in an atrium. In vessels with no overnight accommodations, each passenger in a large public space, such as an atrium, is effectively a ''smoke detector,'' and can be expected to report fire or smoke via the manual alarm system required by § 118.400(e)(2). Therefore, the proposed requirement for smoke detectors in the accommodation space containing the atrium is withdrawn for vessels with no overnight accommodations. Additionally, an option is added to permit the smoke extraction system required by § 116.440(c) to be designed in accordance with the principles of NEPA 92B ''Guide for Smoke Management Systems in Malls, Atria, and Large Areas.''

One comment stated that a sprinkler system should not be required if the space has a very low fire load. The Coast Guard does not concur. Deck to deck integrity has long been regarded as one of the primary features of the U.S. method of shipboard fire protection. Atriums are typically very large public spaces with no deck to deck integrity and a very large number of occupants. Additional fire protection is necessary to offset the lack of deck to deck integrity and the large number of passengers that may be simultaneously exposed to the effects of a fire. The Coast Guard does not believe that a low fire load would sufficiently offset the potential risk to occupants in the event of a fire. Additionally, the NFPA Life Safety Code requires that the entire building containing an atrium be protected throughout by an automatic sprinkler system. The NFPA Life Safety Code is applicable to land based occupied structures, which typically constitute a lesser fire risk than ships since occupants can egress to the street in the event of a fire. No modifications were made to the regulation based on this comment.

Paragraph (a) of § 116.440 is amended to reflect current Coast Guard policy on atrium construction.

Sections 116.500 and 177.500 Means of escape. Two comments considered the dead-end-passageway limit of 6 meters (20 feet) as being too restrictive because it exceeds the requirements of 12 meters (40 feet) in subchapter H. The Coast Guard disagrees. The Building Officials and Code Administrators International, Inc. (BOCA) National Building Code/1993 was used as a guide to determine the maximum length for dead-end corridors in this subchapter. The limit of 6 meters (20 feet) is actually less restrictive than the SOLAS 1992 Amendments that prohibit a corridor, lobby, or part of a corridor from which there is only one route of escape. The proposed limit on dead-end corridor lengths is appropriate for vessels

regulated by subchapter K. No changes have been made to the rule proposed in the SNPRM. A separate rulemaking will revise subchapter H to remove the allowance for dead end corridors.

Several comments requested the removal of the 20 meter (65 foot) length limit for use of vertical ladders as a means of escape on the grounds that vertical means of escape have no relationship with the length of the vessel. The Coast Guard disagrees. Ladders leading to scuttles are permitted as a means of escape only on vessels of not more than 20 meters (65 feet) because of space constraints. Ladders are an undesirable method of escape because they are unusable to many passengers, including the elderly, the disabled, those unfamiliar with vessel construction, or those disoriented by fire, smoke, or other emergency. No changes have been made to proposed §§ 116.500(l)(1) and 177.500(k)(1).

Proposed § 116.500(g) and § 177.500(f) are revised to lower the minimum clear opening of a door or passageway for crew use only to 700 millimeters (28 inches) to be consistent with § 116.438(m).

A comment asked for clarification of the 3.7 meters (12 feet) maximum dimension requirement in proposed § 116.500(q). The possibility of a design with long narrow compartments and only one means of escape could create a situation during an emergency, such as a fire, where obstruction could cause passengers to travel in the wrong direction in search of an exit. No changes have been made to this paragraph.

Section 116.520 Emergency evacuation plan. Nine comments were received on this section: Two stated that refuge areas should not be required on subchapter K vessels, and two stated that this paragraph would require two or more main vertical zones (MVZs) on a subchapter K vessel.

The intent of this section is not to require more than one main vertical zone on subchapter K vessels. The requirements in §§ 116.520 (a) and (b) to identify possible casualties and evacuation procedures in each main vertical zones does not require vessels be constructed with multiple MVZs.

One comment asked that all specific requirements for refuge on vessels carrying 1,000 or less passengers be deleted. The Coast Guard disagrees. The Coast Guard is concerned with what would happen to the passengers if there were no safe refuge area in the event of a fire or other casualty. A vessel design that leaves little or no room for passengers to escape from a fire in an accommodation space to outside portions of the deck or other safe spaces is not prudent.

Safe areas of assembly for all passengers in the event of a fire are specifically addressed in subchapter H with stairtowers and in NVIC 8–93 with qualified refuge areas. As stated in the preamble to the SNPRM, § 116.520 does not specify specific standards for an area of refuge. Section 116.520 of subchapter K provides that an area of refuge required as part of the emergency evacuation plan must be approved during plan review. The intent of § 116.520 is performance based, to have vessel owners and designers identify possible casualties and design protection measures for refuge areas as appropriate. The emergency evacuation plan would identify areas of refuge for all passengers in the event of a fire in, or flooding of, any accommodation space, and the procedures for abandoning ship. For some vessels the emergency evacuation plan would be relatively short. For other vessels a substantial document may be required.

All but one comment said that the proposed requirement for 0.5 square meters (5 square feet) of deck area per passenger in refuge areas was excessive. Comments suggested the following limits (in square feet): 2.5 (twice); 2.7 (twice); 3; and 3.5. The Coast Guard concurs that 0.5 square meters (5 square feet) per person may be excessive on the smaller vessels typically subject to these regulations. This section is amended to require a minimum of 300 square millimeters (3 square feet) per person in refuge areas, which is consistent with the NFPA Life Safety Code's requirement for a minimum of 300 square millimeters (3 square feet) per person in ''waiting'' areas. The proposed requirement in the SNPRM that the deck area criteria apply only to ''public spaces'' is deleted. The deck area criteria applies to all refuge areas, independent of location.

Sections 116.600 and 177.600 Ventilation of enclosed and partially enclosed spaces. Several comments suggested removing redundant or unnecessary ventilation system requirements in proposed §§ 116.600 (b) and (e). The Coast Guard agrees and has amended the regulatory text for both §§ 116.600 and 177.600.

One comment on proposed § 116.600(f) stated that exhaust ducts fitted over cooking surfaces in snack bars should be exempted from this requirement. The Coast Guard concurs. A land based standard NFPA 96 ''Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations,'' specifically prohibits the installation of a fire damper in exhaust ductwork. Therefore, the requirements in §§ 116.600(f) and 177.600(f) have been modified to require that an exhaust duct over a cooking appliance must be constructed of steel with a minimum thickness of 11 U.S. Standard Gauge. This requirement is intended to ensure the integrity of any rated bulkheads penetrated by the duct. This modification makes this requirement consistent with SOLAS regulation II–2/23.1.8 that requires exhaust ducts from galley ranges to be constructed and insulated to A–60 Class construction.

Two comments on this section disagreed with the prohibition in proposed § 116.600(g) of the SNPRM against the installation of wiring, piping, or other materials inside of ductwork. The Coast Guard agrees, in part. This requirement was added to the SNPRM in response to a comment on the NPRM that concerned combustibles installed in ductwork. The requirements in § 116.600(g) and § 177.600(g) have been modified to indicate that metal piping and electrical wiring installed in a metal protective enclosure (conduit) may be installed within ventilation ductwork if it does not interfere with the operation of fire dampers. The prohibition is retained for exhaust ducts fitted over a frying vat or grill.

Sections 116.710 and 177.710 Overnight accommodations. One comment concerned the wording of the regulatory text in § 116.710(b) and indicated that the proposed wording was subject to misinterpretation of the ''12 hour rule.'' It was noted that frequently a single crew may actually be on board longer than 12 hours. The requirement for overnight crew accommodations applies to situations where an alternate operating crew is on board, and the vessel will be underway more than 12 hours. The Coast Guard agrees with the recommended clarification, and believes that paragraph (a) can stand alone, and paragraph (b) only confused the requirement. Paragraph (b) of § 116.710 and § 177.710 has been deleted accordingly.

Sections 116.800 and 177.800 General requirements. One comment to § 116.800(d)(1) expressed concern that the wording could be interpreted to prohibit lamps and other non-threatening electrical equipment. The Coast Guard agrees. The Coast Guard does not intend to prohibit non-threatening electrical appliances or amenities for the comfort of the passengers in accommodation spaces. The words ''electrical equipment'' in §§ 116.800(d) and 177.800(d) have been replaced with the words ''electrical generation equipment or transformers.''

Sections 116.820 and 177.820 Seating. A comment was received suggesting that, if necessary, the owner should have the option of using portable seating to meet the fixed seating criteria of § 116.820. The Coast Guard disagrees. Seating is used as one way to determine the number of passengers permitted in accordance with § 115.113(b)(3) and § 176.113(b)(3) as appropriate. Portable seating is not precluded by the regulations. However, § 115.113(b)(3) and § 176.113(b)(3) provide three criterion for determining passenger capacity based on rail area, deck area, or fixed seating. The intent of these regulations is to determine the potential passenger capacity for stability purposes. Portable seating can be removed permitting a greater number of passengers in a space than may be considered in stability calculations. If seating is used to determine passenger capacity it should be permanent and remain in place during operation. No changes have been made to the rule proposed in the SNPRM.

Sections 116.960 and 177.960 Guards for exposed hazards. One comment stated that guards should be installed on all rental houseboat propellers in order to prevent injuries from propeller strikes. Under the provisions of the Passenger Vessel Safety Act (PVSA) of 1993 (Title V of Pub. L. 103–206), certain houseboat-type vessels may come under the inspection requirements of subchapter T. The Coast Guard conducted a survey of vessels applying for inspection under the PVSA and found that rental houseboat operators are choosing to reduce the number of passengers carried rather than be subject to inspection. In addition, the Coast Guard has no record of fatal casualties on vessels operated by licensed masters operating under the authority of their license. No changes have been made to the rule proposed in the SNPRM. However, in a notice published May 11, 1995 (60 FR 25191), the Coast Guard solicited comments from all segments of the marine community and other interested persons on various aspects of propeller accident avoidance. Based on the public's response to that notice during the 60 day comment period, the notice was reopened and the comment period extended to November 7, 1995 (60 FR 40545). Requirements for propeller guards may be addressed in a separate rulemaking at some point in the future.

Another comment stated that the Coast Guard has ignored two common areas of personal injury: First, the comment noted that the Coast Guard, unlike the Occupational Safety and Health Administration (OSHA), does not require nonslip surfaces on stairways. Second, it suggested that open deck hatches should be included as an example of an exposed hazard under §§ 116.960 and 177.960 and require a guard. The Coast Guard understands the comments concerning personal injury. However, it believes that further study is needed in the areas of nonslip surfaces and open hatch protection before requirements are promulgated. The Coast Guard solicits input on the need to incorporate existing standards, or develop performance based standards for nonslip surfaces and open hatch protection aboard vessels.

Sections 116.1010 and 177.1010 Safety glazing materials. One comment stated that glazing materials used on windows accessible to passengers and crew should not break on contact and should not break into shards. The Coast Guard agrees that all windows to which passengers and crew have access should be of appropriate material to prevent injury due to breakage. No significant changes have been made to the requirement proposed in the SNPRM.

Section 116.1160 Watertight integrity. One comment noted that coamings should be eliminated on protected routes to meet the affirmative requirements of the Americans with Disabilities Act (ADA). The Coast Guard notes that the application of the ADA to the passenger vessel industry is still under study by the John A. Volpe National Transportation Systems Center. It is not possible to fully assess the need for reduced coamings or other measures until the study is complete. It should be noted coamings are not required on flush deck vessels on protected routes; however, coamings are required for a cockpit or well. The coaming requirement is unchanged, but may be revised at a later date.

3. Parts 117 and 180—Lifesaving Equipment and Arrangements

The comments on these parts, which apply to both subchapter K and subchapter T respectively, focused on the proposed requirement to upgrade primary lifesaving equipment, including a requirement for vessels on certain routes to install inflatable primary lifesaving devices. While the comments generally supported the Coast Guard's consideration of vessel route and water temperature in establishing lifesaving equipment requirements, there was concern with both the initial and the required annual inspection costs of inflatable devices. Also, the comments noted that the casualty data, especially in warm water, did not support such a costly upgrade. Citing the Coast Guard's own lifesaving study, and even adding in the fatalities of the recent *EL TORO II* casualty, the comments correctly stated that less than one life per year was lost due to hypothermia on inspected small passenger vessels over the past twenty years.

The Coast Guard appreciates the high cost of upgrading this equipment, but considers the present level of primary lifesaving equipment to be inadequate, particularly for wood vessels in cold water (≤ 15 degrees Celsius). Wooden vessels make up 24% of the inspected small passenger vessel fleet yet account for over 90% of the casualties involving a loss of life or the loss of the vessel. Over 40% of these casualties involved hull failures on wooden vessels not required to be subdivided by watertight bulkheads. Because of the disproportionate number of casualties involving wooden vessels without watertight bulkheads, the Coast Guard has established a construction equivalency for small wooden vessels operating in cold water. Wooden vessels not more than 65 feet, and carrying not more than 49 passengers built after March 11, 2001, must meet the subdivision requirements contained in part 179 of subchapter T. Wooden vessels not more than 65 feet, and carrying not more than 49 passengers built prior to March 11, 1996, operating in cold water must either meet a modified subdivision standard using existing bulkheads or carry increased survival craft after March 11, 2001. Wooden vessels not more than 65 feet, and carrying not more than 49 passengers built between March 11, 1996, and March 11, 2001, have the option of meeting the modified subdivision standard or carrying increased survival craft upon certification of the vessel. The Coast Guard developed the optional modified subdivision standard for existing vessels to reduce the cost of compliance to the small vessel owner/operator. The Coast Guard believes that most existing vessels have bulkheads that can be made watertight in machinery and steering gear spaces. During the development of the construction equivalency, the Coast Guard contacted small passenger vessel organizations for their input and comments. The individuals contacted believed that providing options for the owners and operators of existing wooden vessels was better than just increasing survival craft requirements across the board. The Coast Guard solicits comments on the construction equivalency for wooden vessels.

Overall, the Coast Guard believes the upgrading of primary lifesaving

equipment is considered necessary to address the effects of hypothermia and exposure not envisioned by the original regulations; however, the Coast Guard reexamined the extent to which survival craft requirements should be increased from existing standards.

Based upon a review of comments and sinking casualties over the past twenty years, the survival craft requirements of parts 117 and 180 have been reduced in most cases from those proposed in the SNPRM. The Coast Guard considered other requirements within this rule, such as EPIRBs, fixed firefighting and detection systems, bilge alarms, and optional or required subdivision standards. All of these features make up an entire vessel safety system designed to reduce the risk of a vessel loss and shorten emergency response time. In addition, based on reconsideration of the overload capacity of an inflatable buoyant apparatus (IBA), fewer IBA's are needed to safely accommodate the total number of persons on board certain vessels.

The Coast Guard has also reduced the survival craft requirements for vessels fitting into the K category (Over 600 passengers, or over 150 overnight passengers, or over 200 feet in length). The requirements proposed in the SNPRM for these vessels to comply with the lifesaving equipment regulations contained in part 75 of subchapter H has been removed. The Coast Guard believes that the requirements contained in part 117 of subchapter K properly focus survival craft requirements to high capacity small passenger vessels.

Several comments stated that the one mile survival craft exemption should be increased up to five miles. The Coast Guard partially agrees and has provided reduced survival craft requirements for vessels operating within three miles of the coast that meet either subdivision or EPIRB requirements. The one mile exemption still exists with permission from the OCMI for vessels operating on the Great Lakes. The one mile exemption also applies to vessels operating on lakes, bays, and sounds, and rivers routes. The OCMI may also allow further reductions in survival craft to vessels operating on set schedules with strict communications requirements.

Overall, the Coast Guard believes these revisions better match the requirements for primary lifesaving equipment to casualty data and the perceived increased risk due to the scope of a vessel's operation and number of passengers carried. In order to simplify interpretation, the format of tables 117.200(c) and 180.200(c) is changed to align survival craft requirements with routes currently specified on a vessel's Certificates of Inspection.

In addition to liferaft requirements, several comments addressed other sections within parts 117 and 180. These included:

Sections 117.68 and 180.68 Distress flares and smoke signals. Three comments stated the proposed requirement for a Coast Guard approved waterproof container for distress signals was too restrictive, and that pyrotechnics manufacturers provide a variety of waterproof containers for their products.

The Coast Guard agrees and has removed the requirement that the container be Coast Guard approved; however, the proposed container marking requirements are retained in new §§ 122.614 and 185.614.

Sections 117.71 and 180.71 Life jackets. The comments to these sections expressed concern that the use of cork and balsa wood lifejackets would be discontinued without a phase out period. Their concern focused on the economic impact to vessels that still carry this type of lifejacket.

The Coast Guard agrees and has placed a three-year-phase-out period in new paragraph (d) of §§ 117.71 and 180.71. The Coast Guard will encourage owners to retire a certain percentage of lifejackets annually in order to meet the three-year deadline and reduce economic impact.

Sections 117.175 and 180.175 Survival craft equipment. One comment stated that the liferaft equipment pack designators ''limited service'' and ''ocean service'' should be deleted because they are outdated and have been superseded by SOLAS compatible standards found in 46 CFR 160.151.

The Coast Guard agrees and has removed references to § 160.051 from this rulemaking in favor of the updated approval found in § 160.151.

4. Parts 118 and 181—Fire Protection Equipment

The comments on these parts, which apply to both subchapter K and subchapter T respectively, focused on automatic main engine shutdowns associated with certain fixed fire extinguishing systems.

Over 25 comments expressed concern that the operator would not be in complete control of the vessel in an emergency; especially if a vessel was operating in a high traffic seaway. Even those in favor of fixed fire extinguishing systems indicated they would rather have a fire alarm or indicator at the operating station get their attention first, and allow them to assess their operational situation before the system is actuated. Many had little faith in automatic devices that could render the vessel helpless in the case of malfunction.

The Coast Guard believes that clarification of the fixed fire extinguishing system requirements is needed. Above all, the operator of a vessel required to install a fixed fire extinguishing system has alternatives when choosing a system. If an operator desires to be alerted to a potential fire prior to a fixed system discharge, a manually activated fixed fire extinguishing system with a fire detection system is the most likely choice. If, on the other hand, an operator prefers to have a fully automatic fixed fire extinguishing system, that is also acceptable. Regardless of the system type, the automatic shutdown of propulsion machinery and mechanical ventilation serving the protected space is required when the system is activated to prevent the depletion of the extinguishing agent and to stop the flow of fuel or lubricating oil that is a likely source of the fire.

The automatic engine and ventilation shutdown requirements for fixed fire extinguishing system installations in machinery spaces are not new and are existing requirements for inspected vessels over 100 gross tons. Further, existing fixed fire extinguishing systems aboard vessels have an automatic shutdown feature unless the OCMI granted an exemption for vessels operating in white water or hazardous bar locations.

Eleven comments stated that fixed fire extinguishing systems should not be required on diesel-propelled vessels. Based upon these comments the Coast Guard conducted an extensive review of fires reported on inspected small passenger vessels over the last 12 years. The review found that 67% of the 157 fires reported started in the engineroom. Of the 105 engineroom fires, 98% of the fires occurred on diesel-powered vessels. Based on this review, no change is made to the rule proposed in the SNPRM.

The Coast Guard noted that, under certain circumstances, the installation of a portable carbon dioxide fire extinguisher as a fixed extinguisher, as allowed by existing § 181.20–5(b), was effective in combating engineroom fires. Thus, the Coast Guard has reconsidered the rule proposed in the SNPRM, and will allow the installation of a portable carbon dioxide fire extinguisher as a substitute for a fixed system where the amount of carbon dioxide required in a fixed system can be supplied by a

portable or semi-portable extinguisher. The Coast Guard believes that smaller vessels and vessels with small compartments requiring fixed fire protection will benefit most from reinstating this option.

Additonal comments to Parts 118 and 181 identified other areas besides engine shutdowns and the need for fixed fire extinguishing systems that required a response from the Coast Guard. These include:

Section 118.300 Fire pumps. Two comments stated that pitot tube pressure readings should be taken from a fire hose combination nozzle in the solid stream position. The Coast Guard disagrees. Combination nozzles should not be used when determining pitot tube pressure because turbulence within the nozzle will result in an inaccurate reading. Smooth bore nozzles are best suited for determining pitot tube pressure.

Sections 118.300 and 181.300 Fire pumps. Several comments objected to the proposed requirement that the fire pump be capable of remote operation from the bridge. The comments stated that eye-to-eye contact between the nozzle operator and the master was required for safety reasons. The Coast Guard disagrees. Having the ability to start the fire pump remotely gives the master of the vessel more options with the use of his or her crew during an emergency. Proper hose handling and communication between the crew on scene and the bridge will considerably reduce any danger associated with remotely starting the pump.

One comment stated that having the fire pump driven off a propulsion engine is fine until the fixed fire extinguishing system is activated and shuts down the engine. The comment went on to state that a propulsion engine that drives a fire pump should be required to draw its air from outside the space protected, or have a second power source or pump provided. The Coast Guard agrees with the intent of the comment; however, as stated previously, the owner or master has options when selecting a fixed fire extinguishing system. Over 60% of the small passenger vessel fleet is made up of vessels that do not require a fire pump because of their small size and passenger capacity. For this type of vessel, an automatically activated system will tend to be installed as the primary method for extinguishing a machinery space fire. On the other hand, larger vessels with larger machinery spaces tend to rely upon the fixed fire extinguishing system as a last chance to save the vessel once portable extinguishers and fire main resources have failed. The Coast Guard believes that the concerns expressed in the comment are valid, and that owners and operators of vessels required to have fixed fire extinguishing systems should consider these factors when selecting a system.

Sections 118.320 and 181.320 Fire hoses and nozzles. Two comments stated that consideration should be given to UL approved polycarbonate nozzles for marine applications. The Coast Guard disagrees. As stated in the SNPRM preamble, polycarbonate nozzles have not been shown to have the same corrosion resistance and fire safety properties as brass when used in a marine environment. Further, these nozzles are not tested to marine environment standards. The Coast Guard is considering adopting ASTM Standard F1456 ''Standard Specification for Fire Hose Nozzles'' as an alternative to § 160.027 of this chapter in order to give the industry more options when choosing fire hose nozzles.

Three comments asked if a four foot applicator is required with the fire hose nozzle approved under § 160.027 of this chapter. The applicator is required as part of the combination nozzle's approval under § 160.027 of this chapter. However, the Coast Guard has accepted a different style of nozzle available without an applicator as equivalent to the nozzle approved under § 160.027 of this chapter. In order to clarify the alternatives available, § 118.320 is amended to include a reference to nozzles specifically approved by the Commandant.

Sections 118.400 and 181.400 Fixed fire extinguishing and detecting systems when required. References to ''Halon'' and ''carbon dioxide'' have been deleted from the text. This change reflects the development of alternative fire extinguishing gases, new guidance from the U.S. Environmental Protection Agency (EPA) Significant New Alternatives Policy (SNAP) List, new guidance from the National Fire Protection Association (NFPA 2001 ''Clean Agent Systems'') and the 1994 cessation of production of new Halon. Guidelines for the application of alternative gases are under development at the International Maritime Organization (IMO). Commandant (G–MMS–4) will develop similar guidance for approval of fixed gas fire extinguishing systems employing gases other than Halon or carbon dioxide. Alternate gases may include halocarbons or mixtures of inert gases.

Additionally, this section is revised to indicate that other types of fire extinguishing systems may be approved by the Commandant. For example, guidelines for use of water mist fire extinguishing systems were recently developed by the International Maritime Organization (Maritime Safety Committee, 64th session, Draft Guidelines for Approval of Equivalent Fire Extinguishing Systems as Referred to in SOLAS 74 for Machinery Spaces and Cargo Pump Rooms). It is likely that following finalization at IMO, the Commandant will accept water mist and other systems for application on U.S. flag vessels.

Two comments stated that areas with large numbers of people in them should not need smoke detectors as proposed in § 118.400(e) because passengers act as smoke detectors.

The Coast Guard agrees. Existing Coast Guard guidance contained in MTH PFM 1–94, for vessels without overnight passenger or crew accommodations, allows public spaces that are assumed to be occupied by a large number of people to only be served by a manual fire alarm. This exemption has been added to the IFR.

Two commenters stated that the fixed fire extinguishing system requirement for storerooms containing liquor of 80 proof or higher was excessive. The Coast Guard partially agrees. The blanket requirement to have all liquor storage lockers containing liquors of 80 proof or higher protected by a fixed fire extinguishing system is revised to include a container volume limit. The volume limit is based on the National Fire Protection Association's Flammable and Combustible Liquids Code (NFPA 30) which provides guidance on container and portable tank storage. For flammable liquids with a flash point below 22.8 degrees Celsius (73 degrees Fahrenheit) and a boiling point above 37.8 degrees Celsius (100 degrees Fahrenheit), glass containers are limited to 0.946 liters (one quart) capacity, metal containers are limited to 18.9 liters (five gallon) capacity, and Department of Transportation Type III non-reusable polyethylene containers are limited to 9.5 liters (2.5 gallons). The Distilled Spirits Council of the United States reports in its Recommended Fire Protection Practices for Distilled Spirits Beverage Facilities that liquors of 80 proof have a Tag Closed Cup flash point of 26.1 degrees Celsius (79 degrees Fahrenheit). The Coast Guard believes that a two and one half gallon limit on individual container capacity meets the intent of NFPA's nationally recognized practice. This provision is added to the IFR.

Sections 118.410 and 181.410 Fixed gas fire extinguishing systems. Citing space limitations, a few comments stated the storage cylinders for fixed fire

extinguishing systems should be able to be located within the space protected.

This installation method was already allowed in the SNPRM for spaces less than 170 cubic meters (6,000 cubic feet); however, automatic operation by a heat actuator is required in addition to manual operation. Activation due to heat prevents the storage cylinders from overheating and not functioning as designed.

Four comments expressed confusion over the installation pressure test required for Halon systems in paragraph (d)(8). Their main concern was how to heat the piping between the storage cylinders and the manifold stop valve to 54.4 degrees Celsius (130 degrees Fahrenheit) for the test.

The Coast Guard attempted to explain in the SNPRM that it was not the intent of the proposed requirement to heat the piping. To avoid further confusion, paragraph (d)(8) is revised to indicate that the piping between the storage cylinders and the manifold stop valve must be tested for leaks at 4,136.4 kPa (600 psi).

5. Parts 119 and 182—Machinery Installation

The 95 comments on these parts, applying to both subchapter K and subchapter T, focused on the requirement for diesel engines of over 300 horsepower to be equipped with overspeed trips that would automatically shut down the engines.

The comments noted that casualty data did not support the added cost of this installation. Further, the comments opposed any requirement that would take engine control away from the operator, such as would be the case with automatic overspeed trips. Some operators were concerned that vessels transiting busy fairways with heavy vessel traffic or tricky offshore inlet approaches could lose main propulsion unexpectedly during critical maneuvers. Others indicated that they wanted the operator to always have complete control and decision making power in the event of a casualty or other circumstance. This would allow a decision to run a diesel engine and get passengers to safety quickly, rather than automatically shut it down and be ''dead in the water.'' However, one comment stated that the overspeed trip requirement should be retained because of the risk to personnel associated with the destructive force of an overspeeding engine.

The intent of this proposed requirement was to provide a speed limiting device, independent of the engine's operating governor, to prevent the engines from overspeeding and flying apart. The requirement for overspeed trips on diesel engines was based on existing classification society standards that are routinely applied to all other Coast Guard regulated vessels except passenger vessels less than 100 gross tons.

The Coast Guard disagrees with the reasoning that an overspeeding engine can be controlled by the operator in an emergency situation; however, the Coast Guard agrees that the available casualty data does not support the need for these devices. Based upon the comments, the Coast Guard contacted diesel engine manufacturers and found that modern variable speed operating governors are designed to prevent the engine from overspeeding by sensing and compensating for sudden ''no load'' conditions, such as the loss of a propeller or associated shafting. The manufacturers also stated that governor failures are rare due to the high factors of safety built into the devices. However, the manufacturers indicated that overspeed trips are standard equipment on marine diesel engines in the 600 to 800 horsepower range in order to protect the engines from damage that could result in an overspeed condition. Therefore, based upon the lack of casualties involving diesel engine overspeeding and modern governor technology, the Coast Guard considers this requirement an unjustified burden on the small passenger vessel industry. The proposed requirement for installation of overspeed trips on diesel engines of over 300 horsepower has been deleted from both subchapter K and subchapter T.

Other comments on these sections addressed areas such as water heaters, keel cooler installations, the acceptance of aluminum, aluminum fuel piping, fuel tank vent installations, and ventilation of spaces containing diesel machinery. These include:

Sections 119.320 and 182.320 Water heaters. One comment stated, ''A wise old man once told me that hot water does not need to be heated.'' The Coast Guard agrees that the use of the word ''hot'' in conjunction with water heaters is superfluous and has removed all references to ''hot'' from these sections.

Sections 119.422 and 182.422 Keel and grid cooler installations. Four comments stated that isolation valves should not be required on keel cooler installations that are integral to the hull and of the same material and thickness as the hull. The Coast Guard agrees and has revised these sections to incorporate current policy on integral keel and grid cooler installations.

Sections 119.430 and 182.430 Engine exhaust pipe installation. Comments from aluminum boat builders stated that a wet exhaust pipe has been allowed to be welded to an aluminum bulkhead for years, and that this practice should continue to be allowed. The intent of these regulations was not to discontinue the practice of welding exhaust lines to aluminum bulkheads. The wording of these sections is changed to allow welding to bulkheads of steel or equivalent materials.

Sections 119.450 and 182.450 Vent pipes for fuel tanks. One comment stated that fuel tank vent lines should be installed to gradient upward to prevent fuel from being trapped in the line. The Coast Guard agrees and has added this language to both sections.

Sections 119.455 and 182.455 Fuel piping. Comments from aluminum boat builders stated that aluminum fuel piping in machinery spaces was allowed in the past, and this practice should continue. The Coast Guard agrees. In comments on the SNPRM the Marine Safety Center stated that their policy allows aluminum fuel piping of at least Schedule 80 wall thickness in the machinery spaces of aluminum vessels. This policy is incorporated into both sections.

Sections 119.465 and 182.465 Ventilation of spaces containing diesel machinery. Several comments stated that a ventilation duct extending to the bilge is not needed in spaces containing diesel machinery. The reasoning ranged from the relative stability of diesel fuel versus gasoline to mechanical and turbo charger created air flow through the space. One comment suggested removing the ventilation duct requirement where forced ventilation can provide 5 air changes in one minute. The Coast Guard agrees that a duct extending to the bilge level in a space containing diesel machinery is unnecessary. The characteristics of diesel fuel fumes that may be found in the machinery space bilges do not present the same fire and explosion hazards as gasoline or other fuels having a flashpoint below 43.3 degrees Celsius (110 degrees Fahrenheit). The proposed requirement to have a ventilation duct extend to the bilge in a space containing diesel machinery has been removed from subchapters K and T.

Sections 119.530 and 182.530 Bilge level alarms. Based upon recommendations from the Coast Guard and NTSB concerning recent flooding casualties of inspected small passenger vessels, including the *M/V DOLPHIN EXPRESS* and *EL TORO II*, the Coast Guard has increased the number and type of spaces required to have a bilge

high level alarm installed. A phase-in period is allowed for existing vessels to meet this requirement. The Coast Guard believes that bilge high level alarms are an important part of a vessel's total safety system and has reduced primary lifesaving requirements on most vessels because of this. Early detection of a flooding problem allows the master more time to react and possibly correct or repair the problem. The Coast Guard solicits comments on these additional requirements.

6. Parts 120 and 183—Electrical Installation

The comments received on these parts, applying to both subchapter K and subchapter T vessels, focused on the proposed requirement for grounding of dual voltage generators. One comment stated that Coast Guard personnel ''hit the panic button'' when they see an indication of a ground at the neutral bus, and that it is much easier to get approval for a floating neutral system. The comment went on to state that it should be up to the owner to decide which type of system to use.

The Coast Guard does not agree with industry comments concerning dual voltage systems; however, the Coast Guard does feel that this requirement should be clarified. The intent of this provision is to require that all dual voltage systems be of the grounded type. The language of these sections is changed to clarify that the current-carrying neutral bus must be connected to ground. This is consistent with the Coast Guard's definition of a grounded distribution system in subchapter J of Title 46 CFR.

On the same topic of grounding electrical systems, one comment stated that the requirements in §§ 120.370 and 183.370 of subchapters K and T respectively, should be broken into three sections to address general grounding requirements; equipment and conductor grounding; and grounded distribution systems. The Coast Guard agrees and has created two new sections in each subchapter (§§ 120.372, 120.376, 183.372 and 183.376) to accommodate the revisions. No substantial changes have been made to the content of the sections proposed in the SNPRM.

The same comment stated that the performance standard for the design of an interlock for distribution panels and switchboards in §§ 120.330 and 183.330 was unattainable, and that the proposed requirement was more applicable to motor controllers. The comment also stated that most motor controllers are fitted with an acceptable interlock to prevent the controller door from opening if the controller is energized. The Coast Guard agrees and has removed the proposed performance standard in §§ 120.330(j) and 183.330(j) from the IFR.

7. Parts 121 and 184—Miscellaneous Systems and Equipment

The comments received on these parts, applying to subchapter K and subchapter T respectively, focused on the prohibition of open flame cooking equipment, carriage of nautical publications, posting of emergency placards, and the expense of Coast Guard approved first aid kits.

Sections 121.202 and 184.202 Restrictions. The comments noted the extensive and common use of the product Sterno™ for food preparation in the dinner cruise industry. They considered it perfectly safe in the supervised context of food preparation, and asked that it not be prohibited.

The Coast Guard is well aware that Sterno™ is used in food preparation, and did not intend to prohibit its use. The Coast Guard is more concerned about the storage of excessive amounts of this product, due to the potential fire hazard. This section is revised to clarify the intent of this requirement, and allow the continued use of Sterno™ for supervised food preparation and serving.

Sections 121.420 and 184.420 Charts and nautical publications. In addition, numerous comments criticized the proposed requirement for carriage of nautical publications since operators are familiar with the local waters in which they work daily. The Coast Guard partially agrees. The Coast Guard's intent for these sections was to require on board reference material for the safe navigation of the vessel. The Coast Guard understands that a vessel operating on a small protected body of water or on a short scheduled run will require less navigational information than a vessel operating on a large sound. This is why the Coast Guard used the term ''as appropriate for the intended voyage.'' Based upon several comments, this section is revised to allow local tide and current tables to be substituted for those published specifically by the National Ocean Service. Relevant extracts from publications may be used to meet the requirements of these sections; it is not necessary to have a complete publication on board.

Sections 121.506 and 184.506 Emergency broadcast placard. A few comments stated this placard was unnecessary since the master, and in some cases senior deckhands, are required to be licensed by the Federal Communications Commission (FCC). The Coast Guard disagrees. In an emergency, the stress, fear, and anxiety of the moment could, and has, caused individuals to forget critical information during a broadcast. The Coast Guard believes that placards serve a vital purpose as a quick reference and reminder to the master and crew. However, the Coast Guard removed the prescriptive language from these sections, and relocated it to new §§ 121.510 and 184.510 as recommended language. This will allow the master of the vessel to develop appropriate emergency broadcast instructions.

Sections 121.710 and 184.710 First aid kits. Comments criticized Coast Guard approved first aid kits as too expensive and unnecessary on small passenger vessels. The Coast Guard believes that first aid kits are necessary on small passenger vessels to provide satisfactory treatment of small injuries and initial treatment of more severe injuries requiring professional medical treatment. The proposed requirement in the SNPRM did not require a Coast Guard approved first aid kit. An equivalent kit is allowed as long as it contains equivalent contents and instructions, and is marked ''First Aid Kit''. A minor change is made to these sections to better clarify the requirements.

8. Parts 122 and 185—Operations

These parts, which apply to both subchapter K and subchapter T vessels respectively, also generated a substantial amount of public comment. The focus of the 158 comments received criticized the overly prescriptive language used to regulate licensed operators and their crew. The comments focused on the following sections: Navigation underway; Passengers excluded from the operating station; Loading doors; Crew training; Crew and passenger list and voyage plan; Passenger count; Passenger safety orientation; Wearing of lifejackets; Emergency instructions; Emergency instruction placard format; and Abandon ship, Man overboard, and Fire drills.

The Coast Guard agrees with the comments that much of the language in these parts was overly prescriptive, and has revised the language in these sections to reflect those comments. In addition, changes to the casualty reporting requirements have required further revision to these sections. The changes include:

Sections 122.202 and 185.202 Notice of casualty. These sections are updated to be consistent with a revision to 46 CFR Part 4, published on August 3, 1994 [59 FR 39469]. As a result of the

update, the requirements in 33 CFR 160.216 for reporting hazardous conditions have been reprinted in new §§ 122.203 and 185.203 to provide complete guidance to the owner or operator in one set of regulations.

Sections 122.304 and 185.304 Navigation underway. This section was severely criticized as an effort to deliberately take away the common sense and judgment of licensed operators. These proposed sections were adopted from the navigation regulations for vessels of 1,600 gross tons or more, operating on the navigable waters of the U.S. Additionally, it responded to an NTSB recommendation following the *PILGRIM BELLE* casualty. Although this language has been used for some time, small passenger vessel operators would not necessarily be familiar with these regulations. These sections are valid reference sources that outline what is considered safe navigation by professional mariners. However, their applicability may vary depending on the vessel size and service. Therefore, these sections have been revised and condensed to a more general outline of navigational considerations that are intended as a quick reference for small vessel operators who have not received more formal training associated with unlimited deck licenses.

Section 122.306 Passengers excluded from the operating station. The comments to this section expressed concern that the master had no options to allow passengers to visit the wheelhouse. Some operations consider allowing a small number of passengers in the wheelhouse a good public relations tool that adds to the enjoyment of the cruise. The Coast Guard agrees that the master should have discretion as to whether passengers are allowed in the wheelhouse. The revised language to this section provides the master of the vessel with an option to clear the operating station when passengers may distract the navigating crew from their responsibilities.

Sections 122.335 and 185.335 Loading doors. This section, which was incorporated into existing subchapter T in December 1992, has its origin in the *HERALD OF FREE ENTERPRISE* ferry accident. Although closure of loading doors underway is valid, the types of vessels in the domestic small passenger fleet are distinctly different in both design and service to the English Channel ferry that spawned this regulation. This section is revised in the IFR, and the language eased to allow doors other than bow visors to be open at the discretion and judgment of the operator in protected and partially protected waters. The requirement for logbook entries is removed based on its limited safety value.

Sections 122.420 and 185.420 Crew training. These sections were criticized as too restrictive and the comments stated that establishment of training schedules should be the responsibility of the master of the vessel. The Coast Guard partially agrees with the comments. The Coast Guard believes that training crew members to respond to emergency situations is of paramount importance to vessels operating with passengers on board. However, the Coast Guard recognizes the reality of a part-time, high-turn over workforce. The requirement to provide training to a crew member when first hired and prior to working on a vessel for the first time is not changed from that proposed in the SNPRM. The requirement for bimonthly follow-up training is revised to require training at least quarterly. This will allow the operator of the vessel to schedule training for all crew members, including steward and galley staff within a three month time period.

The Coast Guard has also added a requirement to log or otherwise document required drills and crew training. Documenting drills and training serves two distinct purposes. First, documenting drills allows the master, or person in charge of the vessel, to maintain a record of drills conducted to better focus future training needs. Second, the documentation of drills and training provides the Coast Guard inspector with a quick means to determine compliance with the regulations. The Coast Guard believes that this new requirement will impose little burden to the industry because professional operations with established training programs already maintain records. The Coast Guard solicits input from the industry on the value and impact of this new recordkeeping requirement.

Sections 122.502 and 185.502 Crew and passenger list and voyage plan. This section is revised to ease the costly requirement for passenger lists required by 46 USC 3502. The Coast Guard has reexamined the language of this statute, and revised these sections by interpreting coastwise trade as meaning a vessel that operates overnight, or embarks or debarks passengers to another vessel or at a port other than at the port where the voyage originated. This interpretation of coastwise trade relieves vessels operating beyond the Boundary Line from one port and returning to that same port, on the same day, without stopping over at another location from the requirement to maintain a list of all passengers on board. The Coast Guard also eased the requirements by which the passenger list is left ashore. The vessel operator now has the option of verbal or written communication of the list to a shoreside berth or representative of the vessel.

The requirements for a voyage plan have been moved to §§ 122.503 and 185.503 in order to retain the applicability found in the SNPRM. The voyage plan will still apply to vessels making an ocean or coastwise voyage and certain Great Lakes voyages. The voyage plan was criticized for being too restrictive by not allowing operators to improvise when searching for fish or whales. It was not the Coast Guard's intention nor was it implied in the SNPRM that a voyage plan be so detailed as to restrict a vessel's operation. A voyage plan need only be a general area of operation while underway, and an estimated time of return. The Coast Guard's position on the need for voyage plans has not changed from the SNPRM.

Sections 122.504 and 185.504 Passenger count. Although this section, which in the SNPRM applied only to vessels on Lakes, Bays, and Sounds, and Rivers routes, received similar comments as the passenger list requirements, these counts serve a real purpose in Coast Guard Search and Rescue Operations. The first thing On-Scene Coordinators do is determine how many persons they are looking for or ascertaining that all persons have been located at the scene of the casualty. This was the case as recently as the *EL TORO II* casualty of December 1993. The requirement has therefore been retained in the IFR, but the language eased to additionally allow for verbal communication of the required count to a representative of the owner or operator, rather than ''deposited ashore in a well marked location'' as originally written in the SNPRM. The intention is that someone associated with the vessel operation, other than those aboard, have passenger count information available that can be relayed to the Coast Guard when necessary.

Section 122.506 and 185.506 Passenger safety orientation. Several comments to these sections stated that an extensive pre-departure announcement would invoke an uneasiness among passengers. The Coast Guard believes that a pre-departure announcement is required to reduce confusion and fear in passengers when an emergency situation does develop. However, these sections have been revised to reduce the amount of information required to be passed to the passengers. Through increased crew training requirements, vessel personnel will be better able to control and direct

passengers during an emergency. The requirement to provide a lifejacket donning demonstration has been revised to allow the master to make an announcement that any passengers wishing instruction on proper lifejacket donning techniques can contact a crewmember for a demonstration.

The abbreviated announcement is retained as an alternative to the full-length announcement. The Coast Guard believes that the abbreviated announcement and safety placard are better suited to vehicle and other ferry type operations where safety demonstrations are impractical and passengers may be located in their vehicles away from passenger areas.

Overall, these sections now closer resemble the existing requirement in § 185.25(d), which satisfies several comments stating that the existing wording should be retained.

Sections 122.508 and 185.508 Wearing of Lifejackets. The intent of this section was to raise the sensitivity of the master with regard to donning of lifejackets, and raise the priority of donning lifejackets in certain hazardous and deteriorating operating conditions. The comments received on this section were focused on paragraph (c), which permitted passengers and crew to don lifejackets whenever desired. The Coast Guard agrees with comments received that required lifejackets are part of the vessel's emergency gear, and should not be compromised by allowing passengers to don them in other than master directed circumstances. The text in this section is revised to reflect the discretion and judgment of the master, rather than list specific instances where the Coast Guard believes lifejackets should be donned. Paragraphs (b) concerning the location of passengers on the vessel, and (c) concerning donning of lifejackets at will have been deleted.

Sections 122.510 and 185.510 Emergency instructions. This section is revised in the IFR. Further, the intent of the emergency instructions was revisited, and the provision to create a placard and post it for the information of the passengers is deleted, since emergency actions are the responsibility of the licensed master and his crew.

Sections 122.512 and 185.512 Emergency instructions format. The comments to these sections focused on the prescriptive detail of the language to this section and the need to generalize this section. The Coast Guard disagrees. It is not the Coast Guard's intent to dictate the actions of the master and crew of a vessel during an emergency situation. Every vessel is different and if certain parts of the emergency instructions are not applicable to a certain vessel, then the Coast Guard will allow the deletion of those parts. The Coast Guard hopes that vessel masters and owners will take the time to develop a more detailed set of emergency instructions that are vessel specific. These sections have been retained and re-titled as a recommended minimum checklist for the master and crew of a vessel during an emergency.

Sections 122.520 Abandon ship and man overboard drills and training. The comments to this section focused on the need for random weekly drills. Citing scheduling problems and the overkill of weekly drills, the comments stated a relaxation of the drill requirements should be considered. The Coast Guard agrees. The revision to this section allows the master to schedule monthly drills in order to get the most participation from the crew, including steward and galley staff. The master is not restricted from conducting more drills as needed. As discussed previously under crew training, the Coast Guard has added a documentation requirement to required drills and training, and solicits input from the industry on the value and impact of this new documentation requirement.

122.520 and 185.520 Abandon ship and man overboard drills and training. Additional comments to both §§ 122.520 and 185.520 asked that the requirement to launch a davit launched liferaft every four months be removed due to cost considerations. The Coast Guard partially agrees. Specialized training is required for launching a liferaft with a davit arrangement; however, the hands on portion of lowering an inflated liferaft may be better accomplished during annual servicing. Paragraph (f) of both sections is revised to require quarterly training on davit launched liferafts, but the requirement to inflate a liferaft when practicable is deleted.

122.524 Fire fighting drills and training. Citing the same concerns as the abandon ship and man overboard drills, the Coast Guard has revised this section to allow the master to schedule monthly drills. As discussed previously under crew training, the Coast Guard has added a documentation requirement to required drills and training, and solicits input from the industry on the value and impact of this new documentation requirement.

122.614 and 185.614 Portable watertight container for distress flares and smoke signals. These sections in subchapters K and T respectively, are added because the proposed requirement in §§ 117.68 and 180.68 for the Coast Guard approved container was deleted.

122.728 and 185.728 Testing and servicing of EPIRBs. Paragraph (c) is added to require the documentation of the monthly EPIRB operational test required by these sections. The Coast Guard solicits comments on the addition of this requirement.

9. Part 170—Stability Requirements For All Inspected Vessels

Two comments to this part addressed the periodic lightweight survey requirements contained in § 170.210, which were suspended on December 10, 1992 [57 FR 58406]. The comments stated that paragraph (e) of § 170.210 would have to be modified if the regulation is reinstated. The Coast Guard agrees. After a comprehensive review of all the current regulation projects, the Coast Guard decided to withdraw the lightweight survey project, along with selected other projects, and focus its available resources on higher priority projects. Since the suspended lightweight survey requirements will not be reinstated in the near future, no changes are required in this section at this time.

One comment stated that the word ''maximum'' should be deleted from paragraph (b)(2) of § 170.173 because it is misleading. The Coast Guard agrees and has made this change for the IFR.

In addition to changes based upon comments, the Coast Guard has made other changes to Part 170 based upon a review of the stability regulations. These include:

Section 170.170 Calculations required. The Coast Guard has adjusted the angle of heel permitted for sailing vessels when determining the minimum required metacentric height. Because the vessel's angle of heel is limited to one-half of the freeboard of the vessel when applying the criteria for metacentric height (GM) in existing § 170.170, some sailing vessels have had to limit the number of passengers they can carry. The existing criteria were initially developed for mechanically powered vessels that were of ordinary proportions and form, with flush decks, and carried cargo below the main deck. The changes in the IFR will allow sailing vessels to be heeled up to the deck edge, or to a maximum heel of 14 degrees, whichever is less, because a sailing vessel has a greater range of stability and a greater angle of downflooding than the type of vessel for which the criteria were initially developed.

Section 170.265 Class 3 doors; required locations. The Coast Guard's revision to § 170.265(d)(2) corrects errors that occurred when 46 CFR 73.35–15(d) was redesignated as

subchapter S. The factor of subdivision value was incorrectly stated as 0.05 instead of 0.5.

Section 170.270 Door design, operation, installation, and testing. The revisions to paragraph (d) specify circumstances when watertight door indicators are required under § 170.255(e). The change is consistent with § 179.330(b) in the IFR.

10. Part 171—Special Rules Pertaining To Vessels Carrying Passengers

Based upon the Coast Guard's review of this Part, a correction has been made to proposed § 171.122 regarding coaming heights. In the SNPRM, the Coast Guard proposed to remove § 171.124 because it duplicated requirements in § 179.360. Removal of § 171.124 also removes Table 171.124. However, § 171.122 references Table 171.124 for coaming height requirements. Therefore, Table 171.124 is redesignated as Table 171.122.

11. Part 178—Intact Stability and Seaworthiness

Comments on this part expressed concern over the clarity of drainage calculations proposed in the SNPRM under § 178.450, and suggested that the proposed requirements were excessive requirements for cockpit vessels. The Coast Guard agrees, and therefore to account for this, the relative size of the vessel compared to size of water entrapments, such as cockpits and bulwarks on the weather deck, has been acknowledged through the addition of a recess and weather deck ratio.

The Coast Guard has reviewed the drainage formula, and noted a lack of requirements for bulwarks outside well deck and cockpit areas. Thus, bulwarks in the last two thirds of the vessel but not in way of a well deck or cockpit are accounted for using the same method as that used for a well deck. Bulwarks in the forward one third of the vessel may not form a well with the deckhouse which could retain water. The Coast Guard solicits input from the industry on the changes to § 178.450 in subchapter T.

12. Part 179—Subdivision, Damage Stability, and Watertight Integrity

The comments on this part focused on the watertight coaming requirements in Subpart C. While the comments supported easing these requirements, particularly for vessels on protected routes, they recommended complete elimination of requirements for coamings. The comments claimed that coamings are the main cause of passenger ''trip and falls'' and prevent modification of vessels to comply with the Americans with Disabilities Act.

The Coast Guard appreciates the concerns over passenger ''trips and falls,'' but considers the danger of downflooding, particularly on vessels with high passenger capacity, to be an overriding concern. Therefore, a minimum watertight coaming requirement is maintained in this IFR, and this section has not been changed.

As discussed under Parts 117 and 180, as of March 11, 2001, vessels constructed of wood will have to meet the subdivision standards contained in this Part.

ORGANIZATION OF SUBCHAPTERS T AND K

Subject area	Subchapter K part	Subchapter T part
General Provisions	114	175
Inspection and Certification	115	176
Construction and Arrangement	116	177
Intact Stability and Seaworthiness	N/A	178
Subdivision, Damage Stability and Watertight Integrity	N/A	179
Lifesaving Equipment and Arrangements	117	180
Fire Protection Equipment	118	181
Machinery Installation	119	182
Electrical Installation	120	183
Control and Miscellaneous Systems	121	184
Operations	122	185

Metric (SI) Conversion

The IFR has been revised to include metric units using the International System of Units (SI) for all measures with the exception of Nautical Miles (NM) and Knots. English units immediately follow the metric conversions in parenthesis throughout the regulations.

Solicitation for Comments

As previously stated under ''COMMENTS ON PARTICULAR PROVISIONS OF THE SNPRM,'' the Coast Guard is soliciting input on five requirements established in this IFR. Section 180.200 now includes a construction equivalency for wooden hull vessels. Sections 119.530 and 182.530 now include more spaces requiring high bilge level alarms in order to increase their effectiveness. Sections 122.420, 122.520, 122.524, 185.420, 122.520, and 122.524 now include provisions to log or otherwise document required drills and training. Sections 122.728 and 185.728 now include a provision to log the required monthly test of the Emergency Position Indicating Radio Beacon (EPIRB). Section 178.450 has been revised to take cockpit size and bulwark arrangements into consideration when calculating drainage areas. In addition, the Coast Guard is soliciting input on one other topic discussed under Sections 116.960 and 177.960 ''Guards for exposed hazards.'' Persons desiring to comment on any of the above sections should submit their comments to the Coast Guard where indicated under **ADDRESSES**.

Regulatory Evaluation

This IFR is a significant regulatory action under section 3(f) of Executive Order 12866 and has been reviewed by the Office of Management and Budget under that order. It is significant under the regulatory policies and procedures of the Department of Transportation (44 FR 11040; February 26, 1979). A draft regulatory evaluation was prepared for the SNPRM based on comments to the NPRM and placed in the rulemaking docket. The evaluation contained information on the methodology and data sources used in determining costs and benefits, details on the costs and benefits of over 70 changes, alternatives to proposed changes, cost for sample small passenger vessels, and a profile of the small passenger fleet and its casualty history. The Coast Guard

received several comments criticizing the draft evaluation for containing outdated costs, the risk assessment methodology and cost/benefit analysis.

The SNPRM identified the three most significant monetary cost/benefit items of this rulemaking as:

1. Liferafts or inflatable buoyant apparatus for certain vessels;
2. Passenger/crew lists; and
3. Fixed fire extinguishing systems in machinery spaces.

As a result of the comments received on the draft evaluation and the SNPRM as a whole, the Coast Guard has significantly reduced the cost of this rulemaking by incorporating the following changes in the IFR:

1. Reducing the number of vessels required to carry inflatable survival craft; and
2. Revising passenger and crew list requirements.

In addition, the Coast Guard has made other significant changes in the IFR that will result in reduced costs to the small passenger vessel industry. For example:

1. Providing more options to meet structural fire protection requirements:
2. Eliminating the requirements to install overspeed trip devices for main propulsion engines and generators; and
3. Deleting the requirement to have wooden vessels more than 20 years old drydocked annually.

In order to address the impact these changes have had on the cost to this rulemaking, the Coast Guard has included an addendum to the draft regulatory evaluation addressed in the SNPRM. The addendum updates the changes in cost associated with the elimination of some of the inflatable lifesaving equipment and requirements to maintain passenger and crew list for certain vessels. In order to provide consistency, the Coast Guard retained the methods of calculating the total and Average Annual Cost (AAC) of the requirements from the draft assessment. However, the information used to calculate the number of vessels affected and the cost of required equipment were updated to provide an accurate estimate.

The Coast guard believes that by adopting these changes, it is reducing the overall costs to the industry of this rule by 63%. The draft regulatory assessment estimated that the small passenger vessel industry would incur an AAC of $9.71 million as a result of the SNPRM. Based upon the addendum to the draft regulatory assessment, the Coast Guard estimates the small passenger vessel industry will incur a direct, average annual cost of $3.59 million as a result of this IFR. As stated above, the most significant cost reductions can be found in the revisions to the lifesaving equipment and passenger and crew list requirements.

By significantly reducing the number of small passenger vessels required to install and maintain inflatable lifesaving equipment, this IFR will reduce estimated costs to the industry for this equipment by 61% from that proposed in the SNPRM. The draft regulatory assessment calculated that under the requirements in the SNPRM, the AAC for installation and maintenance of liferafts and inflatable buoyant apparatus was $4.87 million. The addendum to the draft regulatory assessment calculates the AAC for this equipment to be $1.90 million. The reduction in cost is directly attributed to the decrease in the number of vessels required to carry inflatable survival craft. For example: the requirement for inflatable liferafts (the highest cost inflatable survival craft) proposed in the SNPRM would have affected an estimated 1,300 vessels. In contrast, the requirements in the IFR for inflatable liferafts affect less than ten existing vessels.

By significantly reducing the number of small passenger vessels required to comply with the passenger and crew list requirements, this IFR will reduce estimated costs to the industry for maintaining these lists by 84% from the requirements proposed in the SNPRM. The draft regulatory assessment calculated that the AAC for maintaining a list of all passengers and crew on vessels operating on coastwise or oceans routes to be $1.03 million. The addendum to the draft regulatory assessment calculates the AAC for this requirement to be $0.16 million. Those vessels not required to keep a passenger and crew list need only maintain a count of all passengers and crew onboard. As stated in the draft regulatory evaluation, the Coast Guard believes the legislatively mandated requirement to maintain a passenger and crew count does not impose a significant cost.

The Coast guard believes that the overall cost reduction measures contained in this IFR will not have a substantial effect on the benefits calculated in the draft assessment. The Coast Guard has significantly reduced the cost of this rulemaking by focusing the requirements for high cost items such as inflatable lifesaving equipment strictly to vessels operating in cold water offshore with a large number of passengers, and vessel types involving the greatest number of casualties. In doing so, the Coast Guard maintains that an average of 3 lives per year will be saved because of the requirements contained in this IFR. In addition, the Coast Guard believes that the $0.3 million cost benefit due to the installation of fixed fire extinguishing systems, and the $2.0 million cost benefit due to unquantified savings in areas such as search and rescue and injuries prevented are still valid in light of the changes to the requirements proposed in the SNPRM.

The Department of Transportation General Counsel's memorandum of March 14, 1995, noted that $2.7 million per fatality averted is a reasonable estimate of society's willingness to pay for reduced risk of fatalities and injuries. Based upon this figure and the previously stated cost benefits, the Coast Guard estimates this rulemaking will produce an annual benefit of $10.4 million in lives and property saved, and injuries prevented.

The Coast Guard does not believe that the areas it is seeking additional comments, discussed previously under ''SOLICITATION FOR COMMENTS,'' will have a significant impact on the regulatory evaluation and addendum. Therefore, the Coast Guard adopted the regulatory evaluation with the addendum as its final regulatory evaluation. The addendum to the draft regulatory assessment has been prepared and placed in the rulemaking docket for inspection or copying where indicated under **ADDRESSES**.

Small Entities

Under the Regulatory Flexibility Act (5 U.S.C. 601 through 612), the Coast Guard must consider whether this rule is likely to have a significant economic impact on a substantial number of small entities. ''Small entities'' include independently owned and operated small businesses that are not dominant in their field and that would otherwise qualify as ''small business concerns'' under section 3 of the Small Business Act (15 U.S.C. 632).

Small passenger vessel operators comprise firms in the Standard Industrial Code (SIC) categories 4482 and 4489, which are, respectively, ferries and water transportation of passengers, not elsewhere specified. According to 13 CFR 121, the size standard of small businesses in these categories is less than 500 employees. About 92% of small passenger vessel operators fall into the small business category. The total number of small passenger vessels affected by this rulemaking is initially 5,564, many of which are owned or managed by small entities. There are currently 405 vessels that carry more than 150 passengers and are subject to higher cost requirements such as structural fire protection measures. The Coast Guard believes that

few small entities operate this group of vessels. The Coast Guard also believes that the average annual cost of this rulemaking is skewed upward because of these vessels. In order to reduce the impact of the regulations on vessels owned or managed by small entities, alternatives have been proposed that are intended to reduce the cost. These alternatives include route restrictions (i.e., vessels choosing to operate less than one mile from shore) and recognition that a vessel with subdivision is less likely to sink. As stated previously under ''COMMENTS ON PARTICULAR PROVISIONS OF THE SNPRM'' and ''REGULATORY EVALUATION'' the Coast Guard has significantly reduced the cost of this rulemaking by focusing the requirements for high cost items such as inflatable lifesaving equipment strictly to high risk vessels and vessel types involving the greatest number of casualties. Requirements for existing vessels to be retrofitted to meet the new standards were limited to those areas where the greatest benefits may be realized based upon available casualty data.

The type of vessel which the Coast Guard believes is likely to be operated by a small entity and on which the regulations would have the greatest cost impact, are vessels on oceans or coastwise routes that are permitted to carry only a few more passengers than the maximum of six that may be carried on uninspected vessels. This group of vessels is primarily composed of sport fishing vessels carrying passengers on chartered trips. Some of these are only operated on a part-time basis. The owners of vessels operated part-time would be affected the most, since such vessels make only a limited number of trips from which they can recover the cost of the proposed regulations. These vessels may opt to drop certification and operate as uninspected passenger vessels as an alternative to compliance with this rulemaking. The number of vessels in this category is estimated to be less than 170 vessels.

This IFR will also have an impact on wood hulled vessels operated on an ocean or coastwise route in cold water [areas where the average mean low water temperature is below 15 degrees Celsius (59 degrees Fahrenheit)]. As stated previously under ''COMMENTS ON PARTICULAR PROVISIONS OF THE SNPRM,'' these vessels account for 90% of small passenger vessel casualties involving the loss of life or loss of the vessel. The bulk of the cost to these operations will be the purchase and servicing of inflatable buoyant apparatus, or the often lower one-time cost of installing watertight bulkheads. Some operators of wood hulled vessels may find that they have to alter the scope of their vessel operation, either by carrying fewer passengers or by operating on a more restricted route, in order to remain financially sound. The Coast Guard estimates that the number of wooden vessels affected makes up not more than 320 vessels, or less than 6% of the inspected passenger vessel fleet.

The Coast Guard estimates that about 490 small passenger vessels operated by small entities, or about 9% of the small entities affected by this regulation are expected to experience significant costs.

Based on the discussion above, and previous discussions on the cost reductions contained in this IFR, the Coast Guard has determined that this proposed rulemaking will not have a significant economic impact on a substantial number of small entities.

Collection of Information

This rule contains collection-of-information requirements. The Coast Guard submitted the requirements contained in the SNPRM to the Office of Management and Budget (OMB) for review under section 3504(h) of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*), and OMB approved them.

As a result of changes to the SNPRM based upon comments and a Coast Guard review of recordkeeping requirements, several deletions and additions have been made to the collection of information requirements. The Coast Guard believes that the logbook and recordkeeping requirements contained in §§ 122.260(a)(2), 122.304(c), 122.315, 122.335, 185.260(a)(2), 185.315, and 185.335 of the SNPRM did not contribute to the overall safety of the vessel, and therefore removed them from the IFR. However, as previously discussed in ''Comments on SNPRM Citing Particular Provisions,'' the Coast Guard has added recordkeeping requirements to §§ 122.420, 122.520, 122.524, 122.728, 185.420, 185.520, 185.524, and 185.728 in order to easily verify compliance with crew training and equipment testing requirements contained in the IFR. The Coast Guard believes that most professional operators presently conducting crew training and drills are already documenting the training in some form. Further, marginal operators will be more inclined to comply with the crew training requirements if they are required to provide documentation to the Coast Guard inspector during annual inspections. The Coast Guard submitted a revised Information Collection Budget (ICB) request to OMB for approval. The new ICB requested 13,294 fewer hours than the 418,902 approved by OMB for the SNPRM. The decrease in requested burden hours is the net result of (1) the revisions to the crew and passenger list requirements (−12,397 hours annually) and the navigation underway sections (−2,720 hours annually) and (2) the addition of crew training and drill log requirements (1,823 hours annually) previously discussed in ''Comments on SNPRM Citing Particular Provisions.'' Overall, the new ICB request represents an increase of 126,904 burden hours over the 278,704 hours approved by OMB prior to the publication of the SNPRM in 1994.

This IFR contains collection of information requirements in the following sections of 46 CFR: 115.105(a), 115.202, 115.204, 115.302, 115.306, 115.310, 115.500(a), 115.612, 115.700, 115.704, 115.710, 115.810(b), 115.920(c), 115.930, 116.202, 116.330, 116.340, 116.610(e), 118.610, 119.460(e), 120.220(d), 120.320 (d) and (e), 121.420, 121.506, 122.202, 122.206, 122.208, 122.220, 122.230, 122.280, 122.282, 122.340(c), 122.402, 122.420, 122.502, 122.503, 122.504, 122.506, 122.510, 122.514, 122.515, 122.516, 122.518, 122.520, 122.524, 122.602, 122.604, 122.606, 122.608, 122.610, 122.612, 122.702, 122.704(c), 122.728(c), 176.105(a), 176.202, 176.204, 176.302, 176.306, 176.310, 176.500(a), 176.612, 176.700, 176.704, 176.710, 176.810(b), 176.920(c), 176.930, 177.202, 177.330, 177.340, 178.210, 178.220, 178.230, 181.610, 182.460(e), 182.610(f), 183.220(d), 183.320 (d) and (e), 184.420, 184.506, 185.202, 185.206, 185.208, 185.220, 185.230, 185.280, 185.340(c), 185.402, 185.420, 185.502, 185.503, 185.504, 185.506, 185.510, 185.514, 185.516, 185.518, 185.520, 185.524, 185.602, 185.604, 185.606, 185.608, 185.610, 185.612, 185.702, 185.704(c), and 185.728(c).

The corresponding control numbers are displayed in §§ 114.900 and 175.900 of this IFR.

Persons desiring to comment on any of these information collection requirements should submit their comments both to the OMB and to the Coast Guard where indicated under **ADDRESSES**.

Federalism

This proposed rulemaking has been analyzed in accordance with the principles and criteria contained in Executive Order 12612, and it has been determined that this proposed rulemaking does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Environmental Impact

The Coast Guard considered the environmental impact of this proposal and concluded that, under section 2.B.2. of Commandant Instruction M16475.1B, this proposal is categorically excluded from further environmental documentation. A Categorical Exclusion Determination statement has been prepared and has been placed in the rulemaking docket.

List of Subjects

46 CFR Parts 114, 175

Incorporated by reference, Marine safety, Passenger vessels, Reporting and recordkeeping requirements.

46 CFR Parts 115, 176

Fire prevention, Marine safety, Passenger vessels, Reporting and recordkeeping requirements.

46 CFR Parts 116, 117, 119, 171, 177, 178, 179, 180, 182

Marine safety, Passenger vessels.

46 CFR Parts 118, 181

Fire prevention, Marine safety, Passenger vessels.

46 CFR Parts 120, 183

Electric power, Marine safety, Passenger vessels.

46 CFR Parts 121, 184

Communications equipment, Marine safety, Navigation (water), Passenger vessels.

46 CFR Parts 122, 185

Alcohol and alcoholic beverages, Drugs, Hazardous materials, Marine safety, Navigation (water), Passenger vessels, Reporting and recordkeeping requirements.

46 CFR Part 170

Marine safety, Reporting and recordkeeping requirements, Vessels.

46 CFR Part 173

Marine safety, Vessels.

For the reasons set out in the preamble, the Coast Guard has amended Title 46, Code of Federal Regulations by: adding subchapter K; redesignating and adding Parts 114 through 139, reserved in subchapter J, in subchapter K; amending Parts 170, 171, and 173 of subchapter S, and by amending subchapter T as follows.

1. Subchapter K is added to read as follows:

SUBCHAPTER K—SMALL PASSENGER VESSELS CARRYING MORE THAN 150 PASSENGERS OR WITH OVERNIGHT ACCOMMODATIONS FOR MORE THAN 49 PASSENGERS

Part
114 General provisions.
115 Inspection and certification.
116 Construction and arrangement.
117 Lifesaving equipment and arrangements.
118 Fire protection equipment.
119 Machinery installation.
120 Electrical installation.
121 Control and miscellaneous systems.
122 Operations.

PART 114—GENERAL PROVISIONS

Sec.
114.100 Purpose.
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114.900 OMB control numbers.

Authority: 46 U.S.C. 2103, 3306, 3703; 49 U.S.C. App. 1804; 49 CFR 1.45, 1.46; 114.900 also issued under authority of 44 U.S.C. 3507.

§ 114.100 Purpose.

The purpose of this subchapter is to implement applicable sections of Subtitle II of Title 46, United States Code, which require the inspection and certification of small passenger vessels.

§ 114.110 General applicability.

(a) Except as provided in paragraphs (b) through (g) of this section, this subchapter applies to each vessel of less than 100 gross tons and less than 61 meters (200 feet) which:

(1) Carries more than 150 passengers; or

(2) Has overnight accommodations for more than 49 passengers.

(b) A vessel of less than 100 gross tons that either carries not more than 150 passengers, or has overnight accommodations for not more than 49 passengers, and that is not more than 61 meters (200 feet) in length, may comply with the provisions in subchapter T (Small Passenger Vessels) of this chapter.

(c) A vessel of less than 100 gross tons must comply with Parts 72 and 76 of subchapter H (Passenger Vessels) of this chapter, and with the applicable requirements for marine engineering and electrical systems contained in subchapter F (Marine Engineering) and subchapter J (Electrical Engineering) of this chapter, if it is:

(1) A vessel that carries more than 600 passengers;

(2) A vessel with overnight accommodations for more than 150 passengers; or

(3) A vessel of more than 61 meters (200 feet) in length that carries more than six passengers.

(d) Unless otherwise provided, an existing vessel that is not required to comply with a requirement in this subchapter may comply with the regulation that was applicable to the vessel on March 10, 1996.

(e) A vessel required by this subchapter to meet applicable sections of subchapter H shall follow the phase-in schedule for certain equipment and requirements found in this subchapter.

(f) This subchapter does not apply to:

(1) A vessel operating exclusively on inland waters that are not navigable waters of the United States;

(2) An oceanographic research vessel;

(3) A boat forming part of a vessel's lifesaving equipment and that is not used for carrying passengers except in emergencies or during emergency drills;

(4) A vessel of a foreign country that is a party to the International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS), to which the United States Government is currently a party, and which has on board a current valid SOLAS Passenger Ship Safety Certificate; or

(5) A vessel of a foreign country, whose government has inspection laws approximating those of the United States and which by its laws accords similar privileges to vessels of the United States, which has on board a current valid certificate of inspection, permitting the carrying of passengers, issued by its government.

(g) The relationship between this subchapter and other subchapters pertaining to the inspection and certification of small passenger vessels (passenger vessels under 100 GT) is provided in the table below, which shows the breakpoints between subchapters T, K, and K′ of this chapter.

TABLE 114.110(g)

Subchapter T	Subchapter K	Subchapter K′[1]
≤150 passengers or overnight accommodations for ≤49 passengers, and ≤61 meters (200 feet).	151–600 passengers or overnight accommodations for 50–150 passengers, and ≤61 meters (200 feet).	≥601 passengers or overnight accommodations for ≥151 passengers or >61 meters (200 feet).

[1] Vessels in this category are small passenger vessels (passenger vessels less than 100 GT) but are required to comply with Parts 72, and 76 of subchapter H, Parts 114, 115, 117, 121, and 122 of subchapter K, and the applicable requirements of subchapters F and J.

§ 114.112 Specific applicability for individual parts.

At the beginning of certain parts of this subchapter, a more specific application is given for all or particular portions of that part. This application sets forth the type, size, service, or age of a vessel to which certain portions of that part apply or particular dates by which an existing vessel must comply with certain portions of that part.

§ 114.120 Vessels on an international voyage.

A mechanically propelled vessel that carries more than 12 passengers on an international voyage must comply with the applicable requirements of SOLAS as well as this subchapter.

§ 114.122 Load lines.

A vessel of 24 meters (79 feet) in length or more, the keel of which was laid or that was at a similar stage of construction on or after July 21, 1968, and that is on a voyage other than a domestic voyage is subject to load line assignment, certification, and marking in subchapter E (Load Lines) of this chapter.

§ 114.400 Definitions of terms used in this subchapter.

(a) Terms used in this subchapter are defined in paragraph (b) of this section. The number in parenthesis after certain terms describing areas on a vessel refers to the applicable column and row number where that area is listed in Tables 116.415 (b) and (c) of Part 116 of this subchapter.

(b) General terms:

Accommodation space (5 or 7 depending on fire load and furnishings) means a space that does not contain any heating appliance other than a microwave oven or other low heat (maximum heating element temperature less than 121°C (250°F)) appliance used as a:

(1) Public space;

(2) Hall;

(3) Dining room and messroom;

(4) Lounge or cafe;

(5) Public sales room;

(6) Overnight accommodation space;

(7) Barber shop or beauty parlor;

(8) Office or conference room;

(9) Medical treatment room or dispensary; or

(10) Game or hobby room.

Area of refuge means an area that is separated from the effects of fire and flooding where passengers and crew can gather to await disembarking in the event of fire of flooding. To qualify as an area of refuge, the area must provide separation from the effect of fire and flooding for the maximum amount of time required to complete disembarking of the vessel, or one hour, whichever is less.

Atrium, (5 or 7 depending on fire load and furnishings) means a continuous deck opening connecting more than two deck levels within an accommodation space that is covered at the top of the series openings and is used for purposes other than an enclosed stairway, elevator hoistway, escalator opening or a utility trunk for pipe, cable, or ductwork.

Auxiliary machinery space (12) means a space containing only pumps, tanks, electrical machinery, ventilation or air conditioning equipment, resistors, steering machinery, etc., with not more than 2.5 kilograms per square meter (0.5 pounds per square foot) of combustible storage.

Balcony (5 or 7 depending on fire load and furnishings) means a deck opening connecting two deck levels within an accommodation space creating two freely communicating levels within the same space.

Beam or *B* means the maximum width of a vessel from:

(1) Outside of planking to outside of planking on wooden vessels; and

(2) Outside of frame to outside of frame on all other vessels.

Bulbous bow means a design of bow in which the forward underwater frames ahead of the forward perpendicular are swelled out at the forefoot into a bulbous formation.

Bulkhead deck means the uppermost deck to which watertight bulkheads and the watertight shell extend.

Cable means single or multiple insulated conductors with an outer protective jacket.

Cargo space (11) means a:

(1) Cargo hold;

(2) Refrigerated cargo space;

(3) A trunk leading to or from a space listed above; or

(4) A vehicle space.

Char length means the numeric value in inches assigned to a material when tested in accordance with NFPA 261 by an independent laboratory.

Coast Guard District Commander or *District Commander* means an officer of the Coast Guard designated as such by the Commandant to command Coast Guard activities within a district.

Coastwise means a route that is not more than 20 nautical miles offshore on any of the following waters:

(1) Any ocean;

(2) The Gulf of Mexico;

(3) The Caribbean Sea;

(4) The Bering Sea;

(5) The Gulf of Alaska; or

(6) Such other similar waters as may be designated by a Coast Guard District Commander.

Cockpit vessel means vessel with an exposed recess in the weather deck extending not more than one-half of the length of the vessel measured over the weather deck.

Cold water means water where the monthly mean low water temperature is normally 15 degrees Celsius (59 degrees Fahrenheit or less).

Commandant means the Commandant of the Coast Guard or an authorized Headquarters staff officer designated in § 1.01 of this chapter.

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.

Continuous B-Class ceiling means an approved structural ceiling composed of B-Class panels that terminates only at an approved A-Class or B-Class bulkhead.

Control space (1) means a space containing:

(1) An emergency source of power, excluding generators;

(2) Navigating and radio equipment that is normally manned;

(3) Centralized fire control or detection equipment, such as fixed gas extinguishing system controls; or

(4) Machinery controls not located within a machinery space.

Corrision-resistant material or *corrosion-resistant* means made of one of the following materials in a grade suitable for its intended use in a marine environment:

(1) Silver;

(2) Copper;

(3) Brass;

(4) Bronze;

(5) Aluminum alloys with a copper content of no more than 0.4 percent;

(6) Copper-nickel;

(7) Plastics;

(8) Stainless steel;

(9) Nickel-copper; or

(10) A material, which when tested in accordance with ASTM B–117 for 200 hours, does not show pitting, cracking, or other deterioration.

Crew accommodation space (5 or 7 depending on fire load and furnishings) means an accommodation space designated for the use of crew members and where passengers are normally not allowed to occupy.

Critical radiant flux means the numeric value assigned to a material when tested in accordance with ASTM E–648 by an independent laboratory.

Custom engineered means, when referring to a fixed gas fire extinguishing system, a system that is designed for a specific space requiring individual calculations for the extinguishing agent volume, flow rate, piping, and similar factors.

Dead cover means a metal cover to close or protect a port light to avoid glass breakage in case of heavy weather.

Distribution panel means an electrical panel that receives energy from the switchboard and distributes the energy to energy consuming devices or other panels.

Draft means the vertical distance from the molded baseline of a vessel amidships to the waterline.

Dripproof means enclosed equipment so constructed or protected that falling drops of liquid or solid particles striking the enclosure at any angle from 0 to 15 degrees downward from the vertical do not interfere with the operation of the equipment. A National Electrical Manufacturers Association type 1 enclosure with a dripshield is considered to be dripproof.

Embarkation deck (4) means;

(1) The deck from which davit launched survival craft are designed to be boarded; or

(2) If no davit launched survival craft are carried aboard the vessel, the main deck or lowest deck available for embarking or debarking passengers.

Embarkation station (4) means the place on the vessel from which a survival craft is boarded.

Enclosed space means a compartment that is not exposed to the atmosphere when all access and ventilation closures are secured.

Existing vessel means a vessel that is not a new vessel.

Exposed waters is a term used in connection with stability criteria and means:

(1) Waters, except the Great Lakes, more than 20 nautical miles from a harbor of safe refuge;

(2) Those portions of the Great Lakes more than 20 nautical miles from a harbor of safe refuge from October 1 of one year through April 15 of the next year (winter season); and

(3) Those waters less than 20 nautical miles from a harbor of safe refuge that the cognizant Officer in Charge, Marine Inspection, determines are not partially protected waters or protected waters because they present special hazards due to weather or other circumstances.

Ferry means a vessel that:

(1) Operates in other than ocean or coastwise service;

(2) Has provisions only for deck passengers or vehicles, or both;

(3) Operates on a short run on a frequent schedule between two points over the most direct water route; and

(4) Offers a public service of a type normally attributed to a bridge or tunnel.

Fiber reinforced plastic means plastics reinforced with fibers or strands of some other material.

Fire control boundary means a deck or bulkhead meeting the requirements for A-Class, B-Class, or C-Class or C'-Class construction in accordance with § 116.415 of this subchapter.

Fire load means a measure in kilograms per square meter (pounds per square foot) equaling the weight of all combustible material that is in a compartment and comprises its construction, as defined in § 116.427(b) of this subchapter, divided by the floor area of that compartment.

Flame spread means the numeric value assigned to a material when tested in accordance with ASTM E–84 or UL 723 by an independent laboratory.

Flash point means the temperature at which a liquid gives off a flammable vapor when heated using the Pensky-Martens Closed Cup Tester method in accordance with ASTM D–93.

Float-free launching or arrangement means that method of launching a survival craft whereby the survival craft is automatically released from a sinking vessel and is ready for use.

Flush deck vessel means a vessel with a continuous weather deck located at the uppermost sheer line of the hull.

Freeing port means any direct opening through the vessel's bulwark or hull to quickly drain overboard water that has been shipped on exposed decks.

Galley (9) means a space containing appliances with cooking surfaces that may exceed 121°C (250° F), such as ovens, griddles, and deep fat fryers.

Great Lakes means a route on the waters of any of the Great Lakes.

Gross tonnage and *gross tons* is an indicator of a vessel's approximate volume as determined in accordance with Part 69 (Measurement of Vessels) of this chapter and recorded on the vessel's Tonnage Certificate (formerly Certificate of Admeasurement).

Harbor of safe refuge means a port, inlet, or other body of water normally sheltered from heavy seas by land and in which a vessel can navigate and safely moor. The cognizant Officer in Charge, Marine Inspection, shall determine the suitability of a location as a harbor of safe refuge. The suitability will vary for each vessel, depending on the vessel's size, maneuverability, and mooring gear.

Hardwood means any wood with a specific gravity, over dry volume, of not less than 0.66.

Hazardous condition means any condition that could adversely affect the safety of any vessel, bridge, structure, or shore area or the environmental quality of any port, harbor, or navigable water of the United States. This condition could include but is not limited to, fire, explosion, grounding, leaking, damage, illness of a person on board, or a manning shortage.

High risk accommodation space (7) means an accommodation space that contains a fire load greater than 15 kilograms per square meter (3 pounds per square foot).

High risk service spaces (9) include:

(1) Motion picture projection room;

(2) Galley;

(3) Large laundry or drying room;

(4) Garbage or trash disposal storage area;

(5) Paint or lamp locker;

(6) Cleaning gear locker or small storeroom in an accommodation area; or

(7) Mail or baggage room; and

(8) Pantries and storerooms with a fire load greater than 15 kilograms per square meter (3 pounds per square foot), including connecting alleyways and stairs.

High seas means all waters that are neither territorial seas (the waters in a belt 3 nautical miles wide, that is adjacent to the coast and seaward of the territorial sea baseline) nor internal waters of the Untied States or of any foreign country.

High Speed Craft means a craft that is operable on or above the water and has characteristics so different from those of conventional displacement ships, to which the existing international conventions, particularly SOLAS, apply the alternative measures should be used to achieve an equivalent level of safety. Within the aforementioned generality, a craft that complies with the following characteristics would be considered a high speed craft: The craft is capable of a maximum speed equal to or exceeding:

$V=3.7\times Displ^{1667}$

Where V is the maximum speed and Displ is the vessel displacement corresponding to the design waterline in cubic meters.

Independent laboratory means a laboratory accepted under § 159.010 in subchapter Q of this chapter, or other standard specified by the Commandant.

Inflatable survival craft or *inflatable life jacket* means one that depends upon nonrigid, gas filled chambers for buoyancy, and is normally kept uninflated until ready for use.

Interior finish means any coating, overlay or veneer that is applied to interior surfaces such as bulkheads, linings, or suspended ceilings for decorative or other purposes. It includes not only the visible finish, but also all material used in its composition and application. In general, a paint is not considered an interior finish.

International voyage means a voyage between a country to which SOLAS applies and a port outside that country. A country, as used in this definition, includes every territory for the international relations of which a contracting government to the convention is responsible or for which the United Nations is the administering authority. For the U.S., the term ''territory'' includes the Commonwealth of Puerto Rico, all possessions of the United States, and all lands held by the United States under a protectorate or mandate. For the purposes of this subchapter, vessels are not considered as being on an ''international voyage'' when solely navigating 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.

Lakes, bays, and sounds means a route on any of the following waters:

(1) A lake other than the Great Lakes;

(2) A bay;

(3) A sound; or

(4) Such other similar waters as may be designated by a Coast Guard District Commander.

Launching appliance means a device for transferring a survival craft or rescue boat from its stowed position safely to the water. For a launching appliance using a davit, the term includes the davit winch, and falls.

Length when used in terms of the vessel's length (excluding bow sprints, bumpkins, rudders, outboard motor brackets, handles, and other similar fittings, attachments, and extensions), means:

(1) The length listed on the vessel's Certificate of Documentation issued under the provisions of Part 67 (Documentation of Vessels) of this chapter or Certificate of Number issued under the provisions of 33 CFR Part 173, Subpart B (Numbering); or

(2) For a vessel that does not have a Certificate of Documentation or a Certificate of Number, the ''registered length'' as defined in § 69.53 in subchapter G of this chapter or, for a vessel that is less than 24 meters (79 feet) in overall length and is measured using simplified measurement, the registered length as defined in § 69.203 in subchapter G of this chapter; or

(3) For the purposes of Part 179 in subchapter T of this chapter, the ''length'' of a vessel with a bulbous bow means the larger of the length as defined in the first paragraph of this definition or the straight line horizontal measurement from the forwardmost tip of the bulbous bow to the aftermost part of the vessel measured parallel to the center line.

Length between perpendiculars or *LBP* means the horizontal distance measured between perpendiculars taken at the forwardmost and aftermost points on the waterline corresponding to the deepest operating draft.

Limited coastwise means a route that is not more than 20 nautical miles from a harbor of safe refuge.

Lining means a bulkhead panel.

Low risk accommodation space (5) means an accommodation space that contains only fire resistant furnishings and a fire load not greater than 15 kilograms per square meter (3 pounds per square foot).

Low risk service spaces (8) include:

(1) Pantries and storerooms with a fire load not more than 15 kilograms per square meter (3 pounds per square foot), including connecting alleyways and stairs;

(2) Small laundries or drying rooms containing only a tub, washing machine, and/or household type electric dryer;

(3) Workshops that are not part of a machinery space; and

(4) Washrooms and toilet spaces.

Machinery space (10) means a space including a trunk, alleyway, stairway, or duct to such a space, that contains:

(1) Propulsion machinery of any type;

(2) Steam or internal combustion machinery;

(3) Oil transfer equipment;

(4) Electrical motors of more than 10 hp;

(5) Refrigeration equipment;

(6) One or more oil-fired boilers or heaters; or

(7) Electrical generating machinery.

Main horizontal zone means a vehicle space that is separated from the remainder of the vessel by horizontal fire control boundaries required by the structural fire protection requirements of this subchapter.

Main transverse watertight bulkhead means a transverse bulkhead that must be maintained watertight in order for the vessel to meet the damage stability and subdivision requirements of this subchapter.

Main vertical zone means that section of a vessel into which the hull, superstructure, and deckhouse are required to be divided by vertical fire control boundaries required by the structural fire protection requirements of this subchapter.

Major conversion means a conversion of a vessel that, as determined by the Commandant:

(1) Substantially changes the dimensions or carrying capacity of the vessel;

(2) Changes the type of vessel;

(3) Substantially prolongs the life of the vessel; or

(4) Otherwise so changes the vessel that it is essentially a new vessel.

Marine inspector or *inspector* means any civilian employee or military member of the Coast Guard assigned by an Officer in Charge. Marine Inspection, or the Commandant to perform duties with respect to the inspection, enforcement, and administration of vessel safety and navigation laws and regulations.

Master means the individual having command of the vessel and who is the holder of a valid license that authorizes the individual to serve as master of a small passenger vessel.

Means of escape means a continuous and unobstructed way of exit travel from any point in a vessel to an embarkation station or area of refuge. A means of escape can be both vertical and horizontal, and includes doorways, corridors, stairtowers, stairways, and public spaces. High risk service spaces, low risk service spaces, cargo spaces, machinery spaces, auxiliary machinery spaces, control spaces, rest rooms, barber shops, sales rooms, hazardous areas determined by the cognizant OCMI, escalators, and elevators must not be any part of a means of escape. It consists of three distinct components:

(1) The exit access;

(2) The exit; and

(3) The exit discharge.

New vessel means a vessel:

(1) The initial construction of which began on or after March 11, 1996;

(2) Which was issued an initial Certificate of Inspection on or after September 11, 1996;

(3) Which underwent a major conversion that was initiated on or after March 11, 1996; or

(4) Which underwent a major conversion that was completed and for which an amended Certificate of

Inspection was issued on or after September 11, 1996.

Noncombustible material means any material approved in accordance with § 164.009 in subchapter Q of this chapter, or other standard specified by the Commandant.

Non-self-propelled vessel means a vessel that does not have installed means of propulsion, including propulsive machinery, masts, spars, or sails.

Oceans means a route that is more than 20 nautical miles offshore on any of the following waters:

(1) Any ocean;

(2) The Gulf of Mexico;

(3) The Caribbean Sea;

(4) The Bering Sea;

(5) The Gulf of Alaska; or

(6) Such other similar waters as may be designated by a Coast Guard District Commander.

Officer In Charge, Marine Inspection, or *OCMI* means an officer 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 a marine inspection zone, described in Part 1 of this chapter, for the performance of duties with respect to the inspection, enforcement, and administration of vessel safety and navigation laws and regulations. The ''cognizant OCMI'' is the OCMI that has immediate jurisdiction over a vessel for the purpose of performing the duties previously described.

Open boat means a vessel not protected from entry of water by means of a complete weathertight deck, or by a combination of a partial weathertight deck and superstructure that is structurally suitable for the waters upon which the vessel operates.

Open deck (13) means a deck that is permanently open to the weather on one or more sides and, if covered, any spot on the overhead is less than 4.5 meters (15 feet) from the nearest opening to the weather.

Open to the atmosphere means a compartment that has at least 9,375 square millimeters (15 square inches) of open area directly exposed to the atmosphere for each cubic meter (foot) of net compartment volume.

Operating station means the principal steering station on the vessel from which the individual on duty normally navigates the vessel.

Overnight accommodations or *overnight accommodation space* (5 or 7 depending on fire load and furnishings) means an accommodation space for use by passengers or by crew members, that has one or more berths, including beds or bunks, for passengers or crew members to rest for extended periods. Staterooms, cabins, and berthing areas are normally overnight accommodation spaces. Overnight accommodations do not include spaces that contain only seats, including reclining seats.

Pantry means a space used for food storage, and may include microwaves or other low heat [not exceeding 121°C (250°F)] appliances for food preparation.

Partially enclosed space means a compartment that is neither open to the atmosphere nor an enclosed space.

Partially protected waters is a term used in connection with stability criteria and means:

(1) Waters not more than 20 nautical miles from a harbor of safe refuge, unless determined by the cognizant OCMI to be exposed waters;

(2) Those portions of rivers, estuaries, harbors, lakes, and similar waters that the cognizant OCMI determines not to be protected waters; and

(3) Waters of the Great Lakes from April 16 through September 30 of the same year (summer season).

Passenger means an individual carried on a vessel, except:

(1) 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;

(2) The master; or

(3) A member of the crew engaged in the business of the vessel who has not contributed consideration for carriage and who is paid for on board services.

Passenger accommodation space (5 or 7 depending on fire load and furnishings) means an accommodation space designated for the use of passengers.

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.

Pilothouse control means that controls to start and stop the engines and control the direction and speed of the propeller of the vessel are located at the operating station.

Piping system includes piping, fittings, and appurtenances as described in § 56.07–5 in subchapter F of this chapter.

Port light means a hinged glass window, generally circular, in a vessel's side or deckhouse for light and ventilation.

Protected waters is a term used in connection with stability criteria and means sheltered waters presenting no special hazards such as most rivers, harbors, and lakes, and is not determined to be exposed waters or partially protected waters by the OCMI.

Pre-engineered means, when referring to a fixed gas fire extinguishing system, a system that is designed and tested to be suitable for installation without modification, as a complete unit in a space of a set volume, regardless of the specific design of the vessel on which it is installed.

Rivers means a route on any of the following waters:

(1) A river;

(2) A canal; or

(3) Such other similar waters as may be designated by a Coast Guard District Commander.

Safety areas include any of the following spaces:

(1) Control spaces;

(2) Stairways and stairtowers;

(3) Corridors;

(4) Embarkation stations;

(5) Areas of refuge; or

(6) Embarkation spaces.

Sailing vessel means a vessel principally equipped for propulsion by sail even if the vessel has an auxiliary means of propulsion.

Scantlings means the dimensions of all structural parts such as frames, girders, and plating, used in building a vessel.

Scupper means a pipe or tube of at least 30 millimeters (1.25 inches) in diameter leading down from a deck or sole and through the hull to drain water overboard.

Self-bailing cockpit means a cockpit, with watertight sides and floor (sole), that is designed to free itself of water by gravity drainage through scuppers.

Service space means a high risk service space or a low risk service space.

Ship's service loads means services necessary for maintaining the vessel in normal operational and habitable conditions. These loads include, but are not limited to, safety, lighting, ventilation, navigational, and communications loads.

Short international voyage means an international voyage where:

(1) The vessel is not more than 200 nautical miles from a port or place in which the passengers and crew could be placed in safety; and

(2) The total distance between the last port of call in the country in which the voyage began and the final port of destination does not exceed 600 nautical miles.

Smoke developed rating means the numeric value assigned to a material when tested in accordance with ASTM E–84 or UL 723 by an independent laboratory.

Specific optical density means the numeric value assigned to a material

when tested in accordance with ASTM E–662 by an independent laboratory.

Stairtower (2) means a fully enclosed group of stairways located within a common enclosure.

Stairway (2) means an inclined means of escape between two decks.

Standard fire test means a test in which a specimen is exposed in a test furnace to temperatures corresponding to the standard time-temperature curve. The specimen must resemble, as closely as possible, the intended construction and include, where appropriate, at least one joint. The standard time-temperature curve is defined by a smooth curve drawn through the following points, starting at ambient temperature:

(1) At the end of 05 minutes—556 °C (1,033 °F);

(2) At the end of 10 minutes—659 °C (1,218 °F);

(3) At the end of 15 minutes—718 °C (1,324 °F);

(4) At the end of 30 minutes—821 °C (1,509 °F); and

(5) At the end of 60 minutes—925 °C (1,697 °F).

Steel or equivalent material means steel or any noncombustible material that, by itself or due to insulation provided, has structural and integrity properties equivalent to steel at the end of the standard fire test.

Stepped main vertical zone means a main vertical zone in which the main vertical zone bulkhead is not in a continuous plane on adjoining decks.

Survival craft means a lifeboat, rigid liferaft, inflatable liferaft, life float, inflatable buoyant apparatus, buoyant apparatus, or a small boat carried aboard a vessel in accordance with § 117.200(b) of this subchapter.

Switchboard means an electrical panel that receives power from a generator, battery, or other electrical power source and distributes power directly or indirectly to all equipment supplied by the generating plant.

Trunk means a vertical shaft or duct for the passage of pipes, wires, or other devices.

Vehicle space (11) means a space not on an open deck, for the carriage of motor vehicles with fuel in their tanks, into and from which such vehicles can be driven and to which passengers have access.

Veneer means a thin covering of combustible material on bulkheads, bulkhead panels, or furniture.

Vessel includes every description of watercraft or other artificial contrivance, used or capable of being used as a means of transportation on water.

Vessel of the United States means a vessel documented or numbered under the laws of the United States, the states of the United States, Guam, Puerto Rico, the Virgin Islands, American Samoa, the District of Columbia, the Northern Mariana Islands, and any other territory or possession of the United States.

Warm water means water where the monthly mean low water temperature is normally more than 15 degrees Celsius (59 degrees Fahrenheit).

Watertight means designed and constructed to withstand a static head of water without any leakage, except that ''watertight'' for the purposes of electrical equipment means enclosed so that water does not enter the equipment when a stream of water from a hose with a nozzle one inch in diameter that delivers at least 246 liters (65 gallons) per minute is sprayed on the enclosure from any direction from a distance of ten feet for five minutes.

Weather deck means a deck that is partially or completely exposed to the weather from above or from at least two sides.

Weathertight means that water will not penetrate in any sea condition, except that ''weathertight equipment'' means equipment constructed or protected so that exposure to a beating rain will not result in the entrance of water.

Well deck vessel means a vessel with a weather deck fitted with solid bulwarks that impede the drainage of water over the sides or a vessel with an exposed recess in the weather deck extending more than one-half of the length of the vessel measured over the weather deck.

Wire means an individual insulated conductor without an outer protective jacket.

Work space means a space, not normally occupied by a passenger, in which a crew member performs work and includes, but is not limited to, a galley, operating station, or machinery space.

§ 114.540 Equivalents.

(a) The Commandant may approve any arrangement, fitting, appliance, apparatus, equipment, calculation, information, or test, which provides a level of safety equivalent to that established by specific provisions of this subchapter. Requests for approval must be submitted to the Marine Safety Center. If necessary, the Marine Safety Center may require engineering evaluations and tests to demonstrate the equivalence of the substitute.

(b) The Commandant may accept compliance by a high speed craft with the provisions of the pending International Maritime Organization (IMO) ''Code of Safety for High Speed Craft'' as an equivalent to compliance with applicable requirements of this subchapter. Requests for a determination of equivalency for a particular vessel must be submitted to the Marine Safety Center.

(c) The Commandant may approve a novel lifesaving appliance or arrangement as an equivalent if it has performance characteristics at least equivalent to the appliance or arrangement required under this part, and:

(1) Is evaluated and tested under IMO Resolution A.520(13), ''Code of Practice for the Evaluation, Testing and Acceptance of Prototype Novel Life-Saving Appliances and Arrangements''; or

(2) Has successfully undergone an evaluation and tests that are substantially equivalent to those recommendations.

§ 114.550 Special consideration.

In applying the provisions of this subchapter, the OCMI may give special consideration to authorizing departures from the specific requirements when unusual circumstances or arrangements warrant such departures and an equivalent level of safety is provided. The OCMI of each marine inspection zone in which a vessel operates must approve any special consideration granted to the vessel.

§ 114.560 Appeals.

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 § 1.03 in subchapter A of this chapter.

§ 114.600 Incorporation by reference.

(a) Certain material is incorporated by reference into this subchapter with the approval of the Director of the Federal Register in accordance with Title 5 United States Code (U.S.C.) 552(a) and Title 1 Code of Federal Regulations (CFR) Part 51. To enforce any edition other than that specified in paragraph (b) of this section, the Coast Guard must publish a notice of change in the Federal Register and make the material available to the public. All approved material is on file at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700 Washington, DC, and at the U.S. Coast Guard, Standards Evaluation and Development Division (G–MES), 2100 Second Street SW., Washington, DC 20593–0001 and is available from the sources indicated in paragraph (b) of this section.

(b) The material approved for incorporation by reference in this subchapter and the sections affected are:

American Boat and Yacht Council (ABYC)

3069 Solomon's Island Road, Edgewater, MD 21037

A–1–93—Marine Liquified Petroleum Gas (LPG) Systems.....121.240
A–3–93—Galley Stoves 121.200
A–7–70—Boat Heating Systems.....121.200
A–22–93—Marine Compressed Natural Gas (CNG) Systems.....121.240
H–25–94—Portable Gasoline Fuel Systems for Flammable Liquids....119.458
P–1–93—Installation of Exhaust Systems for Propulsion and Auxiliary Engines.....116.405; 119.425; 119.430

American Bureau of Shipping (ABS)

ABS Plaza, 16855 Northchase Drive, Houston, TX 77060

Rules for Building and Classing Aluminum Vessels, 1975 .....116.300
Rules for Building and Classing Steel Vessels, 1995.....119.410; 120.360
Rules for Building and Classing Steel Vessels Under 61 Meters (200 Feet) in Length, 1983.....116.300
Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways, 1995 .....116.300

American National Standards Institute (ANSI)

United Engineering Center, 345 East 47th St., New York, NY 10017

A 17.1–1984, including supplements A 17.1a and b–1985—Safety Code for Elevators and Escalators.....120.540
B 31.1–1986—Code for Pressure Piping, Power Piping.....119.710
Z 26.1–1977, including 1980 supplement—Safety Glazing Materials For Glazing Motor Vehicles Operating on Land Highways 116.1030

American Society for Testing and Materials (ASTM)

1916 Race St., Philadelphia, PA 19103

B–117–73 (Reapproved 1979)—Method of Salt Spray (Fog) Testing 114.400
D–93–94—Flash Point By Pensky-Martens Closed Cup Tester 114.400
D–635–91—Rate of Burning and/or Extent and Time of Burning of Self-supporting Plastics in a Horizontal Position.....119.440
D–2863–91—Measuring the Minimum Oxygen Concentration to Support Candle-like Combustion of Plastics (Oxygen Index) 119.440
E–84–94—Surface Burning Characteristics of Building Materials 114.400; 116.422; 116.423
E–648–94a—Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.....114.400; 116.423
E–662–94a—Specific Optical Density of Smoke Generated by Solid Materials 114.400; 116.423

Institute of Electrical and Electronics Engineers, Inc. (IEEE)

IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854

Standard 45–1977—Recommended Practice for Electrical Installations on Shipboard 120.340

International Maritime Organization (IMO)

International Maritime Organization, 4 Albert Embankment, London SE1 7SR

Code of Practice for the Evaluation, Testing and Acceptance of Prototype Novel Life-Saving Appliances and Arrangements—Resolution A.520(13), dated 17 November 1983.....114.540(c)
Use and Fitting of Retro-Reflective Materials on Life-Saving Appliances, Resolution A.658(16), dated 20 November 1989.....122.604
Fire Test Procedures For Ignitability of Bedding Components, Resolution A.688(17) dated 06 November 1991 ..... 116.405(j)
Symbols Related to Life-Saving Appliances and Arrangements, Resolution A.760(18) dated 17 November 1993.....122.604(g)

National Fire Protection Association (NFPA)

1 Batterymarch Park, Quincy, MA 02269–9101

NFPA 10–1994—Portable Fire Extinguishers 115.810
NFPA 13–1994—Installation of Sprinkler Systems.....116.439
NFPA 17–1994—Dry Chemical Extinguishing Systems 118.425
NFPA 17A–1994—Wet Chemical Extinguishing Systems 118.425
NFPA 70–1993—National Electrical Code (NEC)
Section 250–95.....120.370
Section 310–13.....120.340
Section 310–15.....120.340
Article 430.....120.320
Article 445.....120.320
NFPA 92B–1991—Smoke Management Systems in Malls, Atria, and Large Areas 116.440
NFPA 261–1994—Test For Determining Resistance of Mock-up Upholstered Furniture Material Assemblies to Ignition by Smoldering Cigarettes 114.400; 116.423
NFPA 302–1994—Pleasure and Commercial Motor Craft, Chapter 6 .....121.200; 121.240
NFPA 306–1993—Control of Gas Hazards on Vessels.....115.710
NFPA 701–1989—Fire Tests For Flame-Resistant Textiles and Films 116.423
NFPA 1963–1993—Fire Hose Connections 118.320

Underwriters Laboratories Inc. (UL)

12 Laboratory Drive, Research Triangle Park, NC 27709

UL 19–1992—Lined Fire Hose and Hose Assemblies.....118.320
UL 174–1989, as amended through June 23, 1994—Household Electric Storage Tank Water Heaters.....119.320
UL 486A–1992—Wire Connectors and Soldering Lugs For Use With Copper Conductors.....120.340
UL 489–1995—Molded-Case Circuit Breakers and Circuit Breaker Enclosures.....120.380
UL 595–1991—Marine Type Electric Lighting Fixtures 120.410
UL 710–1990, as amended through September 16, 1993—Exhaust Hoods For Commercial Cooking Equipment.....118.425
UL 723–1993, as amended through April 20, 1994—Surface Burning Characteristics of Building Materials 114.400; 116.422; 116.423; 116.425
UL 1056–1989—Fire Test of Upholstered Furniture.....116.423
UL 1058–1989, as amended through April 19, 1994—Halogenated Agent Extinguishing System Units 118.410
UL 1102–1992—Non integral Marine Fuel Tanks 119.440
UL 1104–1981, as amended through May 4, 1988—Marine Navigation Lights.....120.420
UL 1110–1988, as amended through May 16, 1994—Marine Combustible Gas Indicators 119.480
UL 1453–1988, as amended through June 7, 1994—Electric Booster and Commercial Storage Tank Water Heaters 119.320
UL 1570–1995—Fluorescent Lighting Fixtures 120.410
UL 1571–1995—Incandescent Lighting Fixtures 120.410
UL 1572–1995—High Intensity Discharge Lighting Fixtures 120.410
UL 1573–1995—Stage and Studio Lighting Units.....120.410
UL 1574–1995—Track Lighting Systems 120.410

§ 114.800 Approved equipment and material.

(a) Equipment and material that is required by this subchapter to be approved or of an approved type, must have been manufactured and approved in accordance with the design and testing requirements in subchapter Q (Equipment, Construction, and Materials: Specifications and Approval) of this chapter or as otherwise specified by the Commandant.

(b) Notice regarding equipment approvals is published in the Federal Register. Coast Guard publication COMDTINST M16714.3 (Series), ''Equipment Lists, Items Approved, Certificated or Accepted under Marine Inspection and Navigation Laws,'' lists

approved equipment by type and manufacturer. COMDTINST M16714.3 (Series) may be obtained from the Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402–9328.

§ 114.900 OMB control numbers.

(a) *Purpose.* This section lists the control numbers assigned to information collection and recordkeeping 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 OMB for each approved agency information collection requirement.

(b) *Display.*

46 CFR Section where identified and described	Current OMB Control No.
115.105(a)	2115–0578
115.202	2115–0578
115.204	2115–0578
115.302	2115–0578
115.306	2115–0578
115.310	2115–0578
115.500(a)	2115–0578
115.612	2115–0578
115.700	2115–0578
115.704	2115–0578
115.710	2115–0578
115.810(b)	2115–0578
115.920(c)	2115–0578
115.930	2115–0578
116.202	2115–0578
116.330	2115–0578
116.340	2115–0578
116.520	2115–0578
116.530	2115–0578
116.610(f)	2115–0578
120.220(d)	2115–0578
120.320(d) and (e)	2115–0578
121.420	2115–0578
121.506	2115–0578
122.202	2115–0003
122.206	2115–0003
122.208	2115–0578
122.220	2115–0578
122.230	2115–0578
122.280	2115–0578
122.282	2115–0578
122.340(c)	2115–0578
122.402	2115–0578
122.420	will be displayed when assigned by OMB
122.502	2115–0578
122.503	2115–0578
122.504	2115–0578
122.506	2115–0578
122.510	2115–0578
122.514	2115–0578
122.515	2115–0578
122.516	2115–0578
122.518	2115–0578
122.520	will be displayed when assigned by OMB
122.524	will be displayed when assigned by OMB
122.602	2115–0578
122.604	2115–0578
122.606	2115–0578
122.608	2115–0578
122.610	2115–0578
122.612	2115–0578
122.702	2115–0578
122.704(c)	2115–0578
122.728(c)	will be displayed when assigned by OMB

PART 115—INSPECTION AND CERTIFICATION

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115.710 Inspection and testing prior to hot work.

Subpart H—Material Inspections

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115.801 Notice of inspection deficiencies and requirements.
115.802 Hull.
115.804 Machinery.
115.806 Electrical.
115.808 Lifesaving.
115.810 Fire protection.
115.812 Pressure vessels and boilers.
115.814 Steering systems.
115.816 Miscellaneous systems and equipment.
115.818 Sanitary inspection.
115.830 Unsafe practices.
115.840 Additional tests and inspections.

Subpart I—International Convention for Safety of Life at Sea, 1974, as Amended (SOLAS)

115.900 Applicability.
115.910 Passenger Ship Safety Certificate.
115.920 Exemptions.
115.930 Equivalents.

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 2103, 3306; 49 U.S.C. App. 1804; E.O. 11735, 38 FR 21243, 3 CFR, 1971–1975 Comp., p. 743; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—Certificate of Inspection

§ 115.100 When required.

(a) A vessel to which this subchapter applies may not be operated without having on board a valid U.S. Coast Guard Certificate of Inspection.

(b) Except as noted in § 115.114 of this part, each vessel inspected and certificated under the provisions of this subchapter must, when any passengers are aboard during the tenure of the certificate, be in full compliance with the terms of the certificate.

(c) If necessary to prevent delay of the vessel, a temporary Certificate of Inspection may be issued pending the issuance and delivery of the regular Certificate of Inspection. The temporary certificate must be carried in the same manner as the regular certificate and is considered the same as the regular Certificate of Inspection which it represents.

(d) A vessel on a foreign voyage between a port in the United States and a port in a foreign country, whose Certificate of Inspection expires during the voyage, may lawfully complete the voyage without a valid Certificate of Inspection provided the voyage is completed within 30 days of expiration and the certificate did not expire within 15 days of sailing on the foreign voyage from a U.S. port.

§ 115.103 Description.

The Certificate of Inspection issued to a vessel describes the vessel, the route(s) that it may travel, the minimum manning requirements, the survival and rescue craft carried, the minimum fire

extinguishing equipment and lifejackets required to be carried, the maximum number of passengers and total persons that may be carried, the number of passengers the vessel may carry in overnight accommodation spaces, the name of the owner and managing operator, any equivalences accepted or authorized by the Commandant or any Officer in Charge, Marine Inspection (OCMI) in accordance with § 114.540 or 114.550 of this subchapter and such other conditions of operations as may be determined by the cognizant OCMI.

§ 115.105 How to obtain or renew.

(a) A Certificate of Inspection is obtained or renewed by making application on Form CG 3752, ''Application for Inspection of U.S. Vessel,'' to the Coast Guard OCMI of the marine inspection zone in which the inspection is to be made. Form CG–3752 may be obtained at any U.S. Coast Guard Marine Safety Office or Marine Inspection Office.

(b) The application for initial inspection of a vessel being newly constructed or converted must be submitted prior to the start of the construction or conversion.

(c) The construction, arrangement, and equipment of each vessel must be acceptable to the cognizant OCMI as a prerequisite of the issuance of the initial Certificate of Inspection. Acceptance is based on the information, specifications, drawings and calculations available to the OCMI, and on the successful completion of an initial inspection for certification.

(d) A Certificate of Inspection is renewed by the issuance of a new Certificate of Inspection.

(e) The condition of the vessel and its equipment must be acceptable to the cognizant OCMI as a prerequisite to the Certificate of Inspection renewal. Acceptance is based on the condition of the vessel as found at the periodic inspection for certification.

§ 115.107 Period of validity.

(a) A Certificate of Inspection is issued for a period of three years.

(b) A Certificate of Inspection may be suspended and withdrawn or revoked by the cognizant OCMI at any time for noncompliance with the requirements of this subchapter.

§ 115.110 Routes permitted.

(a) The area of operation for each vessel and any necessary operational limits are determined by the cognizant OCMI, and recorded on the vessel's Certificate of Inspection. Each area of operation, referred to as a route, is described on the Certificate of Inspection under the major headings ''Oceans,'' ''Coastwise,'' ''Limited Coastwise,'' ''Great Lakes,'' ''Lakes, Bays, and Sounds,'' or ''Rivers,'' as applicable. Further limitations imposed or extensions granted are described by reference to bodies of waters, geographical points, distance from geographical points, distances from land, depths of channel, seasonal limitations, and similar factors.

(b) Operation of a vessel on a route of lesser severity than those specifically described or designated on the Certificate of Inspection is permitted unless expressly prohibited on the certificate of Inspection. The general order of severity of routes is: oceans, coastwise, limited coastwise, Great Lakes, lakes, bays, and sounds, and rivers. The cognizant OCMI may prohibit a vessel from operating on a route of lesser severity than the primary route a vessel is authorized to operate on if local conditions necessitate such a restriction.

(c) Non-self-propelled vessels are prohibited from operating on an oceans, coastwise, limited coastwise, or Great Lakes route unless the Commandant approves such a route.

(d) When designating a permitted route or imposing any operational limits on a vessel, the OCMI may consider:

(1) Requirements of this subchapter for which compliance is based on the route of the vessel;

(2) The performance capabilities of the vessel based on design, scantlings, stability, subdivision, propulsion, speed, operating modes, maneuverability, other characteristics; and

(3) The suitability of the vessel for night-time operations and use in all weather conditions.

§ 115.112 Total persons permitted.

The cognizant OCMI determines the total number of persons permitted to be carried on a vessel. In determining the total number of persons permitted to be carried, the OCMI may consider stability restrictions and subdivision requirements of the vessel, the vessel's route, general arrangement, means of escape, lifesaving equipment, the minimum manning requirements, and the maximum number of passengers permitted in accordance with § 115.113 of this part.

§ 115.113 Passengers permitted.

(a) The maximum number of passengers permitted must be not more than that allowed by the requirements of this section, except as authorized by the OCMI under paragraph (d) of this section.

(b) The maximum number of passengers permitted on any vessel may be the greatest number permitted by the length of rail criterion, deck area criterion, or fixed seating criterion described in this paragraph or a combination of these criteria as allowed by paragraph (c) of this section.

(1) *Length of rail criterion.* One passenger may be permitted for each 760 millimeters (30 inches) of rail space available to the passengers at the periphery of each deck. The following rail space may not be used in determining the maximum number of passengers permitted:

(i) Rail space in congested areas unsafe for passengers, such as near anchor handling equipment or line handling gear, in the way of sail booms, running rigging, or paddle wheels, or along pulpits;

(ii) Rail space on stairways; and

(iii) Rail space where persons standing in the space would block the line of vision of the licensed individual operating the vessel.

(2) *Deck area criterion.* One passenger may be permitted for each 0.9 square meters (10 square feet) of deck area available for the passengers' use. In computing such deck area, the areas occupied by the following must be excluded:

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

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

(iii) Toilets and washrooms;

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

(v) Spaces below deck that are unsuitable for passengers or that would not normally be used by passengers;

(vi) Interior passageways less than 840 millimeters (34 inches) wide and passageways on open deck, less than 710 millimeters (28 inches) wide;

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

(viii) Deck areas in way of paddle wheels; and

(ix) Aisle area provided in accordance with § 116.820(d) of this chapter.

(3) *Fixed seating criterion.* One passenger may be permitted for each 455 millimeter (18 inches) of width of fixed seating provided by § 116.820 of this chapter. Each sleeping berth in

overnight accommodation spaces shall be counted as only one seat.

(c) Different passenger capacity criteria may be used on each deck of a vessel and added together to determine the total passenger capacity of that vessel. Where seats are provided on part of a deck and not on another, the number of passengers permitted on a vessel may be the sum of the number permitted by the seating criterion for the space having seats and the number permitted by the deck area criterion for the space having no seats. The length of rail criterion may not be combined with either the deck area criterion or the fixed seating criterion when determining the maximum number of passengers permitted on an individual deck.

(d) For a vessel operating on short runs on protected waters such as a ferry, the cognizant OCMI may give special consideration to increases in passenger allowances.

§ 115.114 Alternative requirements for a vessel operating as other than a small passenger vessel.

(a) When authorized by the cognizant OCMI by an endorsement of the vessel's Certificate of Inspection, a small passenger vessel carrying six or less passengers, or operating as a commercial fishing vessel or other uninspected vessel, or carrying less than twelve passengers and operating as a recreational vessel, need not meet requirements of:

(1) Subparts C, D, and E, of Part 117 of this chapter if the vessel is in satisfactory compliance with the lifesaving equipment regulations for an uninspected vessel or recreational vessel in similar service;

(2) Subpart C of Part 116 of this chapter and subchapter S of this chapter if the vessel is in satisfactory compliance with applicable regulations for an uninspected vessel or recreational vessel in a similar service or if the owner of the vessel otherwise establishes to the satisfaction of the cognizant OCMI that the vessel is seaworthy for the intended service; and

(3) Sections 121.404, 121.408, and 121.410 of this subchapter providing the vessel is in satisfactory compliance with any navigational equipment requirements for an uninspected or recreational vessel in a similar service.

(b) A vessel operating under the alternative regulations of paragraph (a) of this section must:

(1) Not alter the arrangement of the vessel nor remove any equipment required by the certificate for the intended operation, without the consent of the congnizant OCMI;

(2) Comply with minimum manning specified on the Certificate of Inspection, which may include reduced manning depending on the number of passengers and operation of the vessel;

(3) When carrying from one to six passengers except for a vessel being operated as a recreational vessel, make the announcement required by § 122.506(a) of this subchapter before getting underway; and

(4) If a vessel of more than 15 gross tons, not carry freight for hire.

(c) The endorsement issued under paragraph (a) of this section must indicate the route, maximum number of passengers, and the manning required to operate under the provisions of this section.

§ 115.120 Certificate of Inspection amendment.

(a) An amended Certificate of Inspection may be issued at any time by any OCMI. The amended Certificate of Inspection replaces the original, but the expiration date remains the same as that of the original. An amended Certificate of Inspection may be issued to authorize and record a change in the dimensions, gross tonnage, owner, managing operator, manning, persons permitted, route permitted, conditions of operations, or equipment of a vessel, from that specified in the current Certificate of Inspection.

(b) A request for an amended Certificate of Inspection must be made to the cognizant OCMI by the owner or managing operator of the vessel at any time there is a change in the character of a vessel or in its route, equipment, ownership, operation, or other similar factors specified in its current Certificate of Inspection.

(c) The OCMI may require an inspection prior to the issuance of an amended Certificate of Inspection.

Subpart B—Special Permits and Certificates

§ 115.202 Permit to proceed.

(a) When a vessel is not in compliance with its Certificate of Inspection or fails to comply with a regulation of this subchapter, the cognizant OCMI may permit the vessel to proceed to another port for repair if, in the judgment of the OCMI, the trip can be completed safely, even if the Certificate of Inspection of the vessel has expired or is about to expire.

(b) Form CG–948, ''Permit to Proceed to another Port for Repairs,'' may be issued by the cognizant OCMI to the owner, managing operator, or the master of the vessel stating the conditions under which the vessel may proceed to another port. The permit may be issued only upon the written application of the owner, managing operator, or master, and after the vessel's Certificate of Inspection is turned over to the OCMI.

(c) A vessel may not carry passengers when operating in accordance with a permit to proceed, unless the cognizant OCMI determines that it is safe to do so.

§ 115.204 Permit to carry excursion party.

(a) The cognizant OCMI may permit a vessel to engage in a temporary excursion operation with a greater number of persons or on a more extended route, or both, than permitted by its Certificate of Inspection when, in the opinion of the OCMI, the operation can be undertaken safely.

(b) Upon the written application of the owner or managing operator of the vessel, the cognizant OCMI may issue a Form CG–949, ''Permit to Carry Excursion Party.'' to indicate his or her permission to carry an excursion party. The OCMI will indicate on the permit the conditions under which it is issued, the number of persons the vessel may carry, the crew required, any additional lifesaving or safety equipment required, the route for which the permit is granted, and the dates on which the permit is valid.

(c) The number of passengers normally permitted on an excursion vessel is governed by § 115.113 of this part.

(d) The OCMI will not normally waive applicable minimum safety standards when issuing an excursion permit. In particular, a vessel that is being issued an excursion permit will normally be required to meet the minimum stability, survival craft, life jacket, fire safety, and manning standards applicable to a vessel in the service for which the excursion permit is requested

(E) The permit acts as a temporary, limited duration supplement to the vessel's Certificate of Inspection and must be carried with the Certificate of Inspection. A vessel operating under a permit to carry an excursion party must be in full compliance with the terms of its Certificate of Inspection as supplemented by the permit.

(f) The OCMI may require an inspection prior to the issuance of a permit to carry an excursion party.

Subpart C—Posting of Certificates, Permits, and Stability Letters

§ 115.302 Certificates and permits.

The Certificate of Inspection and any SOLAS Certificates must be posted under glass or other suitable transparent material, such that all pages are visible, in a conspicuous place on the vessel

where observation by passengers is likely. If posting is impracticable, such as on open boats, the certificates must be kept on board in a weathertight container readily available for use by the crew and for display to passengers and others on request.

§ 115.306 Stability letter.

When, in accordance with § 170.120 in subchapter S of this chapter, a vessel must be provided with a stability letter, the stability letter must be posted under glass or other suitable transparent material, such that all pages are visible, at the operating station of the vessel. If posting is impracticable, the stability letter must be kept on board in a weathertight container readily available for use by the crew and for display to passengers and others on request.

§ 115.310 Certification expiration date stickers.

(a) A Certification Expiration Date Sticker indicates the date upon which the vessel's Certificate of Inspection expires and is provided by the cognizant OCMI in the number required, upon issuance or renewal of the Certificate of Inspection.

(b) A vessel that is issued a Certificate of Inspection under the provisions of this subchapter must not be operated without a valid Certification Expiration Date Sticker affixed to the vessel on a place that is:

(1) A glass or other smooth surface from which the sticker may be removed without damage to the vessel:

(2) Readily visible to each passenger prior to boarding the vessel and to patrolling Coast Guard law enforcement personnel; and

(3) Acceptable to the Coast Guard marine inspector.

(c) The Coast Guard marine inspector may require the placement of more than one sticker in order to insure compliance with paragraph (b)(2) of this section.

Subpart D—Inspection for Certification

§ 115.400 General.

(a) An inspection is required before the issuance of a Certificate of Inspection. Such an inspection for certification is not made until after receipt of the application for inspection required by § 115.105 of this part.

(b) Upon receipt of a written application for inspection, the cognizant OCMI assigns a marine inspector to inspect the vessel for compliance with this subchapter at a time and place mutually agreed upon by the OCMI and the owner, managing operator, or representative thereof.

(c) The owner, managing operator, or a representative thereof shall be present during the inspection.

§ 115.402 Initial inspection for certification.

(a) Before construction or conversion of a vessel intended for small passenger vessel service, the owner of the vessel shall submit plans, manuals, and calculations indicating the proposed arrangement, construction, and operations of the vessel, to the Marine Safety Center for approval. The plans, manuals, and calculations required to be submitted and the disposition of these plans are set forth in Part 116, Subpart B of this subchapter.

(b) The initial inspection is conducted to determine that the vessel and its equipment comply with applicable regulations and that the vessel was built or converted in accordance with approved plans, manuals, and calculations. Additionally, during the inspection, the materials, workmanship, and condition of all parts of the vessel and its machinery and equipment may be checked to determine if the vessel is satisfactory in all respects for the service intended.

(c) The owner or managing operator of a vessel shall ensure that the vessel complies with the laws and regulations applicable to the vessel and that the vessel is otherwise satisfactory for the intended service. The initial inspection may include an inspection of the following items:

(1) The arrangement, installation, materials, and scantlings of the structure including the hull and superstructure, yards, masts, spars, rigging, sails, piping, main and auxiliary machinery, pressure vessels, steering apparatus, electrical installations, fire resistant construction materials, lifesaving appliances, fire detecting and extinguishing equipment, pollution prevention equipment, and all other equipment;

(2) Arrangement and means of emergency egress;

(3) Sanitary conditions and fire hazards; and

(4) Certificates and operating manuals, including certificates issued by the Federal Communications Commission.

(d) During an initial inspection for certification the owner or managing operator shall conduct all tests and make the vessel available for all applicable inspections discussed in this paragraph, and in Subpart H of this part, as applicable, to the satisfaction of the cognizant OCMI, including the following:

(1) The installation of each rescue boat, liferaft, inflatable buoyant apparatus, and launching appliance as listed on its Certificate of Approval (Form CGHQ–10030).

(2) The operation of each rescue boat and survival craft launching appliance required by Part 117 of this subchapter.

(3) Machinery, fuel tanks, and pressure vessels required by Part 119 of this subchapter.

(4) A stability test when required by § 170.175 in subchapter S of this chapter.

(5) Watertight bulkheads as required by Subchapter S of this chapter.

(6) Firefighting systems as required by Part 118 of this subchapter.

(7) The operation of all smoke and fire detecting systems, fire alarms and sensors, and fire confining appliances (such as fire screen doors and fire dampers).

§ 115.404 Subsequent inspections for certification.

An inspection for renewal of a Certificate of Inspection normally includes inspection and testing of the structure, machinery, equipment, and on a sailing vessel, rigging and sails. The owner or managing operator shall conduct all tests as required by the marine inspector, and make the vessel available for all specific inspections and drills required by Subpart H of this part. In addition, the OCMI may require the vessel to get underway as part of the inspection for certification. The inspection is conducted to determine if the vessel is in satisfactory condition, fit for the service intended, and complies with the applicable regulations in this subchapter.

Subpart E—Reinspection

§ 115.500 When required.

(a) The owner or managing operator shall make a vessel available for reinspections within 60 days of each anniversary of the date of issuance of the Certificate of Inspection during each triennial inspection period. The owner or managing operator shall contact the cognizant OCMI to arrange for a reinspection to be conducted at a time and place acceptable to the OCMI.

(b) In addition to the requirements of paragraph (a) of this section, a reinspection may be made at such other times as may be required by the cognizant OCMI.

§ 115.502 Scope.

In general, the scope of the reinspection is the same as the inspection for certification but in less detail unless it is determined that a

major change has occurred since the last inspection for certification.

Subpart F—Hull and Tailshaft Examinations

§ 115.600 Drydock and internal structural examination intervals.

(a) The owner or managing operator shall make a vessel available for drydock examinations and internal structural examinations required by this section.

(b) A vessel making an international voyage must undergo a drydock examination and an internal structural examination at least once every 12 months. If the vessel becomes due for a drydock examination or an internal structural examination during the voyage, it may lawfully complete the voyage prior to the examination if it undergoes the required examination upon completion of the voyage to the United States but not later than 30 days after the examination is due. If the vessel is due for an examination within 15 days of sailing on an international voyage from a United States port, it must undergo the required examination before sailing.

(c) Except as provided in paragraph (d) of this section, a vessel not making an international voyage must undergo a drydock examination and an internal structural examination as follows:

(1) A vessel that is exposed to salt water more than three months in any 12 month period since the last examination must undergo a drydock examination and an internal structural examination at least once every two years; and

(2) A vessel that is exposed to salt water not more than three months in any 12 month period since the last examination must undergo a drydock examination and an internal structural examination at least once every five years.

(d) Whenever damage or deterioration to hull plating or structural members that may affect the seaworthiness of a vessel is discovered or suspected, the cognizant OCMI may conduct an internal structural examination in any affected space, including fuel tanks, and may require the vessel to be drydocked or taken out of service to assess the extent of the damage, and to effect permanent repairs. The OCMI may also decrease the drydock examination intervals to monitor the vessel's structural condition.

§ 115.610 Scope of drydock and internal structural examinations.

(a) A drydock examination conducted in compliance with § 115.600 of this part must be conducted while the vessel is hauled out of the water or placed in a drydock or slipway. During the examination all accessible parts of the vessel's underwater body and all through hull fittings, including the hull plating, appendages, propellers, shafts, bearings, rudders, sea chests, sea valves, and sea strainers shall be made available for examination. Sea chests, sea valves, and sea strainers must be opened for examination.

(b) An internal structural examination conducted in compliance with § 115.600 of this part may be conducted while the vessel is afloat or out of the water and consists of a complete examination of the vessel's main strength members, including the major internal framing, the hull plating, voids, and ballast, cargo, and fuel oil tanks. Where the internal framing or plating of the vessel is concealed, sections of the lining, ceiling or insulation may be removed or the parts otherwise probed or exposed so that the inspector may be satisfied as to the condition of the hull structure. 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.

§ 115.612 Notice and plans required.

(a) The owner or managing operator shall notify the cognizant OCMI as far in advance as possible whenever a vessel is to be hauled out or placed in a drydock or slipway in compliance with § 115.600 of this part or to undergo repairs or alterations affecting the safety of the vessel, together with the nature of any repairs or alterations contemplated. Hull repairs or alterations that affect the safety of the vessel include but are not limited to the replacement, repair, or refastening of planking, plating, or structural members, including the repair of cracks in the hull.

(b) Whenever a vessel is hauled out or placed in a drydock or slipway in excess of the requirements of this subpart for the purpose of maintenance, such as changing a propeller, painting, or cleaning the hull, no report need be made to the cognizant OCMI.

(c) The owner or managing operator of each vessel that holds a Load Line Certificate shall make plans showing the vessel's scantlings available to the Coast Guard marine inspector whenever the vessel undergoes a drydock examination or internal structural examination or whenever repairs or alterations affecting the safety or seaworthiness of the vessel are made to the vessel's hull.

§ 115.630 Tailshaft examinations.

(a) The marine inspector may require any part or all of the propeller shafting to be drawn for examination of the shafting and stern bearing of a vessel whenever the condition of the shafting and bearings are in question.

(b) The marine inspector may conduct a visual examination and may require nondestructive testing of the propeller shafting whenever the condition of shafting is in question.

§ 115.670 Extension of examination intervals.

The intervals between drydock examinations and internal structural examinations specified in § 115.600 of this part may be extended by the cognizant OCMI or Commandant.

Subpart G—Repairs and Alterations

§ 115.700 Permission for repairs and alterations.

(a) Repairs or alterations to the hull, machinery, or equipment that affect the safety of the vessel must not be made without the approval of the cognizant OCMI, except during an emergency. When repairs are made during an emergency, the owner, managing operator, or master shall notify the OCMI as soon as practicable after such repairs or alterations are made. Repairs or alterations that affect the safety of the vessel include, but are not limited to, the: replacement, repair, or refastening of deck or hull planking, plating, and structural members; repair of plate or frame cracks; damage repair or replacement, other than replacement in kind, of electrical wiring, fuel lines, tanks, boilers and other pressure vessels, and steering, propulsion and power supply systems; alterations affecting stability; and repair or alteration of livesaving, fire detecting, or fire extinguishing equipment.

(b) The owner or managing operator shall submit drawings, sketches, or written specifications describing the details of any proposed alterations to the cognizant OCMI. Proposed alterations must be approved by the OCMI before work is started.

(c) Drawings are not required to be submitted for repairs or replacements in kind.

(d) The OCMI may require an inspection and testing whenever a repair or alteration is undertaken.

§ 115.702 Installation tests and inspections.

Whenever a launching appliance, survival craft, rescue boat, fixed gas fire extinguishing system, machinery, fuel tank, or pressure vessel is installed aboard a vessel after completion of the initial inspection for certification of the vessel, as replacement equipment or as a new installation, the owner or

managing operator shall conduct the tests and make the vessel ready for the inspections required by § 115.402(d) of this part to the satisfaction of the cognizant OCMI.

§ 115.704 Breaking of safety valve seals.

The owner, managing operator, or master shall notify the cognizant OCMI as soon as practicable after the seal on a boiler safety valve on a vessel is broken.

§ 115.710 Inspection and testing prior to hot work.

(a) An inspection for flammable or combustible gases must be conducted by a certified marine chemist or other person authorized by the cognizant OCMI in accordance with the provisions of National Fire Protection Association (NFPA) 306, ''Control of Gas Hazards on Vessels,'' before alterations, repairs, or other operations involving riveting, welding, burning, or other fire producing actions may be made aboard a vessel:

(1) Within or on the boundaries of fuel tanks; or

(2) To pipelines, heating coils, pumps, fittings, or other appurtenances connected to fuel tanks.

(b) An inspection required by paragraph (a) of this section must be conducted as required by this paragraph.

(1) In ports or places in the United States or its territories and possessions, the inspection must be conducted by a marine chemist certificated by the NFPA. However, if the services of a certified marine chemist are not reasonably available, the cognizant OCMI, upon the recommendation of the vessel owner or managing operator, may authorize another person to inspect the vessel. If the inspection indicates that the operations can be undertaken safely, a certificate setting forth this fact in writing must be issued by the certified marine chemist or the authorized person before the work is started. The certificate must include any requirements necessary to reasonably maintain safe conditions in the spaces certified throughout the operation, including any precautions necessary to eliminate or minimize hazards that may be present from protective coatings or residues from cargoes.

(2) When not in a port or place in the United States or its territories and possessions, and when a marine chemist or person authorized by the cognizant OCMI is not reasonably available, the master shall conduct the inspection and enter the results of the inspection in the vessel's logbook.

(c) The owner, managing operator, or master shall obtain a copy of certificates issued by the certified marine chemist or the other person authorized by the cognizant OCMI, and shall ensure that all conditions on the certificates are observed and that the vessel is maintained in a safe condition. The owner, managing operator, or master shall maintain a safe condition on the vessel by requiring full observance, by persons under his or her control, of all requirements listed in the certificate.

Subpart H—Material Inspections

§ 115.800 Inspection standards.

(a) A vessel is inspected for compliance with the standards required by this subchapter. Machinery, equipment, materials, and arrangements not covered by standards in this subchapter may be inspected in accordance with standards acceptable to the cognizant OCMI as good marine practice.

(b) In the application of inspection standards due consideration must be given to the hazards involved in the operation permitted by a vessel's Certificate of Inspection. Thus, the standards may vary in accordance with the vessel's area of operation or any other operational restrictions or limitations.

(c) The published standards of classification societies and other recognized safety associations may be used as guides in the inspection of vessels when such standards do not conflict with the requirements of this subchapter.

§ 115.801 Notice of inspection deficiencies and requirements.

(a) If during the inspection of a vessel, the vessel or its equipment is found not to conform to the requirements of law or the regulations in this subchapter, the marine inspector will point out deficiencies observed and discuss all requirements with the owner, managing operator, or a representative thereof. Normally, the marine inspector will list all such requirements that have not been completed and present the list to the owner, managing operator, or a representative thereof. However, when a deficiency presents a serious safety hazard to the vessel or it's passengers or crew, and exists through negligence or willful noncompliance, the marine inspector may issue a Report of Violation (ROV) to the owner, managing operator, or a representative thereof.

(b) In any case where further clarification of or reconsideration of any requirement placed against the vessel is desired, the owner, managing operator, or a representative thereof, may discuss the matter with the cognizant OCMI.

§ 115.802 Hull.

(a) At each initial and subsequent inspection for certification of a vessel, the owner or managing operator shall be prepared to conduct tests and have the vessel ready for inspections of the hull structure and its appurtenances, including the following:

(1) Inspection of all accessible parts of the exterior and interior of the hull, the watertight bulkheads, and weather decks;

(2) Inspection and operation of all watertight closures in the hull, decks, and bulkheads including through hull fittings and sea valves;

(3) Inspection of the condition of the superstructure, masts, and similar arrangements constructed on the hull, and on a sailing vessel all spars, standing rigging, running rigging, blocks, fittings, and sails;

(4) Inspection of all railings and bulwarks and their attachment to the hull structure;

(5) Inspection to ensure that guards or rails are provided in dangerous places;

(6) Inspection and operation of all weathertight closures above the weather deck and the provisions for drainage of sea water from the exposed decks; and

(7) Inspection of all interior spaces to ensure that they are adequately ventilated and drained, and that means of escape are adequate and properly maintained.

(b) The vessel must be afloat for at least a portion of the inspection as required by the marine inspector.

(c) When required by the marine inspector, a portion of the inspection must be conducted while the vessel is underway so that the working of the hull can be observed.

§ 115.804 Machinery.

At each initial and subsequent inspection for certification of a vessel, the owner or managing operator shall be prepared to conduct tests and have the vessel ready for inspections of machinery, fuel, and piping systems, including the following:

(a) Operation of the main propulsion machinery both ahead and astern;

(b) Operational test and inspection of engine control mechanisms including primary and alternate means of starting machinery;

(c) Inspection of all machinery essential to the routine operation of the vessel including generators and cooling systems;

(d) External inspection of fuel tanks and inspection of tank vents, piping, and pipe fittings;

(e) Inspection of all fuel systems;

(f) Operational test of all valves in fuel lines by operating locally and at remote operating positions;

(g) Operational test of all overboard discharge and intake valves and watertight bulkhead pipe penetration valves;

(h) Operational test of the means provided for pumping bilges; and

(i) Test of machinery alarms including bilge high level alarms.

§ 115.806 Electrical.

At each initial and subsequent inspection for certification of a vessel, the owner or managing operator shall be prepared to conduct tests and have the vessel ready for inspection of electrical equipment and systems, including the following:

(a) Inspection of all cable as far as practicable without undue disturbance of the cable or electrical apparatus;

(b) Test of circuit breakers by manual operation;

(c) Inspection of fuses including ensuring the ratings of fuses are suitable for the service intended;

(d) Inspection of rotating electrical machinery essential to the routine operation of the vessel;

(e) Inspection of all generators, motors, lighting fixtures and circuit interrupting devices located in spaces or areas that may contain flammable vapors;

(f) Inspection of batteries for condition and security of stowage;

(g) Operational test of electrical apparatus, which operates as part of or in conjunction with a fire detection or alarm system installed on board the vessel, by simulating, as closely as practicable, the actual operation in case of fire; and

(h) Operational test of all emergency electrical systems.

§ 115.808 Lifesaving.

(a) At each initial and subsequent inspection for certification of a vessel, the owner or managing operator shall be prepared to conduct tests and have the vessel ready for inspection of lifesaving equipment and systems, including the following:

(1) Tests of each rescue boat and each rescue boat launching appliance and survival craft launching appliance in accordance with § 71.25–15 in subchapter H (Passenger Vessels) of this chapter;

(2) Inspection of each lifejacket, work vest, and marine buoyant device;

(3) If used, inspection of the passenger safety orientation cards or pamphlets allowed by § 122.506(b) of this subchapter;

(4) Inspection of each inflatable liferaft and inflatable lifejacket to determine that it has been serviced as required by § 122.730 of this subchapter; and

(5) Inspection of each hydrostatic release unit to determine that it is in compliance with the servicing and usage requirements of § 122.740 of this subchapter.

(b) Each item of lifesaving equipment determined by the marine inspector to not be in serviceable condition must be repaired or replaced.

(c) Each item of lifesaving equipment with an expiration date on it must be replaced if the expiration date has passed.

(d) The owner or managing operator shall destroy, in the presence of the marine inspector, each lifejacket, other personal flotation device, and other lifesaving device found to be defective and incapable of repair.

(e) At each initial and subsequent inspection for certification of a vessel, the vessel must be equipped with an adult size lifejacket for each person authorized. The vessel must also be equipped with child size lifejackets equal to at least:

(1) 10 percent of the maximum number of passengers permitted to be carried unless children are prohibited from being carried aboard the vessel; or

(2) 5 percent of the maximum number of passengers permitted to be carried if all extended size lifejackets are provided.

(f) Life jackets, work vests, and marine buoyant devices may be marked with the date and marine inspection zone to indicate that they have been inspected and found to be in serviceable condition by a marine inspector.

(g) At each initial and subsequent inspection for certification, the marine inspector may require that an abandon ship or man overboard drill be held under simulated emergency conditions specified by the inspector.

§ 115.810 Fire protection.

(a) At each initial and subsequent inspection for certification, the owner or managing operator shall be prepared to conduct tests and have the vessel ready for inspection of its fire protection equipment, including the following:

(1) Inspection of each hand portable fire extinguisher, semiportable fire extinguisher, and fixed gas fire extinguishing system to check for excessive corrosion and general condition;

(2) Inspection of piping, controls, and valves, and the inspection and testing of alarms and ventilation shutdowns, for each fixed gas fire extinguishing system and detecting system to determine that the system is in operating condition;

(3) Operation of the fire main system and checking of the pressure at the most remote and highest outlets;

(4) Testing of each firehose to a test pressure equivalent to its maximum service pressure;

(5) Checking of each cylinder containing compressed gas to ensure it has been tested and marked in accordance with § 147.60 in subchapter N of this chapter;

(6) Testing or renewal of flexible connections and discharge hoses on semiportable extinguishers and fixed gas extinguishing systems in accordance with § 147.65 in subchapter N of this chapter; and

(7) Inspection and testing of smoke and fire detecting systems (including sensors and alarms) and fire confining appliances (such as fire screen doors and fire dampers).

(b) The owner, managing operator, or a qualified servicing facility as applicable shall conduct the following inspections and tests:

(1) For portable fire extinguishers, the inspections, maintenance procedures and hydrostatic pressure tests required by Chapter 4 of NFPA 10, ''Portable Fire Extinguishers,'' with the frequency specified by NFPA 10. In addition, carbon dioxide and halon portable fire extinguishers must be refilled when the net content weight loss exceeds that specified for fixed systems by Table 115.810(b). The owner or managing operator shall provide satisfactory evidence of the required servicing to the marine inspector. If any of the equipment or records have not been properly maintained, a qualified servicing facility may be required to perform the required inspections, maintenance procedures, and hydrostatic pressure tests. A tag issued by a qualified servicing organization, and attached to each extinguisher, may be accepted as evidence that the necessary maintenance procedures have been conducted.

(2) For semiportable and fixed gas fire extinguishing systems, the inspections and tests required by Table 115.810(b), in addition to the tests required by §§ 147.60 and 147.65 in subchapter N of this chapter. The owner or managing operator shall provide satisfactory evidence of the required servicing to the marine inspector. If any of the equipment or records have not been properly maintained, a qualified servicing facility may be required to perform the required inspections, maintenance procedures, and hydrostatic pressure tests.

TABLE 115.810(b).—SEMIPORTABLE AND FIXED FIRE EXTINGUISHING SYSTEMS

Type system	Test
Carbon dioxide	Weigh cylinders. Recharge if weight loss exceeds 10% of weight of 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. Inspection hoses and nozzles to be sure they are clean.
Halon	Weigh cylinders. Recharge if weight loss exceeds 5% of weight of charge. If the system has a pressure gauge, also recharge if pressure loss (adjusted for temperature) exceeds 10%. 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 and nozzles to be sure they are clean.
Dry Chemical (cartridge operated).	Examine pressure cartridge and replace if end is punctured or if determined to have leaked or to be in unsuitable condition. Inspect hose and nozzle to see if they are clear. Insert charged cartridge. Ensure dry chemical is free flowing (not caked) and extinguisher contains full charge.
Dry chemical (stored pressure).	See that pressure gauge is in operating range. If not, or if the seal is broken, weigh or otherwise determine that extinguisher is fully charged with dry chemical. Recharge if pressure is low or if dry chemical is needed.
Foam (stored pressure)	See that pressure gauge, if so equipped, is in the operating range. If not, or if the seal is broken, weight or otherwise determine that extinguisher is fully charged with foam. Recharge if pressure is low or if foam is needed. Replace premixed agent every 3 years.
Clean Agents (Halon replacements).	(To be developed).

(c) The owner, managing operator, or master shall destroy, in the presence of the marine inspector, each fire hose found to be defective and incapable of repair.

(d) At each initial and subsequent inspection for certification, the marine inspector may require that a fire drill be held under simulated emergency conditions to be specified by the inspector.

§ 115.812 Pressure vessels and boilers.

(a) Periodic inspection and testing requirements for pressure vessels are contained in § 61.10 in subchapter F of this chapter.

(b) Periodic inspection and testing requirements for boilers are contained in § 61.05 in subchapter F of this chapter.

§ 115.814 Steering systems.

At each initial and subsequent inspection for certification the owner or managing operator shall be prepared to test the steering systems of the vessel and make them available for inspection to the extent necessary to determine that they are in suitable condition and fit for the service intended. Servo-type power systems, such as orbitrol systems, must be tested and capable of smooth operation by a single person in the manual mode, with hydraulic pumps secured.

§ 115.816 Miscellaneous systems and equipment.

At each initial and subsequent inspection for certification the owner or managing operator shall be prepared to test and make available for inspection all items in the ship's outfit, such as ground tackle, navigation lights and equipment, markings, and placards, which are required to be carried by the regulations in this subchapter, as necessary to determine that they are fit for the service intended.

§ 115.818 Sanitary inspection.

At each inspection for certification and at every other vessel inspection, quarters, toilet and washing spaces, galleys, serving pantries, lockers, and similar spaces may be examined to determine that they are serviceable and in a sanitary condition.

§ 115.830 Unsafe practices.

(a) At each inspection for certification and at every other vessel inspection all observed unsafe practices, fire hazards, and other hazardous situations must be corrected and all required guards and protective devices must be in satisfactory condition.

(b) At each inspection for certification and at every other vessel inspection the bilges and other spaces may be examined to see that there is no excessive accumulation of oil, trash, debris, or other matter that might create a fire hazard, clog bilge pumping systems, or block emergency escapes.

§ 115.840 Additional tests and inspections.

The cognizant OCMI may require that a vessel and its equipment undergo any additional test or inspection deemed reasonable and necessary to determine that the vessel and its equipment are suitable for the service in which they are to be employed.

Subpart I—International Convention for Safety of Life at Sea, 1974, as Amended (SOLAS)

§ 115.900 Applicability.

(a) Except as otherwise provided in this subpart, a mechanically propelled vessel of the United States, which carries more than 12 passengers on an international voyage must be in compliance with the applicable requirements of the International Convention for Safety of Life at Sea, 1974, as Amended (SOLAS), to which the United States Government is currently a party.

(b) SOLAS does not apply to a vessel solely navigating 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.

§ 115.910 Passenger Ship Safety Certificate.

(a) A vessel that carries more than 12 passengers on an international voyage must have a valid SOLAS Passenger Ship Safety Certificate. The Commandant issues the original SOLAS Passenger Ship Safety Certificate after receiving notification from the cognizant OCMI that the vessel complies with the applicable SOLAS regulations. Subsequent SOLAS Passenger Ship Safety Certificates are issued by the cognizant OCMI unless any changes to the vessel or its operations have occurred that changes the information on the certificate, in which case the Commandant will reissue the certificate.

(b) The route specified on the Certificate of Inspection and the SOLAS Passenger Ship Safety Certificate must agree.

(c) A SOLAS Passenger Ship Safety Certificate is issued for a period of not more than 12 months.

(d) The SOLAS Passenger Ship Safety Certificate may be withdrawn, revoked, or suspended at any time when the vessel is not in compliance with applicable SOLAS requirements.

§ 115.920 Exemptions.

(a) In accordance with Chapter I (General Provisions) Regulation 4, of SOLAS, the Commandant may exempt a vessel, which is not normally engaged on an international voyage but that in exceptional circumstances is required to undertake a single international voyage, from any of the requirements of SOLAS provided that the vessel complies with safety requirements that are adequate in the Commandant's opinion for the voyage that is to be undertaken.

(b) In accordance with Chapter II–1 (Construction—Subdivision and Stability, Machinery and Electrical Installations) Regulation 1, Chapter II–2 (Construction—Fire Protection, Fire Detection and Fire Extinction) Regulation 1, and Chapter III (Life Saving Appliances and Arrangements) Regulation 2 of SOLAS, the Commandant may exempt a vessel that does not proceed more than 20 miles from the nearest land from any of the specific requirements of Chapters II–1, II–2, and III of SOLAS if the Commandant determines that the sheltered nature and conditions of the voyage are such as to render the application of such requirements unreasonable or unnecessary.

(c) The Commandant may exempt a vessel from requirements of the regulations of SOLAS in accordance with paragraphs (a) and (b) of this section upon a written request from the owner or managing operator submitted to the Commandant via the cognizant OCMI.

(d) When the Commandant grants an exemption to a vessel in accordance with this section, the Commandant will issue the original SOLAS Exemption Certificate describing the exemption. Subsequent SOLAS Exemption Certificates are issued by the cognizant OCMI unless any changes to the vessel or its operations have occurred that changes the information on the SOLAS Exemption or Passenger Ship Safety Certificates, in which case the Commandant shall reissue the certificate. A SOLAS Exemption Certificate is not valid for longer than the period of the SOLAS Passenger Ship Safety Certificate to which it refers.

§ 115.930 Equivalents.

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

PART 116—CONSTRUCTION AND ARRANGEMENT

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Authority: 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 116.100 General requirements.

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

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

§ 116.115 Applicability to existing vessels.

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

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

Subpart B—Plans

§ 116.202 Plans and information required.

(a) Except as provided in § 116.210 of this part, the owner of a vessel requesting initial inspection for certification shall, prior to the start of construction, submit for approval to the Commanding Officer, U.S. Coast Guard Marine Safety Center (Marine Safety Center), 400 Seventh Street, SW., Washington, DC 20590–0001, three copies of the following plans:

(1) Outboard profile;

(2) Inboard profile; and

(3) Arrangement of decks.

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

(1) Midship section;

(2) Structural fire protection details;

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

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

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

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

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

(iii) Ventilation diagrams; and

(iv) Engine exhaust diagram;

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

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

(ii) Cable lists;

(iii) Bills of materials;

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

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

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

(vii) Type and capacity of storage batteries;

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

(ix) Electrical plant load analysis; and

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

(7) Lifesaving equipment locations and installation;

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

(i) Fire main system plans and calculations;

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

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

(iv) Sprinkler system diagram and calculations; and

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

(9) Fuel tanks;

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

(11) Hull penetrations and shell connections;

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

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

(14) On sailing vessels;

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

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

(c) For a vessel, the construction of which was begun prior to approval of the plans and information required by paragraphs (a) and (b) of this section, the cognizant OCMI may require any additional plans and information, manufacturers' certifications of construction, testing including reasonable destructive testing, and inspections, which the OCMI determines are necessary to verify that the vessel complies with the requirements of this subchapter.

§ 116.210 Plans for sister vessels.

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

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

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

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

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

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

Subpart C—Hull Structure

§ 116.300 Structural design.

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

(a) Steel hull vessels:

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

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

(b) Aluminum hull vessels:

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

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

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

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

§ 116.300 Sailing vessels.

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

§ 116.340 Alternate design considerations.

The Commanding Officer, Marine Safety Center, may approve the structure of a vessel of novel design, unusual form, or special materials, which does not meet the requirements of § 116.300, if it is shown by systematic analysis based on engineering principles that the vessel structure provides adequate safety and strength. An owner

seeking approval of an alternate design shall submit detailed plans, material component specifications, and design criteria, including the expected operating environment, resulting loads on the vessel, and design limitations for such a vessel, to the Marine Safety Center.

Supbart D—Fire Protection

§ 116.400 Application.

(a) This subpart applies to:

(1) Vessels carrying more than 150 passengers; or

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

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

§ 116.405 General arrangement and outfitting.

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

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

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

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

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

(f) *Nonmetallic piping in concealed spaces.* The use of short runs of nonmetallic (plastic) pipe within a concealed space in a control space, accommodation space, or service space is permitted in nonvital service only, provided it is not used to carry flammable liquids (including liquors of 80 proof or higher) and:

(1) Has flame spread rating of not more than 20 and a smoke developed rating of not more than 50 when filled with water and tested in accordance with American Society for Testing and Materials (ASTM) E–84 ''Test for Surface Burning Characteristics of Building Materials,'' or Underwriters Laboratories (UL) 723 ''Test for Surface Burning Characteristics of Building Materials,'' by an independent laboratory; or

(2) Has a flame spread rating of not more than 20 and a smoke developed rating of not more than 130 when empty and tested in accordance with ASTM E–84 or UL 723 by an independent laboratory.

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

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

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

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

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

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

§ 116.415 Fire control boundaries.

(a) *Type and construction of fire control bulkheads and decks.*

(1) Major hull structure—The hull, structural bulkheads, columns and stanchions, superstructures, and deckhouses must be composed of steel or equivalent material, except that where C'–Class construction is permitted by Tables 116.415(b) and (c), bulkheads and decks may be constructed of approved noncombustible materials.

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

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

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

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

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

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

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

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

(vi) C'-Class bulkheads and decks must be constructed of noncombustible materials and made intact with the main structure of the vessel, such as shell,

structural bulkheads, and decks, except that a C'-Class bulkhead need not extend above a continuous B-Class or C'-Class ceiling. C'-Class bulkheads must be constructed to prevent the passage of smoke between adjacent areas. Penetrations in C'-Class boundaries for electrical cables, pipes, trunks, ducts, etc. must be constructed so as to preserve the smoke-tight integrity of the boundary.

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

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

TABLE 116.415(b) BULKHEADS

Spaces	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Control Space (1)	B–0	A–0	A–0	A–0	A–15	A–60	A–0	A–60	A–60	A–60	A–0	A–0
Stairway (2)		C	A–0	A–0	A–0	A–60	A–0	A–15	A–15	A–15	A–0	A–0
Corridor (3)			C	A–0	B–0	A–0	B–0	A–0	A–0	A–0	A–0	A–0
Embarkation Station (4)				C	A–0	A–0	A–0	A–0	A–0	A–0	[1] C	C
Low Risk Accommodation (5)					B–0	A–15	[2] B–0	A–15	A–15	A–15	A–0	A–0
High Risk Accommodation (7)						A–60	[2] B–0	A–60	A–60	A–60	A–0	A–0
Low risk service spaces (8)							C	A–0	A–0	A–0	A–0	A–0
High risk service spaces (9)								[3] C	A–0	A–0	A–0	A–0
Machinery spaces (10)									C	A–0	A–0	A–0
Cargo spaces (11)										A–0	A–0	A–0
Voids, fuel and water tanks (12)											[2] C	[2] C
Open decks (not safety areas) (13)												C

[1] Boundaries of fuel tanks, auxiliary machinery spaces, and voids that contain a fire load in excess of .025 kPa (0.5 pounds per square foot) must be minimum A–0 Class construction.
[2] Toilet space boundaries may be reduced to C'-Class.
[3] C-Class bulkheads may be used between two similar spaces, such as between two storerooms; however, an A–0 Class bulkhead shall be used between two dissimilar spaces, such as a storeroom and a workshop.

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

TABLE 116.416(c).—DECKS

Space above	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Space below:												
Control Space (1)	A–0	A–0	A–15	A–0	A–0	A–30	A–0	A–0	A–0	A–0	A–0	A–0
Stairway (2)	A–0	C	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0
Corridor (3)	A–0	A–0	A–0	A–0	A–0	A–15	A–0	A–0	A–0	A–0	A–0	A–0
Embarkation Space (4)	A–0	A–0	A–0	C	A–0	A–0	A–0	A–0	A–0	A–0	C[1]	C
Low Risk Accommodation (5)	A–15	A–15	A–0	A–0	A–0	A–15	A–0	A–0	A–0	A–0	A–0	A–0
High Risk Accommodation (7)	A–60	A–60	A–60	A–30	A–15	A–60	A–0	A–0	A–0	A–0	A–0	A–0
Low risk service spaces (8)	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0	A–0
High risk service spaces (9)	A–60	A–30	A–30	A–30	A–15	A–60	A–0	A–0	A–0	A–0	A–0	A–0
Machinery spaces (10)	A–60	A–60	A–60	A–30	A–15	A–60	A–0	A–0	C	A–0	A–0	A–0
Cargo spaces (11)	A–60	A–30	A–30	A–30	A–15	A–60	A–0	A–0	A–0	A–0	A–0	A–0
Voids, fuel tanks and water tanks (12)	A–0	A–0	A–0	C[1]	A–0	A–0	A–0	A–0	A–0	A–0	C[1]	A–0
Open decks (not safety areas) (13)	A–0	A–0	A–0	C	A–0	A–0	A–0	A–0	A–0	A–0	A–0[1]	C

[1]Boundaries of fuel tanks, auxiliary machinery spaces, and voids that contain a fire load in excess of .025 kPa (0.5 pounds per square foot) must be minimum A–0 Class construction.

(d) *Main vertical zones.*

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

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

(ii) Must be constructed to:

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

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

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

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

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

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

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

(e) *Draft stops.* In concealed spaces above ceilings and between linings and the shell of a vessel, draft stops must be fitted not more than 13.7 meters (45 feet) apart in the horizontal direction

and at each deck level in the vertical direction unless otherwise permitted in paragraph (f). Draft stops must be of at least B-Class construction and be fitted in a vertical position.

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

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

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

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

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

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

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

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

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

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

(1) The overall thickness of the combustible veneer does not exceed 20 millimeters (.075 inches); and

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

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

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

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

§ 116.423 Furniture and furnishings.

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

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

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

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

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

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

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

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

§ 116.425 Deck coverings.

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

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

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

§ 116.427 Fire load of accommodation and service spaces.

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

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

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

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

§ 116.430 Insulation other than for structural fire protection.

(a) Combustible insulation may be used for pipe and machinery covering or lagging within a machinery space, or used in an individual refrigerator box if the refrigerator box was purchased with the insulation already installed.

(b) Except as allowed by paragraph (a) of this section, any insulation installed for purposes other than structural fire protection and all material incidental to its installation must be noncombustible or approved under § 164.009 in subchapter Q of this chapter. Surfacing material applied to such insulation must be noncombustible or may meet the requirements of § 116.422(c) of this part.

§ 116.433 Windows and air ports in fire control boundaries.

(a) Windows or air ports must be of tempered or laminated glass of at least 6.5 millimeters (0.25 inches) in thickness. The use of other glazing material such as polycarbonate sheets may be approved by the Commandant for specific installations.

(b) Windows or air ports in bulkheads adjacent to passageways must not extend below a point 910 millimeters (36 inches) above the deck unless storm rails, that are structurally independent of the glass, are fitted in the passageway.

(c) Windows or air ports in A-Class bulkheads must be fitted with frames of steel or equivalent material. Glazing beads or angles of steel or equivalent material must be installed to hold glass in place in windows or air ports in a fire control boundary in event of a fire if:

(1) Where a steel frame is used, it is not arranged to retain the glass in place; or

(2) A frame of aluminum or other material with low melting point is used.

(d) A window or air port that is adjacent to an embarkation station, escape route, or survival craft stowage must be:

(1) Of A-Class construction; or

(2) Fitted with shutters, operable from outside the space, of steel or equivalent material.

(e) A window installed in an internal fire control boundary must comply with the requirements of § 72.05–30 in subchapter H of this chapter, except that fire window frames and glazing material listed by Underwriters Laboratories may be used in B-Class bulkheads.

(f) Windows in doors in fire control boundaries must comply with the requirements of paragraphs (a) through (e) of this section.

§ 116.435 Doors.

(a) A door, other than a watertight door, must meet the requirements of this section.

(b) A door in a fire control boundary must meet the following requirements:

(1) A door in an accommodation space, stairway, staircase, or corredor must be oriented vertically;

(2) A door must be capable of operation from either side by one person;

(3) With the exception of staterooms, a door in an accommodation space, stairway, staircase, passageway, or control space must open in the direction of escape, where practicable;

(4) Combustible veneers may be used on doors subject to the same restrictions as the fire control boundary in which the doors are fitted;

(5) Door frames must be of rigid construction and provide at least a 12.7 millimeter (0.5 inch) overlap at the sides and top, except:

(i) Double doors capable of independent operation and latching may have a clearance between the doors of not more than 3.2 millimeters (0.125 inches). However, if one door must always be closed first, means shall be provided to ensure that the doors close in the proper order; and

(ii) A double swing door, may have a clearance of not more than 3.2 millimeters (0.125 inches) at the top and sides;

(6) The maximum width of an individual door must not exceed 1200 millimeters (48 inches); and

(7) Hose ports, if fitted, must be in the lower corner of the door opposite the hinge so a hose may pass through the doorway when the door is open and still allow the door to close over the hose. The hose port should be approximately 152 millimeters (6 inches) square. A self-closing hinged or pivoted steel or equivalent material cover must be fitted in the opening.

(c) Doors in A-Class fire control boundaries must meet the following additional requirements:

(1) A door in a bulkhead required to be A–60, A–30, or A–15 Class must be of hollow steel or equivalent material construction, solidly filled with approved structural insulation, and capable of meeting the requirements of an A–15 Class bulkhead;

(2) A door in a bulkhead required to be A–0 Class must be of solid or hollow steel or equivalent material construction, a capable of meeting the requirements of an A–0 Class bulkhead;

(3) A door must have a latch with a minimum throw of 20 millimeters (0.75 inches);

(4) A door must not have vent grilles or louvers;

(5) A door must not be undercut more than 12.7 millimeters (0.5 inches) above the door sill or deck covering. Rugs and carpets must not pass through doorways, but linoleum and similar deck coverings may;

(6) A door in a staircase, stairway, and main vertical zone bulkhead must meet the following additional requirements:

(i) A door must be of the self-closing type capable of closing against a 3.5 list of the vessel; and

(ii) Holdback hooks are not allowed. If installed, a hold back mechanism for a door must allow the door to be released:

(A) Locally:

(B) Upon a signal from a control space; and

(C) Upon disruption of the power system.

(7) Horizontal doors (doors installed in decks) are allowed only for access to spaces that are accessible only to crew members and are used only by crew members, subject to the following requirements:

(i) The door must be self-closing with a closure time of not less than 5 seconds and not more than 10 seconds, and be capable of closing against a 3.5 list of the vessel;

(ii) Holdback hooks are not allowed. If installed, a holdback mechanism for a door must allow the door to be released:

(A) Locally;

(B) Upon a signal from a control space; and

(C) Upon disruption of the power system.

(iii) The forces required to fully open the door must not exceed 17.8 Newtons (5 pounds) to release the latch, 44.5 Newtons (10 pounds) to set the door in motion, and 17.8 Newtons (5 pounds) to open the door to the width of the stairway; and

(iv) The door latch must be capable of keeping the door closed when a pressure of 0.07 kPa (0.01 psi) is applied to the underside of the door.

(8) Double swing doors must not be used in any bulkhead except between a food preparation space, such as a galley or pantry, and a messroom or dining room; and

(9) A door opening onto weather decks must meet the requirements of paragraphs (c)(1) or (c)(2) of this section or may be composed of hardwood of not less than 45 millimeters (1.75 inches) in thickness.

(d) Doors in B-Class fire control boundaries must meet the following requirements in addition to those in paragraph (b) of this section:

(1) A door must be of solid or hollow steel or equivalent material construction, or must be of noncombustible material and be

specifically approved by the Commandant;

(2) A door must have a latch with a minimum throw of 9.5 millimeters (0.375 inches); and

(3) A door must not be undercut more than 25 millimeters (1 inch) above the door sill or deck covering. Rugs and carpets must not pass through doorways but linoleum and similar coverings may.

(e) A door in a C-Class bulkhead must be of noncombustible material.

(f) A door used for decorative purposes, and that is not required to comply with paragraphs (b) through (e) of this section, must be constructed of noncombustible material or hardwood, must not interfere with the normal operation of the required doors, and must open in the same direction as the required doors. Decorative doors must not be used in stairways or stairtowers.

§ 116.438 Stairtowers, stairways, ladders, and elevators.

(a) *Materials.*

(1) Stairways, stairtowers, ladders, elevators, and landings must be designed with sufficient strength to sustain a load of 4.8 kPa (100 pounds per square foot) with a safety factor of 4, based on ultimate strength of the material;

(2) All stairways, ladders, elevators, and landings within machinery spaces and cargo holds must be composed of steel; and

(3) All stringers, treads, and all platforms and landings of all stairways shall be composed of steel, and risers must be of approved incombustible material, except that:

(i) Stairways, ladders, elevators, stringers, treads, platforms, and landings protected from potential fire exposure by being in either exterior locations or within protective enclosure bulkheads, decks and doors as described in the requirements of paragraph (j), may be constructed of approved incombustible material; and

(ii) All stairways, ladders, elevators, stringers, treads, platforms, and landings subject to potential fire exposure and not within a protective enclosure must be composed of steel unless their failure will not hinder fire fighter access or debarkation.

(b) A stairway or stairtower must be fitted with handrails on both sides at a vertical height above the tread at its nosing of between 840 and 910 millimeters (33 and 36 inches). A stairway or stairtower of more than 1,680 millimeters (66 inches) in width must also be fitted with a center handrail.

(c) A handrail fitted in a stairtower, stairway, landing, ladder, or elevator must be constructed of noncombustible material.

(d) A stairway or stairtower must be clear of all obstructions other than handrails.

(e) Curved, spiral, or winding stairways are permitted only with the specific approval of the Commandant.

(f) Differences in the depth of tread or height of riser of stairs in different flights of stairs in a stairway or stairtower must be minimized. In an individual flight of stairs in a stairway or stairtower, the depth of the tread and the height of riser shall not have a variance exceeding 5 millimeters (0.375 inches).

(g) In a stairway or stairtower, the sum of the riser height and tread depth must be at least 432 millimeters (17 inches) and not more than 455 millimeters (18 inches). A stairway or stairtower having treads less than 254 millimeters (10 inches) in depth must have a nosing of 12.7 millimeters (0.5 inches) in width.

(h) Landings for stairways and stairtowers must meet the following requirements:

(1) A clear landing having an area at least equal to the square of the tread width must be provided at the top and bottom of each stairway; and

(2) Any interruption or change of direction in a stairway must be accomplished by means of an intermediate landing of a width and length at least equal to the tread width of the stairway.

(i) A stairway or stairtower must not have an angle of inclination from the horizontal of more than 40 degrees. However, stairways accessing spaces visited solely by crew members must not have an angle of inclination from the horizontal of more than 50 degrees. The Commanding Officer, Marine Safety Center may approve higher angles of inclination for spaces with severe space constraints.

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

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

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

(2) Each stairtower must give access to the embarkation deck, or an area of refuge identified in the emergency escape plan required by § 116.520 of this part.

(3) Insofar as is reasonable and practicable, stairtowers shall not give direct access to cabins, service lockers, service spaces, machinery spaces, or other enclosed spaces in which a fire is likely to originate.

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

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

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

(iii) An alternative stairtower arrangement providing an equivalent level of safety is acceptable to the Commanding Officer, Marine Safety Center.

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

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

(m) The minimum tread width of a stairway or stairtower must be 8.4 millimeters (0.333 inches) for each person served, but must not be less than 910 millimeters (36 inches). However, in stairways accessing spaces utilized

solely by crew members, the minimum tread width must be 8.4 millimeters (0.333 inches) for each person served, but not less than 710 millimeters (28 inches).

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

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

(i) Passenger overnight accommodation spaces: Designed capacity;

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

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

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

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

(C) Toilets and washrooms;

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

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

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

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

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

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

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

§ 116.439 Balconies.

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

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

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

(d) If the equivalent main vertical zone length under paragraph (c) of this section exceeds 40 meters (131 feet), both decks connected by the balcony must be protected with an automatic sprinkler system meeting the requirements of § 76.25 in subchapter H of this chapter.

(e) If the unobstructed balcony area is less than 93 square meters (1,000 square feet), the opening must be protected in accordance with paragraph 4-5.3.4 of NFPA 13 ''Installation of Sprinkler Systems,'' or other standard specified by the Commandant. The horizontal projection area of stairs, escalators, statues, etc. shall be subtracted from the total balcony area for purposes of computation of unobstructed balcony area.

§ 116.440 Atriums.

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

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

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

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

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

(c) The entire main vertical zone containing an atrium must be protected with an automatic sprinkler system meeting the requirements of § 76.25 in subchapter H of this chapter.

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

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

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

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

Subpart E—Escape and Embarkation Station Requirements

§ 116.500 Means of escape.

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

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

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

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

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

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

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

(h) The maximum allowable travel distance from the most remote point in a space to the nearest means of escape must not be more than be 46 meters (150 feet).

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

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

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

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

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

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

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

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

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

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

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

(1) Does not lead directly overboard;

(2) Can be opened or it designated to be kicked or pushed out; and

(3) Is suitably marked.

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

(1) The maximum dimension (length, breadth, or depth) of a space is less than 3.6 meters (12 feet);

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

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

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

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

§ 116.510 Embarkation stations.

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

(b) Embarkation stations and approaches thereto must:

(1) Be areas that are easily traversed;

(2) be provided with handholds; and

(3) Be well illuminated.

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

§ 116.520 Emergency evacuation plan.

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

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

(b) Provide procedures for evacuating all affected spaces in the event of possible fire or flooding in the largest capacity passenger space in each main vertical zone, without abandoning the vessel, including:

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

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

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

§ 116.530 Fire control plan.

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

Subpart F—Ventilation

§ 116.600 Ventilation of enclosed and partially enclosed spaces.

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

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

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

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

§ 116.610 Ventilation ducts.

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

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

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

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

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

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

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

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

(3) A duct that is not steel must be fitted with a steel sleeve at each A-Class or B-Class fire control boundary penetrated. The sleeves must extend at least 455 millimeters (18 inches) on each side of the penetration and be of the same thickness required for steel ducts;

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

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

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

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

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

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

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

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

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

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

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

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

(i) A stairway or a staircase must not serve as an air return for another space.

(j) A duct in a bulkhead or overhead designed for the passage of air from one space to another (i.e., a ''jumper duct'') is prohibited.

(k) The use of concealed spaces as return ventilation plenums or ducts is prohibited. Ventilation air return must be by ducts.

§ 116.620 Ventilation of machinery and fuel tank spaces.

In addition to the requirements of this subpart, ventilation systems for spaces containing machinery or fuel tanks must comply with the requirements of Part 119 of this chapter.

Subpart G—Crew Spaces

§ 116.700 General requirements.

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

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

§ 116.710 Overnight accommodations.

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

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

A crew accommodation space on a vessel of more than 19.8 meters (65 feet) in length with overnight accommodations for more than 49 passengers must comply with §§ 72.20–10(a), (b), (d), and (e); 72.20–15; 72.20–20(c)(1); 72.20–25 (a) and (d) 72.20–30; 72.20–35; 72.20–45; 72.20–50; and 72.20–55 in subchapter H of this chapter.

Subpart H—Passenger Accommodations

§ 116.800 General requirements.

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

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

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

(d) A passenger accommodation space must not contain:

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

(2) A control for operating the vessel, unless the control is so protected and

located that operation of the vessel by a crew member will not be impeded by a passenger during normal or emergency operations.

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

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

§ 116.810 Overnight accommodations.

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

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

(c) The construction and arrangement of berths and other furniture must allow free and unobstructed access to each berth. Each berth must be immediately adjacent to an aisle leading to a means of escape from the accommodation space. As aisle alongside a berth must be at least 610 millimeters (24 inches) wide. An aisle joining two or more aisles in an overnight accommodation space must be at least 1,065 (42 inches) wide.

§ 116.820 Seating.

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

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

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

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

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

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

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

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

Subpart I—Rails and Guards

§ 116.900 Deck rails.

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

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

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

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

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

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

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

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

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

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

(i) Bulwarks;

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

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

(2) On a vessel subject to the 1966 International Convention on Load Lines, rail courses, or an equivalent, must be installed so that there is not an open space higher than 230 millimeters (9 inches) from the deck to the first rail course or equivalent.

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

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

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

§ 116.920 Storm rails.

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

§ 116.940 Guards in vehicle spaces.

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

§ 116.960 Guards for exposed hazards.

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

§ 116.970 Protection against hot piping.

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

Subpart J—Window Construction and Visibility

§ 116.1010 Safety glazing materials.

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

§ 116.1020 Strength.

Each window, port hole, and its means of attachment to the hull or deck

house, must be capable of withstanding the maximum load from wave and wind conditions expected due to its location on the vessel and the authorized route of the vessel.

§ 116.1030 Operating station visibility.

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

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

Subpart K—Drainage and Watertight Integrity of Weather Decks

§ 116.1110 Drainage of flush deck vessels.

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

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

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

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

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

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

§ 116.1160 Watertight integrity.

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

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

(2) A hatch in a cabin top; and

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

(b) A hatch cover must:

(1) Have securing devices; and

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

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

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

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

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

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

Subpart L—Ballast Systems

§ 116.1200 Ballast.

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

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

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

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

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

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

PART 117—LIFESAVING EQUIPMENT AND ARRANGEMENTS

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117.210 Rescue boats.

Authority: 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 117.10 Applicability to vessels on an international voyage.

A vessel on an international voyage must meet the requirements in subchapter H of this chapter for passenger vessels.

§ 117.15 Applicability to existing vessels.

An existing vessel must comply with the requirements of this part except as otherwise specified by this section.

(a) Before March 11, 2001, or 10 years after the vessel's keel was laid or the vessel was at a similar stage of construction, whichever is later, an existing vessel may comply with the requirements in effect for the vessel prior to March 11, 1996, for the number and type of survival craft, stowage arrangements, and launching appliances for survival craft.

(b) On or before March 11, 2001, or 10 years after the vessel's keel was laid or the vessel was at a similar stage of construction, whichever is later, an existing vessel must:

(1) Be equipped with the number of survival craft required for its route under §§ 117.202, 117.204, 117.205, 117.206, 117.207, or 117.208 of this part, as applicable; and

(2) Comply with the stowage and launching appliance requirements for survival craft in §§ 117.130 through 117.150 of this part, inclusive.

(c) Each inflatable liferaft, inflatable buoyant apparatus, life float, and buoyant apparatus on the vessel on March 11, 1996, may be used to meet the requirements of this part as long as

the survival craft is in good and serviceable condition.

(d) When any lifesaving equipment on a vessel is replaced or a vessel undergoes repairs, alterations, or modifications of a major character involving replacement of, or any addition to, the existing lifesaving equipment, each new piece of lifesaving equipment must meet this part.

(e) A combination flare and smoke distress signal approved in accordance with § 160.023 in subchapter Q of this chapter, may be used on an existing vessel until the expiration date of the distress signal but no later than March 11, 1999, as one of the distress signals required by § 117.68 of this part.

(f) Until February 1, 1999, a Coast Guard approved 121.5/243 MHz Class A Emergency Position Indicating Radiobeacon (EPIRB) may be used to meet the requirement for an EPIRB under § 117.64 of this part, if the EPIRB:

(i) Is operable;

(2) Is installed to automatically float-free and activate;

(3) Was manufactured on or after October 1, 1988; and

(4) Was installed on the vessel on or before March 11, 1996.

(g) Until February 1, 1999, a Federal Communications Commission (FCC) Type Accepted VHF–FM Class C EPIRB may be used to meet the requirement for an EPIRB on a vessel operating on a Great Lakes route under § 117.64 of this part, if the EPIRB;

(1) Is operable; and

(2) Was installed on the vessel on or before March 11, 1996.

(h) Until March 11, 1997 an existing vessel on a limited coastwise route need not comply with § 117.64 of this part.

(i) An existing vessel need not comply with § 117.78(a)(4) of this part.

(j) An existing vessel must comply with either § 117.210 of this part or with the regulations for rescue boats that were in effect for the vessel prior to March 11, 1996.

§ 117.25 Additional requirements.

(a) Each item of lifesaving equipment carried on board a vessel but not required under this part, must be of an approved type meeting the specifications for lifesaving equipment in subchapter Q of this chapter, or other standard specified by the Commandant.

(b) The cognizant Officer in Charge, Marine Inspection (OCMI) may require a vessel to carry specialized or additional lifesaving equipment if:

(1) The OCMI determines the conditions of the voyage render the requirements of this part inadequate; or

(2) The vessel is operated in Arctic, Antarctic, or other severe conditions not covered under this part.

Subpart B—Emergency Communications

§ 117.64 Emergency Position Indicating Radiobeacons (EPIRB).

Each vessel that operates on the high seas, or that operators beyond three miles from the coastline of the Great Lakes, must have on board a FCC Type Accepted Category 1, 406 MHz EPIRB, installed to automatically float free and activate.

§ 117.68 Distress flares and smoke signals.

(a) *Oceans, coastwise, and Great Lakes routes.* A vessel on an oceans, coastwise, or Great Lakes route must carry:

(1) Six hand red flare distress signals approved in accordance with § 160.021 in subchapter Q of this chapter, or other standard specified by the Commandant; and

(2) Six hand orange smoke distress signals approved in accordance with § 160.037 in subchapter Q of this chapter, or other standard specified by the Commandant.

(b) *Lakes, bays, and sounds, and rivers routes.* A vessel on a lakes, bays, and sounds, or rivers route must carry:

(1) Three hand red flare distress signals approved in accordance with § 160.021 in subchapter Q of this chapter, or other standard specified by the Commandant; and

(2) Three hand orange smoke distress signals approved in accordance with § 160.037 in subchapter Q of this chapter, or other standard specified by the Commandant.

(c) *Substitutions.* (1) A rocket parachute flare approved in accordance with § 160.036 in subchapter Q of this chapter, or other standard specified by the Commandant, may be substituted for any of the hand red flare distress signals required under paragraph (a) or (b) of this section.

(2) One of the following may be substituted for any of the hand orange smoke distress signals required under paragraph (a) or (b) of this section:

(i) A rocket parachute flare approved in accordance with § 160.036 in subchapter Q of this chapter, or other standard specified by the Commandant.

(ii) A hand red flare distress signal approved in accordance with § 160.021 in subchapter Q of this chapter, or other standard specified by the Commandant.

(iii) A floating orange smoke distress signal approved in accordance with § 160.022 in subchapter Q of this chapter, or other standard specified by the Commandant.

(d) *Exemption for vessels on short runs.* A vessel operating on short runs limited to approximately 30 minutes away from the dock is not required to carry distress flares and smoke signals under this section.

(e) *Stowage.* Each flare carried to meet this section must be stowed in one of the following:

(1) A portable watertight container carried at the operating station, and marked as required by § 122.614 of this subchapter; or

(2) A pyrotechnic locker secured above the freeboard deck, away from heat, in the vicinity of the operating station.

Subpart C—Life Buoys and Life jackets

§ 117.70 Ring life buoys.

(a) A vessel must have one or more ring life buoys as follows:

(1) A vessel of not more than 7.9 meters (26 feet) in length must carry a minimum of one life buoy of not less than 510 millimeters (20 inches) in diamter;

(2) A vessel of more than 7.9 meters (26 feet) in length, but not more than 19.8 meters (65 feet), must carry a minumum of one life buoy of not less than 610 millimeters (24 inches) in diameter; and

(3) A vessel of more than 19.8 meters (65 feet) in length must carry a minimum of three life buoys of not less than 610 millimeters (24 inches) in diameter.

(b) Each ring life buoy on a vessel must:

(1) Be approved in accordance with § 160.050 in subchapter Q of this chapter, or other standard specified by the Commandant;

(2) Be readily accessible;

(3) Be stowed in a way that it can be rapidly cast loose;

(4) Not be permanently secured in any way; and

(5) If on a vessel on an oceans or coastwise route, be orange in color.

(c) At least one ring life buoy must be fitted with a lifeline. If more than one ring life buoy is carried, at least one must not have a lifeline attached. Each lifeline on a ring life buoy must:

(1) Be buoyant;

(2) Be at least 18.3 meters (60 feet) in length;

(3) Be non-kinking;

(4) Have a diameter of at least 7.9 millimeters (5/16-inch);

(5) Have a breaking strength of at least 510 kilograms (1,124 pounds); and

(6) Be of a dark color if synthetic, or of a type certified to be resistant to deterioration from ultraviolet light.

(d) At least one ring buoy must be fitted with a floating waterlight, unless the vessel is limited to daytime

operation, in that case no floating waterlight is required.

(1) Each floating waterlight must be approved in accordance with § 161.010 in subchapter Q of this chapter, or other standard specified by the Commandant.

(2) Each ring life buoy with a floating waterlight must have a lanyard of at least 910 millimeters (3 feet) in length, but not more than 1,830 millimeters (6 feet), securing the waterlight around the body of the ring life buoy.

(3) Each floating waterlight installed after March 11, 1997, on a vessel carrying only one ring life buoy, must be attached to a lanyard with a corrosion-resistant clip. The clip must have a strength of at least 22.7 kilograms (50 pounds) and allow the waterlight to be quickly disconnected from the ring life buoy.

§ 117.71 Life jackets.

(a) An adult life jacket must be provided for each person carried on board a vessel.

(b) In addition, a number of child-size life jackets equal to at least 10% of the number of the persons permitted on board must be provided, or such greater number as necessary to provide a life jacket for each person being carried that is smaller than the lower size limit of the adult life jackets provided to meet this section, except that:

(1) Child-size life jackets are not required if the vessel's Certificate of Inspection is endorsed for the carriage of adults only, or

(2) When all ''extended size'' life preservers (those with a lower size limit for persons of 1,195 millimeters (47 inches) in height or weighing 20.4 kilograms (45 pounds)) are carried on board, a minimum of only 5% additional child size devices need be carried.

(c) Except as allowed by paragraph (d) of this section, each life jacket must be approved in accordance with either §§ 160.002, 160.005, or 160.055 in subchapter Q of this chapter, or other standard specified by the Commandant.

(d) Cork and balsa wood lifejackets previously approved in accordance with §§ 106.003, or 160.004 in subchapter Q of this chapter, on board an existing vessel prior to March 11, 1996, may continue to be used to meet the requirements of this section until March 11, 1999 provided the lifejackets are maintained in good and serviceable condition.

§ 117.72 Personal flotation devices carried in addition to life jackets.

(a) Equipment carried under this section is not acceptable in lieu of any portion of the required number of approved life jackets and must not be substituted for the approved life jackets required to be worn during drills and emergencies.

(b) Wearable marine buoyant devices that include ''ski vests,'' ''boating vests,'' and ''fishing vests,'' approved in accordance with § 160.064 in subchapter Q of this chapter, or other standard specified by the Commandant, may be carried as additional equipment.

(c) Buoyant work vests approved in accordance with § 160.053 in subchapter Q of this chapter, or other standard specified by the Commandant, may be carried as additional equipment for use of persons working near or over the water.

(d) Commercial hybrid personal flotation devices (PFD) approved in accordance with § 160.077 in subchapter Q of this chapter, or other standard specified by the Commandant, may be carried as additional equipment for use of persons working near or over the water. Each commercial hybrid PFD must be:

(1) Used, stowed, and maintained in accordance with the procedures set out in the manual required for these devices under § 160.077–29 in subchapter Q of this chapter and any limitation(s) marked on them; and

(2) Of the same or smaller design and have the same method of operation as each other hybrid PFD carried on board.

§ 117.75 Life jacket lights.

(a) Each life jacket carried on a vessel on an oceans, coastwise, or Great Lakes route, must have a life jacket light approved in accordance with Subpart 161.012 of this chapter. Each life jacket light must be securely attached to the front shoulder area of the life jacket.

(b) Notwithstanding the requirements of paragraph (a) of this section, life jacket lights are not required for life jackets on:

(1) Ferries; and

(2) Vessels with Certificates of Inspection endorsed only for routes that do not extend more than 20 miles from a harbor of safe refuge.

§ 117.78 Stowage of life jackets.

(a) *General.* Unless otherwise stated in this section, life jackets must be stored in convenient places distributed throughout accommodation spaces.

(1) Each stowage container for life jackets must not be capable of being locked. If practicable, the container must be designed to allow the life jackets to float free.

(2) Each life jacket kept in a stowage container must be readily available.

(3) Each life jacket stowed overhead must be supported in a manner that allows quick release for distribution.

(4) If life jackets are stowed more than 2,130 millimeters (7 feet) above the deck, a means for quick release must be provided and must be capable of operation by a person standing on the deck.

(5) Each child size life jacket must be stowed in a location that is appropriately marked and separated from adult life jackets so the child size life jackets are not mistaken for adult life jackets.

(b) *Additional personal flotation devices.* The stowage locations of the personal flotation devices carried in addition to life jackets under § 117.72 must be separate from the life jackets, and such as not to be easily confused with that of the life jackets.

Subpart D—Survival Craft Arrangements and Equipment

§ 117.130 Stowage of survival craft.

(a) Each survival craft must be:

(1) Secured to the vessel by a painter with a float-free link permanently attached to the vessel except that a float-free link is not required if the vessel operates only on waters not as deep as the length of the painter;

(2) stowed so that when the vessel sinks the survival craft floats free and, if inflatable, inflates automatically;

(3) Stowed in a position that is readily accessible to crew members for launching, or else provided with a remotely operated device that releases the survival craft into launching position or into the water;

(4) Stowed in a way that permits manual release from its securing arrangements;

(5) Ready for immediate use so that crew members can carry out preparations for embarkation and launching in less than 5 minutes;

(6) Provided with means to prevent shifting;

(7) Stowed in a way that neither the survival craft nor its stowage arrangements will interfere with the embarkation and operation of any other survival craft at any other launching station;

(8) Stowed in a way that any protective covers will not interfere with launching and embarkation;

(9) Fully equipped as required under this part; and

(10) Stowed, as far as practicable, in a position sheltered from breaking seas and protected from damage by fire.

(b) A hydrostatic release unit when used in a float-free arrangement must be approved in accordance with § 160.062 in subchapter Q of this chapter, or other standard specified by the Commandant.

(c) A mechanical, manually operated device to assist in launching a survival craft must be provided if:

(1) The survival craft weighs more than 90.7 kilograms (200 pounds); and

(2) The survival craft requires lifting more than 300 vertical millimeters (one vertical foot) to be launched.

§ 117.137 Stowage of life floats and buoyant apparatus.

(a) In addition to meeting § 117.130, each life float and buoyant apparatus must be stowed as required under this section.

(b) The float-free link required by § 117.130(a)(1) must be:

(1) Certified to meet § 160.073 in subchapter Q of this chapter, or other standard specified by the Commandant:

(2) Of proper strength for the size of the life float or buoyant apparatus as indicated on its identification tag; and

(3) Secured to the painter at one end and to the vessel on the other end.

(c) The means used to attach the float-free link to the vessel must:

(1) Have a breaking strength of at least the breaking strength of the painter;

(2) If synthetic, be of a dark color or of a type certified to be resistant to deterioration from ultraviolent light; and

(3) If metal, be corrosion resistant.

(d) If the life float or buoyant apparatus does not have a painter attachment fitting, a means for attaching the painter must be provided by a wire or line which:

(1) Encircles the body of the device;

(2) Will not slip off;

(3) Has a breaking strength that is at least the strength of the painter; and

(4) If synthetic, is of a dark color or is of a type certified to be resistant to deterioration from ultraviolet light.

(e) If the vessel carries more than the one life float or buoyant apparatus in a group with each group secured by a single painter:

(1) The combined weight of each group of life floats and buoyant apparatus must not exceed 181 kilograms (400 pounds);

(2) Each group of life floats and buoyant apparatus is considered a single survival craft for the purposes of § 117.130(c) of this part;

(3) Each life float and buoyant apparatus must be individually attached to the painter by a line meeting § 117.175(e)(3)(ii), (iii), and (iv) of this part and long enough that each life float or buoyant apparatus can float without contacting any other life float or buoyant apparatus in the group; and

(4) The strength of the float-free link under paragraph (b)(2) of this section and the strength of the painter under § 117.175(e)(3)(ii) of this part must be determined by the combined capacity of the group of life floats and buoyant apparatus.

(f) Life floats and buoyant apparatus must not be stowed in tiers more than 1,220 millimeters (4 feet) high. When stowed in tiers, the separate units must be kept apart by spacers.

§ 117.150 Survival craft embarkation arrangements.

(a) A launching appliance approved in accordance with § 160.032 in subchapter Q of this chapter, or other standard specified by the Commandant, must be provided for each inflatable liferaft and inflatable buoyant apparatus when either:

(1) The embarkation station for the survival craft is on a deck more than 4.5 meters (15 feet) above the waterline; or

(2) The inflatable liferaft or inflatable buoyant apparatus will be boarded prior to being placed in the water.

(b) An embarkation ladder, approved in accordance with § 160.017 in subchapter Q of this chapter, or other standard specified by the Commandant, must be at each embarkation station if the distance from the embarkation deck to the vessel's lightest operating waterline is more than 3,050 millimeters (10 feet).

§ 117.175 Survival craft equipment.

(a) *General.* Each item of survival craft equipment must be of good quality, and efficient for the purpose it is intended to serve. Unless otherwise stated in this section, each item of equipment carried, whether required under this section or not, must be secured by lashings, stored in lockers, compartments, brackets, or have equivalent mounting or storage arrangements that do not:

(1) Reduce survival craft capacity;

(2) Reduce space available to the occupants;

(3) Interfere with launching, recovery, or rescue operations; or

(4) Adversely affect seaworthiness of the survival craft.

(b) *Inflatable liferafts.* Each inflatable liferaft must have one of the following equipment packs as shown by the markings on its container:

(1) Safety of Life at Sea (SOLAS) B Pack; or

(2) SOLAS A Pack.

(c) *Life floats.* Each life float must be fitted with a lifeline, pendants, two paddles, a painter, and a light.

(d) *Buoyant apparatus.* Each buoyant apparatus must be fitted with a lifeline, pendants, a painter, and a light.

(e) *Equipment specifications for life floats and buoyant apparatus.* The equipment required for lifefloats and buoyant apparatus must meet the following specifications:

(1) *Lifeline and pendants.* The lifeline and pendants must be as furnished by the manufacturer with the approved life float or buoyant apparatus. Replacement lifelines and pendants must meet the requirements in § 160.010 in subchapter Q of this chapter, or other standard specified by the Commandant.

(2) *Paddle.* Each paddle must be of at least 1,220 millimeters (4 feet) in length, lashed to the life float to which they belong, and buoyant.

(3) *Painter.* The painter must:

(i) Be of at least 30.5 meters (100 feet) in length, but not less than three times the distance between the deck where the life float or buoyant apparatus it serves is stowed and the lightship waterline of the vessel;

(ii) Have a breaking strength of at least 680 kilograms (1,500 pounds), except that if the capacity of the life float or buoyant apparatus is 50 persons or more, the breaking strength must be at least 1,360 kilograms (3,000 pounds);

(iii) Be of a dark color if synthetic, or of a type certified to be resistant to deterioration from ultraviolet light; and

(iv) Be stowed in such a way that it runs out freely when the life float or buoyant apparatus floats away from a sinking vessel.

(4) *Light.* The light must be a floating waterlight approved in accordance with § 161.010 in subchapter Q of this chapter, or other standard specified by the Commandant. The floating waterlight must be attached around the body of the life float or buoyant apparatus by a 12-thread manila, or equivalent, lanyard of at least 5.5 meters (18 feet) in length.

(f) *Other survival craft.* If survival craft other than inflatable liferafts, life floats, inflatable buoyant apparatus, and buoyant apparatus are carried on the vessel, such as lifeboats or rigid liferafts, they must be installed, arranged, and equipped as required in subchapter H (Passenger Vessels) of this chapter for passenger vessels on the same route.

Subpart E—Number and Type of Survival Craft

§ 117.200 Survival craft—general.

(a) Each survival craft required on a vessel by this part must meet one of the following:

(1) For an inflatable liferaft—Subpart 160.151 in subchapter Q of this chapter, or other standard specified by the Commandant, with the applicable equipment pack, as determined by the cognizant OCMI. Each inflatable liferaft required on a vessel by this part must have a capacity of 6 persons or more.

Inflatable liferafts may be substituted for inflatable buoyant apparatus or life floats required under this section.

(2) For a life float—Subpart 160.027 in subchapter Q of this chapter, or other standard specified by the Commandant. Buoyant apparatus may be used to meet requirements for life floats if the buoyant apparatus was installed on board the vessel on or before March 11, 1996, and if the buoyant apparatus remains in good and serviceable condition.

(3) For an inflatable buoyant apparatus—Subpart 160.010 in subchapter Q of this chapter, or other standard specified by the Commandant. Inflatable buoyant apparatus may be substituted for life floats required under this section.

(4) For a buoyant apparatus—Subpart 160.010 in subchapter Q of this chapter, or other standard specified by the Commandant. An existing buoyant apparatus may not be used to satisfy the requirements for life floats on existing vessels wishing to upgrade the total number of passengers carried on an oceans route.

(b) If the vessel carries a small boat or boats, the capacity of these boats may be counted toward the buoyant apparatus or life float capacity required by this subpart. Such boats must meet the requirements for safe loading and flotation in 33 CFR Part 183, and must meet the stowage, launching and equipment requirements in this part for the survival craft they replace.

(c) A summary of survival craft requirements is provided in Table 117.200(c). The citations in brackets identify the sections of this part that contain the specific requirements.

TABLE 117.200(c)

Route	Survival Craft Required
Oceans	(a) cold water [1]—100% ILR [2]—§ 117.202(a)
	(b) warm water [3]
	(i) w/overnight accommodations—100% IBA [5]—§ 117.204(c)
	(ii) w/o overnight accommodations—67% IBA [4]—§ 117.202(e)
Coastwise	(a) w/overnight accommodations—100% IBA [5]—§ 117.204(a)
	(b) w/o overnight accommodations
	(i) cold water—67% IBA—§ 117.204(c)(1)
	(ii) warm water—100% LF—§ 117.204(c)(2)
	(iii) within three miles of shore w/float free 406 MHz EPIRB 50% LF—§ 117.204(d)
Limited coastwise (Not more than 20 miles from a harbor of safe refuge).	(a) w/overnight accommodations—100% IBA [5]—§ 117.205(a)
	(b) w/o overnight accommodations
	(i) cold water—67% IBA [6]—§ 117.205(a)
	(ii) warm water—50% LF—§ 117.205(c)
	(iii) within three miles of shore w/float free 406 MHz EPIRB
	(A) cold water—50% LF—§ 117.205(a)
	(B) warm water—NONE—§ 117.205(d)
Great Lakes	(a) same as limited coastwise (a) & (b)—§ 117.206(a)
	(b) within one mile of shore—NONE [7]—§ 117.206(b)
Lakes, bays, and sounds [8,9]	(a) w/overnight accommodations—67% IBA [5]—§ 117.207(a)
	(b) w/o overnight accommodations
	(i) cold water—100% LF—§ 117.207(b)(1) & (c)(1)
	(ii) warm water—50% LF—§ 117.207(b)(2) & (c)(2)
	(iii) within one mile of shore—NONE—§ 117.207(d)
Rivers [9,10]	(a) cold water
	(i) 50% LF—§ 117.208(a)
	(ii) within one mile of shore—NONE—§ 117.208(c)
	(b) Warm water—NONE—§ 117.208(b)

Abbreviations used:
ILR = Inflatable liferaft
IBA = Inflatable Buoyant apparatus
LF = Life Float. As allowed by § 117.15(c), any buoyant apparatus in use on an existing vessel on March 11, 1996, may be used to meet the requirements for LF as long as the buoyant apparatus is in good and serviceable condition.

Footnotes:
[1] Cold water means the cognizant OCMI has determined the monthly mean low temperature of the water is ≤ 15° C (59° F)
[2] Vessels operating less than 50 miles from shore may carry 100% IBA in lieu of ILR—§ 117.202(b)
[3] Warm water means the cognizant OCMI has determined the monthly mean low temperature of the water is > 15° C (59° F)
[4] Vessels operating in warm water may substitute 100% LF in lieu of 67% IBA—§ 117.202(c)
[5] IBA for total number of overnight passengers allowed. Additional primary lifesaving may be required—§ 117.204(b), § 117.205(a), § 117.206(a), and § 117.207(b)
[6] Certain vessel operations may substitute 100% LF in lieu of IBA—§ 117.205(b)
[7] OCMI may reduce primary lifesaving for seasonal or ferry type operations on the Great Lakes—§ 117.206(b)
[8] Shallow water exception—§ 117.207(d)
[9] OCMI may reduce survival craft requirements based upon the route, communications schedule and participation in VTS—§ 117.207(e) and § 117.208(e)
[10] Shallow water exception—§ 117.208(d)

§ 117.202 Survival craft—vessels operating on oceans routes.

(a) Except as allowed by paragraph (b) of this section, each vessel certificated to operate on an oceans route in cold water must be provided with inflatable liferafts of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board.

(b) Each vessel certificated to operate on an oceans route not more than 50 nautical miles offshore in cold water must be provided with inflatable buoyant apparatus of an aggregate

capacity that will accommodate at least 100% of the total number of persons permitted on board.

(c) Each vessel with overnight accommodations certificated to operate on an oceans route in warm water must be provided with inflatable buoyant apparatus of an aggregate capacity that will accommodate at least 100% of the total number of overnight persons permitted on board.

(d) Where the total number of persons allowed on the COI exceeds the total number of overnight persons allowed, the survival craft requirements contained in paragraph (e) of this section apply when not engaged in an overnight voyage.

(e) Each vessel certificated to operate on an oceans route in warm water must be provided with either:

(i) inflatable buoyant apparatus of an aggregate capacity that will accommodate at least 67% of the total number of persons permitted on board; or

(ii) life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board.

§ 117.204 Survival craft—vessels operating on coastwise routes.

(a) Each vessel with overnight accommodations certificated to operate on a coastwise route must be provided with inflatable buoyant apparatus of an aggregate capacity that will accommodate at least 100% of the total number of overnight persons permitted on board.

(b) Where the total number of persons allowed on the COI exceeds the total number of overnight persons allowed, the following survival craft requirements apply when not engaged in an overnight voyage:

(1) Except as allowed by paragraph (d) of this section, if operated in cold water, be provided with inflatable buoyant apparatus of an aggregate capacity that will accommodate at least 67% of the total number of persons permitted on board; or

(2) Except as allowed by paragraph (d) of this section, if operated in warm water, be provided with life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board.

(c) Each vessel without overnight accommodations certificated to operate on a coastwise route, must:

(1) Except as allowed by paragraph (d) of this section, if operated in cold water, be provided with inflatable buoyant apparatus of an aggregate capacity that will accommodate at least 67% of the total number of persons permitted on board; or

(2) Except as allowed by paragraph (d) of this section, if operated in warm water, be provided with life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board.

(d) Each vessel certificated to operate on a coastwise route within three miles of land, and equipped with an FCC type accepted Category 1 406 MHz EPIRB installed to float free and automatically activate, may be provided with life floats of an aggregate capacity that will accommodate at least 50% of the total number of persons permitted on board.

§ 117.205 Survival craft—vessels operating on limited coastwise routes.

(a) Except as allowed by paragraphs (b), (c) and (d) of this section, each vessel certificated to operate on a limited coastwise route shall be provided with the survival craft required by §§ 117.204 (a) through (d) of this part, as applicable.

(b) Each vessel without overnight accommodations operating in cold water, between two points, with a set schedule on a specific route that maintains a 15 minute radio communications schedule with an operation base, may be provided with life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board.

(c) Each vessel operating in warm water may be provided with life floats of an aggregate capacity that will accommodate at least 50% of the total number of persons permitted on board.

(d) Each vessel certificated to operate on a limited coastwise route within three miles of land in warm water, and is equipped with an FCC type accepted Category 1 406 MHz EPIRB installed to float free and automatically activate, is not required to carry survival craft.

§ 117.206 Survival craft—vessels operating on Great Lakes routes.

(a) Except as allowed by paragraph (b) of this section, each vessel certificated to operate on a Great Lakes route must be provided with the survival craft required by §§ 117.205 (a) through (d) of this part as applicable.

(b) Each vessel certificated to operate on a Great Lakes route within one mile of land is not required to carry survival craft if the OCMI determines that it is safe not to do so, taking into consideration the vessel's scope of operation, hazards of the route, and availability of assistance.

§ 117.207 Survival craft—vessels operating on lakes, bays, and sounds routes.

(a) Each vessel with overnight accommodations certificated to operate on a lakes, bays, and sounds route must be provided with inflatable buoyant apparatus of an aggregate capacity that will accommodate at least 67% of the total number of overnight persons permitted on board.

(b) Where the total number of persons allowed on the COI exceeds the total number of overnight persons allowed, the following survival craft requirements apply when not engaged in an overnight voyage:

(1) If operated in cold water, be provided with life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board; or

(2) If operated in warm water, be provided with life floats of an aggregate capacity that will accommodate at least 50% of the total number of persons permitted on board.

(c) Except as allowed by paragraphs (d), (e), and (f) of this section, each vessel without overnight accommodations certificated to operate on a lakes, bays, and sounds route must:

(1) If operated in cold water, be provided with life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board; or

(2) If operated in warm water, be provided with life floats of an aggregate capacity that will accommodate at least 50% of the total number of persons permitted on board.

(d) Each vessel certificated to operate on a lakes, bays, and sounds route within one mile of land is not required to carry survival craft.

(e) For a vessel certificated to operate on a lakes, bays, and sounds route in shallow water where the vessel can not sink deep enough to submerge the topmost passenger deck or where survivors can wade ashore, the cognizant OCMI may waive a requirement for survival craft, if the OCMI determines that it is safe to do so, taking into consideration the vessel's scope of operation, hazards of the route, and availability of assistance.

(f) Each vessel operating with a set schedule on a specific route that does not take it more than 20 nautical miles from a harbor of safe refuge, and that maintains a 15 minute radio communications schedule with an operations base, or participates in a Vessel Traffic Service (VTS), may be granted a reduction in the survival craft requirements of this section if the

cognizant OCMI is satisfied that a sufficient level of safety exists.

§ 117.208 Survival craft—vessels operating on rivers routes.

(a) Except as allowed by paragraph (c), (d), or (e) of this section, each vessel certificated to operate on a rivers route in cold water must be provided with life floats of an aggregate capacity that will accommodate at least 50% of the total number of persons permitted on board.

(b) Each vessel certificated to operate on a rivers route in warm water is not required to carry survival craft.

(c) Each vessel certificated to operate on a rivers route within one mile of land is not required to carry survival craft.

(d) For a vessel certificated to operate on a rivers route in shallow water where the vessel can not sink deep enough to submerge the topmost passenger deck or where survivors can wade ashore, the cognizant OCMI may waive a requirement for life floats, if the OCMI determines that it is safe to do so, taking into consideration the vessel's scope of operation, hazards of the route, and availability of assistance.

(e) Each vessel operating with a set schedule on a specific route that maintains a 15 minute radio communications schedule with an operations base, or participates in a Vessel Traffic Service (VTS), may be granted a reduction in the survival craft requirements of this section if the cognizant OCMI is satisfied that a sufficient level of safety exists.

§ 117.210 Rescue boats.

(a) Each vessel must carry at least one rescue boat unless the cognizant OCMI determines that:

(1) The vessel is sufficiently maneuverable, arranged, and equipped to allow the crew to recover a helpless person from the water;

(2) Recovery of a helpless person can be observed from the operating station; and

(3) The vessel does not regularly engage in operations that restrict its maneuverability.

(b) On a vessel of more than 19.8 meters (65 feet) in length, a required rescue boat and its installation must meet the requirements in subchapter H (Passenger Vessels) of this chapter for a rescue boat on a passenger vessel having the same route. On a vessel of not more than 19.8 meters (65 feet) in length, a required rescue boat must be acceptable to the cognizant OCMI.

PART 118—FIRE PROTECTION EQUIPMENT

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Authority: 46 U.S.C. 2103, 3306, E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 118.115 Applicability to existing vessels.

(a) Except as otherwise required by paragraphs (b) and (c) of this section, an existing vessel must comply with the fire protection equipment regulations applicable to the vessel on March 10, 1996, or, as an alternative, the vessel may comply with the regulation in this part.

(b) An existing vessel with a hull, or a machinery space boundary bulkhead or deck, composed of wood or fiber reinforced plastic, or sheathed on the interior in fiber reinforced plastic, must comply with the requirements of § 118.400 of this part on or before March 11, 1999.

(c) New installations of fire protection equipment on an existing vessel, which are completed to the satisfaction of the cognizant Officer in Charge, Marine Inspection (OCMI) on or after March 11, 1996, must comply with the regulations of this part. Replacement of existing equipment installed on the vessel prior to March 11, 1996, need not comply with the regulations in this part.

§ 118.120 Equipment installed but not required.

Fire extinguishing and detecting equipment installed on a vessel in excess of the requirements of §§ 118.400 and 118.500 of this part must be designed, constructed, installed and maintained in a manner acceptable to the Commandant.

Subpart B—Reserved

Subpart C—Fire Main System

§ 118.300 Fire pumps.

(a) A self priming, power driven fire pump must be installed on each vessel.

(b) On a vessel without overnight accommodations, or with overnight accommodations for not more than 49 passengers, the fire pump must be capable of delivering a single hose stream from the highest hydrant, through the hose and nozzle required by § 118.320 of this part, at a pitot tube pressure of 345 kPa (50 psi).

(c) On a vessel with overnight accommodations for more than 49 passengers, the fire pump must meet the fire pump requirements in § 76.10–5 in subchapter H of this chapter.

(d) A fire pump may be driven by a propulsion engine. A fire pump must be permanently connected to the fire main and may be connected to the bilge system to meet the requirements of § 119.520 of this subchapter.

(e) A fire pump most be capable of both remote operation from the operating station and local, manual operation at the pump.

§ 118.310 Fire main and hydrants.

(a) A vessel must have a sufficient number of fire hydrants to reach any part of the vessel using a single length of fire hose.

(b) Piping, valves, and fittings in a fire main system must comply with Part 119, Subpart G of this subchapter.

§ 118.320 Fire hoses and nozzles.

(a) A fire hose with a nozzle must be attached to each fire hydrant at all times. For fire stations located an open decks or cargo decks, where no protection is provided, hoses may be temporarily removed during heavy weather or cargo handling operations, respectively. Hoses to removed must be stored in nearby accessible locations.

(b) Each hose must:

(1) Be lined commercial fire hose that conforms to Underwriters Laboratory (UL) 19 ''Lined Fire Hose and Hose Assemblies,'' or hose that is listed and labeled by an independent laboratory recognized by the Commandant as being equivalent in performance;

(2) Be 15.25 meters (50 feet) in length and 40 millimeters (1.5 inches) in diameter; and

(3) Have fittings of brass or other suitable corrosion-resistant material that comply with National Fire Protection

Association (NFPA) 1963 ''Fire Hose Connections,'' or other standard specified by the Commandant.

(c) Each nozzle must either:

(1) Be of a type approved in accordance with § 160.027 in subchapter Q of this chapter; or

(2) Be of type recognized by the Commandant as being equivalent in performance.

Subpart D—Fixed Fire Extinguishing and Detecting Systems

§ 118.400 Where required.

(a) The following spaces must be equipped with a fixed gas fire extinguishing system, in compliance with § 118.410 of this part, or other fixed fire extinguishing system specifically approved by the Commandant, except as otherwise allowed by paragraph (b) of this section:

(1) A space containing propulsion machinery;

(2) A space containing an internal combustion engine of more than 50 hp;

(3) A space containing an oil fired boiler;

(4) A space containing combustible cargo or ship's stores inaccessible during the voyage (a carbon dioxide system must be installed in such a space, and Halon systems are not allowed);

(5) A paint locker; and

(6) A storeroom containing flammable liquids (including liquors of 80 proof or higher where liquor is packaged in individual containers of 9.5 liters (2.5 gallons) capacity or greater).

(b) Alternative system types and exceptions to the requirements of paragraph (a) of this section are:

(1) A fixed gas fire extinguishing system, which is capable of automatic discharge upon heat detection, may only be installed in a normally unoccupied space with a gross volume of not more than 170 cubic meters (6,000 cubic feet);

(2) A pre-engineered fixed gas extinguishing system must be in compliance with § 118.420 of this part and may only be installed in a normally unoccupied machinery space, a paint locker, or a storeroom containing flammable liquids (including liquors of 80 proof or higher where liquor is packaged in individual containers of 9.5 liters (2.5 gallons) capacity or greater), with a gross volume of not more than 57 cubic meters (2,000 cubic feet);

(3) A B–II portable fire extinguisher installed outside the space may be substituted for a fixed gas fire extinguishing system in a storeroom containing flammable liquids (including liquors of 80 proof or higher where liquor is packaged in individual containers of 9.5 liters (2.5 gallons) capacity or greater) or a paint locker, with a volume of not more that 5.7 cubic meters (200 cubic feet);

(4) A space that is so open to the atmosphere that a fixed gas fire extinguishing system would be ineffective, as determined by the cognizant OCMI, is not required to have a fixed gas fire extinguishing system; and

(5) Where the amount of carbon dioxide gas required in a fixed fire extinguishing system can be supplied by one portable extinguisher or a semi-portable extinguisher, such an extinguisher may be used subject to the following:

(i) Cylinders shall be installed in a fixed position outside the space protected;

(ii) The applicator shall be installed in a fixed position so as to discharge into the space protected; and

(iii) Controls shall be installed in an accessible location outside the space protected.

(c) The following spaces must be equipped with a fire detecting system of an approved type that is installed in accordance with § 76.27 in subchapter H of this chapter, except when a fixed gas fire extinguishing system that is capable of automatic discharge upon heat detection is installed or when the space is manned:

(1) A space containing propulsion machinery;

(2) A space containing an internal combustion engine of more than 37.3 kW (50 hp); and

(3) A space containing an oil fired boiler.

(d) All grills, broilers, and deep fat fryers must be fitted with a grease extraction hood that complies with § 118.425 of this part.

(e) Except as allowed by paragraph (f), each accommodation space, control space, and service space must be fitted with the following systems:

(1) A smoke actuated fire detecting system of a type approved by the Commandant that is installed in accordance with § 76.27 in subchapter H of this chapter; and

(2) A manual alarm system that meets the requirements in § 76.35 in subchapter H of this chapter.

(f) On vessels with no overnight accommodation; public spaces that may be assumed to be occupied by a large number of persons when passengers are on board need only be served by a manual alarm system that meets the requirements in § 76.35 in subchapter H of this chapter. The alarm boxes must be located in the vicinity of each required exit, and easily seen in case of need.

(g) An enclosed vehicle space must be fitted with an automatic sprinkler system that meets the requirements of § 76.25 in subchapter H of this chapter; and

(1) A fire detecting system of a type approved by the Commandant that is installed in accordance with § 76.27 in subchapter H of this chapter; or

(2) A smoke detecting system of a type approved by the Commandant that is installed in accordance with § 76.33 in subchapter H of this chapter.

(h) A partially enclosed vehicle space must be fitted with a manual sprinkler system that meets the requirements of § 76.23 in subchapter H of this chapter.

§ 118.410 Fixed gas fire extinguishing systems.

(a) *General.* (1) A fixed gas fire extinguishing system aboard a vessel must be approved by the Commandant, and be custom engineered to meet the requirements of this section unless the system meets the requirements of § 118.420 of this part.

(2) System components must be listed and labeled by an independent laboratory. A component from a different system, even if from the same manufacturer, must not be used unless included in the approval of the installed system.

(3) System design and installation must be in accordance with the Marine Design, Installation, Operation, and Maintenance Manual approved for the system by the Commandant.

(4) A fixed gas fire extinguishing system may protect more than one space. The quantity of extinguishing agent must be at least sufficient for the space requiring the greatest quantity as determined by the requirements of paragraphs (f)(4) or (g)(2) of this section.

(b) *Controls.* (1) Controls and valves for operation of a fixed gas fire extinguishing system must be:

(i) Located outside the space protected by the system; and

(ii) Not located in a space that might be inaccessible in the event of fire in the space protected by the system.

(2) Except as provided in paragraph (c)(2) of this section, release of an extinguishing agent into a space must require two distinct operations.

(3) A system must have local manual controls at the storage cylinders capable of releasing the extinguishing agent. In addition, a normally manned space must have remote controls for releasing the extinguishing agent immediately outside the primary exit from the space.

(4) Remote controls must be located in a breakglass enclosure to preclude accidental discharge.

(5) Valves and controls must be of a type approved by the Commandant and

protected from damage or accidental activation. A pull cable used to activate the system controls must be enclosed in conduit.

(6) A system protecting more than one space must have a manifold with a normally closed stop valve for each space protected.

(7) A gas actuated valve or device must be capable of manual override at the valve or device.

(8) A system, which has more than one storage cylinder for the extinguishing agent and that relies on pilot cylinders to activate the primary storage cylinders, must have at least two pilot cylinders. Local manual controls in compliance with paragraph (b)(3) of this section must be provided to operate the pilot cylinders but are not required for the primary storage cylinders.

(9) A system protecting a manned space must be fitted with a time delay and alarm of a type approved by the Commandant, arranged to require the alarm to sound for at least 20 seconds or the time necessary to escape from the space, whichever is greater, before the agent is released into the space. Alarms must be conspicuously and centrally located. The alarm must be powered by the extinguishing agent.

(10) A device must be provided to automatically shut down power ventilation serving the protected space and engines that draw intake air from the protected space prior to release of the extinguishing agent into the space.

(11) Controls and storage cylinders must not be in a locked space unless the key is in a breakglass type box conspicuously located adjacent to the space.

(c) *Storage space.* (1) Except as provided in paragraph (c)(2) of this section, a storage cylinder for a fixed gas extinguishing system must be:

(i) Located outside the space protected by the system; and

(ii) Not located in a space that might be inaccessible in the event of a fire in the space protected by the system.

(2) A normally unoccupied space of less than 170 cubic meters (6,000 cubic feet) may have the storage cylinders located within the space protected. When the storage cylinders are located in the space:

(i) The system must be capable of automatic operation by a heat actuator within the space; and

(ii) Have manual controls in compliance with paragraph (b) of this section except for paragraphs (b)(2) and (b)(3).

(3) A space containing a storage cylinder must be maintained at a temperature within the range from −30° C (−20° F) to 55° C (130° F) or at another temperature as listed by the independent laboratory and stated in the manufacturer's approval manual.

(4) A storage cylinder must be securely fastened, supported, and protected against damage.

(5) A storage cylinder must be accessible and capable of easy removal for recharging and inspection. Provisions must be available for weighing each storage cylinder in place.

(6) Where subject to moisture, a storage cylinder must be installed to provide a space of at least 51 millimeters (2 inches) between the deck and the bottom of the storage cylinder.

(7) A Halon 1301 storage cylinder must be stowed in an upright position unless otherwise listed by the independent laboratory. A carbon dioxide cylinder may be inclined not more than 30° from the vertical, unless fitted with flexible or bent siphon tubes, in which case they may be inclined not more than 80° from the vertical.

(8) Where a check valve is not fitted on an independent storage cylinder discharge outlet, a plug or cap must be provided for closing the outlet resulting from storage cylinder removal.

(9) Each storage cylinder must meet the requirements of § 147.60 in subchapter N of this chapter, or other standard specified by the Commandant.

(10) A storage cylinder space must have doors that open outwards or be fitted with kickout panels installed in each door.

(d) *Piping.* (1) A pipe, valve, or fitting or ferrous material must be protected inside and outside against corrosion unless otherwise approved by the Commandant. Aluminum or other low melting material must not be used for a component of a fixed gas fire extinguishing system except as specifically approved by the Commandant.

(2) A distribution line must extend at least 51 millimeters (2 inches) beyond the last orifice and be closed with a cap or plug.

(3) Piping, valves, and fittings must be securely supported, and where necessary, protected against damage.

(1) Drains and dirt traps must be fitted where necessary to prevent the accumulation of dirt or moisture and located in accessible locations.

(5) Piping must be used for no other purpose except that it may be incorporated with the fire detecting system.

(6) Piping passing through accommodation spaces must not be fitted with drains or other openings within such spaces.

(7) The distribution piping of a carbon dioxide fixed gas extinguishing system must be tested as required by this paragraph, upon completion of the piping installation, using only carbon dioxide, compressed air, or nitrogen. gas.

(i) Piping between a storage cylinder and a stop value in the manifold must be subjected to a pressure of 6,894 kPa (1,000 psi), except as permitted in paragraph (d)(7)(iii) of this section. Without additional gas being introduced to the system, the pressure drop must not exceed 2,068 kPa (300 psi) after two minutes.

(ii) A distribution line to a space protected by the system must be subjected to a test pressure of 4,136 kPa (600 psi). For the purpose of this test, the distribution piping must be capped within the space protected at the first joint between the nozzles and the storage cylinders.

(iii) A small independent system protecting a space such as a paint locker may be tested by blowing out the piping with air at a pressure of not less than 689 kPa (100 psi).

(8) The distribution piping of a Halon 1301 fixed gas extinguishing system must be tested, as required by this paragraph, upon completion of the piping installation, using only carbon dioxide, compressed air, or nitrogen.

(i) When pressurizing the piping, pressure must be increased in small increments. Each joint must be subjected to a soap bubble leak test, and all joints must be leak free.

(ii) Piping between the storage cylinders and the manifold stop valve must be subjected to a leak test conducted as a pressure of 4,136 kPa (600 psi). Without additional gas being added to the system, there must be no loss of pressure over a two minute period after thermal equilibrium is reached.

(iii) Distribution piping between the manifold stop value and the first nozzle in the system must be capped and pneumatically tested for a period of 10 minutes at 1,034 kPa (150 psi). At the end of 10 minutes, the pressure drop must not exceed 10% of the test pressure.

(e) *Pressure relief.* When required by the cognizant OCMI, spaces that are protected by a fixed gas fire extinguishing system and that are relatively airtight, such as refrigeration spaces, paint lockers, etc., must be provided with suitable means for relieving excessive pressure within the space when the agent is released.

(f) *Specific requirements for carbon dioxide systems.* A custom engineered fixed gas fire extinguishing system, which uses carbon dioxide as the

extinguishing agent, must meet the requirements of this paragraph.

(1) Piping, valves, and fittings must have a bursting pressure of not less than 41,360 kPa (6,000 psi). Piping, in nominal sizes of not more than 19 millimeters (0.75 inches), must be at least Schedule 40 (standard weight), and in nominal sizes of over 19 millimeter (0.75 inches), must be at least Schedule 80 (extra heavy).

(2) A pressure relief valve or equivalent set to relieve at between 16,550 and 19,300 kPa (2,400 and 2,800 psi) must be installed in the distribution manifold to protect the piping from overpressurization.

(3) Nozzles must be approved by the Commandant.

(4) When installed in a machinery space, paint locker, a space containing flammable liquid stores, or a space with a fuel tank, a fixed carbon dioxide system must meet the following requirements.

(i) The quantity of carbon dioxide in kilograms (pounds) that the system must be capable of providing to a space must not be less than the gross volume of the space divided by the appropriate factor given in Table 118.410(f)(4)(i). If fuel can drain from a space being protected to an adjacent space or if the spaces are not entirely separate, the volume of both spaces must be used to determine the quantity of carbon dioxide required. The carbon dioxide must be arranged to discharge into both such spaces simultaneously.

TABLE 118.410(f)(4)(i)

Factor	Gross volume of space in cubic meters (feet)	
	over	Not Over
0.94 (15)	.....	14 (500)
1.0 (16)	14 (500)	45 (1,600)
1.1 (18)	45 (1,600)	125 (4,500)
1.2 (20)	125 (4,500)	1,400 (50,000)
1.4 (22)	1,400 (50,000)	.....

(ii) The minimum size of a branch line to a space must be as noted in Table 118.410(f)(4)(ii).

TABLE 118.410(f)(4)(ii)

Maximum quantity of carbon dioxide required kg (lbs)	Minimum nominal pipe size mm (inches)	Maximum quantity of carbon dioxide required kg (lbs)	Minimum nominal pipe size mm (inches)
45.4 (100)	12.7 (0.5)	1,134 (2,500)	65 (2.5)
102 (225)	19 (0.75)	2,018 (4,450)	75 (3.0)
136 (300)	25 (1.0)	3,220 (7,100)	90 (3.5)
272 (600)	30 (1.25)	4,739 (10,450)	100 (4.0)
454 (1,000)	40 (1.5)	6,802 (15,000)	113 (4.5)
1,111 (2,450)	50 (2.0)	.....	

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

(iv) The number, type, and location of discharge outlets must provide uniform distribution of carbon dioxide throughout a space.

(v) The area of each discharge outlet must 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 millimeters is determined by multiplying the factor 0.015 (0.0022 if using square inches) by the total capacity in kilograms of all carbon dioxide cylinders in the system, except in no case must the outlet area be of less than 71 square millimeters (0.110 square inches).

(vi) The discharge of at least 85 percent of the required amount of carbon dioxide must be completed within two minutes.

(5) When installed in an enclosed ventilation system for rotating electrical propulsion equipment a fixed carbon dioxide system must meet the following requirements.

(i) The quantity of carbon dioxide in kilograms must be sufficient for initial and delayed discharges as required by this paragraph. The initial discharge must be equal to the gross volume of the system divided by 160 (10 if using pounds) for ventilation systems having a volume of less than 57 cubic meters (2,000 cubic feet), or divided by 192 (12 if using pounds) for ventilation systems having a volume of at least 57 cubic meters (2,000 cubic feet). In addition, there must be sufficient carbon dioxide available to permit delayed discharges to maintain at least a 25 percent concentration until the equipment can be stopped. If the initial discharge achieves this concentration, a delayed discharge is not required.

(ii) The piping sizes for the initial discharge must be in accordance with Table 118.410(f)(4)(ii) and the discharge of the required amount must be completed within two minutes.

(iii) Piping for the delayed discharge must not be less than 12.7 millimeters (0.5 inches) nominal pipe size, and need not meet specific requirement for discharge rate.

(iv) Piping for the delayed discharge may be incorporated with the initial discharge piping.

(6) When installed in a cargo space a fixed carbon dioxide system must meet the following requirements.

(i) The number of kilograms (pounds) of carbon dioxide required for each space in cubic meters (feet) must be equal to the gross volume of the space in cubic meters (feet) divided by 480 (30 if using pounds).

(ii) System piping must be of at least 19 millimeters (0.75 inches).

(iii) No specific discharge rate is required.

(g) *Specific requirements for Halon 1301 systems.* (1) A custom engineered fixed gas fire extinguishing system that uses Halon 1301, must comply with the applicable sections of UL 1058 ''Halogenated Agent Extinguishing System Units,'' and the requirements of this paragraph.

(2) The Halon 1301 quantity and discharge requirements of UL 1058 apply, with the exception that the Halon 1301 design concentration must be 6 percent at the lowest ambient temperature expected in the space. If the lowest temperature is not known, a temperature of −18° C (0° F) must be assumed.

(3) Each storage cylinder in a system must have the same pressure and volume.

(4) Computer programs used in designing systems must be approved by an independent laboratory recognized by the Commandant.

Note to § 118.410(g): As of Jan. 1, 1994, the United States banned the production of Halon. The Environmental Protection Agency placed significant restrictions on the servicing and maintenance of systems containing Halon. Vessels operating on an international voyage, subject to SOLAS requirements, are prohibited from installing fixed gas fire extinguishing systems containing Halon.

§ 118.420 Pre-engineered fixed gas fire extinguishing systems.

(a) A pre-engineered fixed gas fire extinguishing system must:

(1) Be approved by the Commandant;

(2) Be capable of manual actuation from outside the space in addition to automatic actuation by a heat detector;

(3) Automatically shut down all power ventilation systems and all engines that draw intake air from within the protection space; and

(4) Be installed in accordance with manufacturer's instructions.

(b) A vessel on which a pre-engineered fixed gas fire extinguishing system is installed must have the following equipment at the operating station:

(1) A light to indicate discharge;

(2) An audible alarm that sounds upon discharge; and

(3) A means to reset devices used to automatically shut down ventilation systems and engines as required by paragraph (a)(3) of this section.

(c) Only one pre-engineered fixed gas fire extinguishing system is allowed to be installed in each space protected by such a system.

§ 118.425 Galley hood fire extinguishing systems.

(a) A grease extraction hood required by § 118.400 of this part must meet UL 710 ''Exhaust Hoods for Commercial Cooking Equipment,'' or other standard specified by the Commandant.

(b) A grease extraction hood must be equipped with a dry or wet chemical fire extinguishing system meeting the applicable sections of NFPA 17 ''Dry Chemical Extinguishing Systems,'' 17A ''Wet Chemical Extinguishing Systems,'' or other standard specified by the Commandant, and must be listed by an independent laboratory recognized by the Commandant.

Subpart E—Portable Fire Extinguishers

§ 118.500 Required number, type, and location.

(a) Each portable fire extinguisher on a vessel must be of a type approved by the Commandant. The minimum number of portable fire extinguishers required on a vessel must be acceptable to the cognizant OCMI, but must be not less than the minimum number required by Table 118.500(a) and other provisions of this section.

TABLE 118.500(a)

Space protected	Minimum number required	Type extinguisher permitted		
		CG class	Medium	Min. size
Operating station	1	B–I, C–I	Halon	1.1 kg (2.5 lb)
			CO_2	1.8 kg (4 lb)
			Dry chemical	0.9 kg (2 lb)
Machinery space	1	B–II, C–II located just outside exit.	Halon	4.5 kg (10 lb)
			CO_2	6.8 kg (15 lb)
			Dry chemical	4.5 kg (10 lb)
Open vehicle deck	1 for every 10 vehicles	B–II	Foam	9.5 L (2.5 gal)
			Halon	4.5 kg (10 lb)
			CO_2	6.8 kg (15 lb)
			Dry chemical	4.5 kg (10 lb)
Accommodation space	1 for each 232.3 square meters (2,500 square feet) or fraction thereof.	A–II	Foam	9.5 L (2.5 gal)
			Dry chemical	2.3 kg (5 lb)
Galley, pantry, concession stand.	1	A–II	Foam	9.5 L (2.5 gal)
		B–II	Dry chemical	4.5 kg (10 lb)

(b) A vehicle deck without a fixed sprinkler system and exposed to weather must have one B–II portable fire extinguisher for every five vehicles, located near an entrance to the space.

(c) The cognizant OCMI may permit the use of a larger portable fire extinguisher, or a semiportable fire extinguisher, in lieu of those required by this section.

(d) The frame or support of each B–V fire extinguisher permitted by paragraph (c) of this section must be welded or otherwise permanently attached to a bulkhead or deck.

§ 118.520 Installation and location.

Portable fire extinguishers must be located so that they are clearly visible and readily accessible from the space being protected. The installation and location must be to the satisfaction of the cognizant OCMI.

Subpart F—Additional Equipment

§ 118.600 Fire axe.

A vessel of more than 19.8 meters (65 feet) in length must have at least one fire

axe located in or adjacent to the primary operating station.

PART 119—MACHINERY INSTALLATION

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Authority: 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 119.100 Intent.

This part contains requirements for the design, construction, installation, and operation of propulsion and auxiliary machinery, piping and pressure systems steering apparatus, and associated safety systems. Machinery and equipment installed on each vessel must be suitable for the vessel and its operation and for the purpose intended. All machinery and equipment must be installed and maintained in such a manner as to afford adequate protection from causing fire, explosion, machinery failure, and personnel injury.

§ 119.115 Applicability to existing vessels.

(a) Except as otherwise required by paragraphs (b) and (c) of this section, an existing vessel must comply with the regulations on machinery, bilge and ballast system equipment, steering apparatus, and piping systems or components that were applicable to the vessel on March 10, 1996, or, as an alternative, the vessel may comply with the regulations in this part.

(b) New installations of machinery, bilge and ballast system equipment, steering equipment, and piping systems or components on an existing vessel, which are completed to the satisfaction of the cognizant Office in Charge, Marine Inspection (OCMI) on or after March 11, 1996, must comply with the regulations of this part. Replacement of existing equipment installed on the vessel prior to March 11, 1996, need no comply with the regulations in this part.

(c) On or before March 11, 1999, an existing vessel must comply with the bilge high level alarm requirements in § 119.530 of this section.

Subpart B—Propulsion Machinery

§ 119.200 General.

(a) Propulsion machinery must be suitable in type and design for propulsion requirements of the hull in which it is installed and capable of operating at constant marine load under such requirements without exceeding its designed limitations.

(b) All engines must have at least two means for stopping the engine(s) under any operating conditions. The fuel oil shutoff required at the engine by § 119.455(b)(3) of this part will satisfy one means of stopping the engine.

§ 119.220 Installations.

(a) The installation requirements for machinery and boilers for steam and electrically propelled vessels are contained in applicable regulations in subchapter F (Marine Engineering) and subchapter J (Electrical Engineering) of this chapter.

(b) Installation of propulsion machinery of an unusual type for small passenger vessels must be given separate consideration and must be subject to such requirements as determined necessary by the cognizant OCMI. Unusual types of propulsion machinery include:

(1) Gas turbine machinery installations;

(2) Air screws;

(3) Hydraulic jets; and

(4) Machinery installations using lift devices.

Subpart C—Auxiliary Machinery

§ 119.310 Installations.

(a) Auxiliary machinery of the internal combustion piston type must comply with the provisions of this part.

(b) Auxiliary machinery of the steam or gas turbine type will be given separate consideration and must meet the applicable requirements of subchapter F (Marine Engineering) of this chapter as determined necessary by the cognizant OCMI.

(c) Auxiliary boilers and heating boilers and their associated piping and fittings will be given separate consideration and must meet the applicable requirements of subchapter F (Marine Engineering) of this chapter as determined necessary by the cognizant OCMI, except that heating boilers must be tested or examined every three years.

§ 119.320 Water heaters.

(a) A water heater must meet the requirements of Parts 52 and 63 in subchapter F of this chapter if rated at more than 689 kPa (100 psig) or 121° C (250° F).

(b) A water heater must meet the requirements of Parts 53 and 63 in subchapter F of this chapter if rated at not more than 689 kPa (100 psig) and 121° C (250° F), except that an electric water heater is also acceptable if it:

(1) Has a capacity of not more than 454 liters (120 gallons):

(2) Has a heat input of not more than 58.6 kilowatts (200,000 Btu per hour);

(3) Is listed by Underwriters Laboratories (UL) under UL 174, ''Household Electric Storage Tank Water Heaters,'' UL 1453, ''Electric Booster and Commercial Storage Tank Water Heaters,'' or other standard specified by the Commandant; and

(4) Is protected by a pressure-temperature relief device.

(c) A water heater must be installed and secured from rolling by straps or other devices to the satisfaction of the cognizant OCMI.

§ 119.330 Pressure vessels.

All unfired pressure vessels must be installed to the satisfaction of the cognizant OCMI. The design, construction, and original testing of such unfired pressure vessels must meet the applicable requirements of subchapter F (Marine Engineering) of this chapter.

Subpart D—Specific Machinery Requirements

§ 119.400 Applicability.

(a) This subpart applies to all propulsion and auxiliary machinery installations of the internal combustion piston type.

(b) Where no specific fuel designation exists, the requirements of this subpart are applicable to all types of fuels and machinery.

§ 119.405 Fuel restrictions.

The use of a fuel, other than diesel fuel, as an alternative fuel for an internal combustion engine, except gasoline when used as a fuel for outboard motors as allowed by § 119.458 of this part, will be reviewed on a case-by-case basis by Commandant.

§ 119.410 General requirements.

(a) Each starting motor, generator, and spark producing device must be mounted as high above the bilges as practicable.

(b) Gauges to indicate engine revolutions per minute (RPM), jacket water discharge temperature, and lubricating oil pressure must be provided for all propulsion engines installed in the vessel. The gauges must be readily visible at the operating station.

(c) In systems and applications where flexible hoses are permitted to be clamped:

(1) Double hose clamping is required on each end of the hose, where practicable, except that one hose clamp can be used if the pipe ends are expanded or beaded to provide a positive stop against hose slippage;

(2) The clamps must be of a corrosion resistant metallic material; and

(3) The clamps must not depend on spring tension for their holding power.

§ 119.420 Engine cooling.

(a) Except as otherwise provided in paragraph (b) of this section, all engines must be water cooled and meet the requirements of this paragraph.

(1) The engine head, block, and exhaust manifold must be water jacketed and cooled by water from a pump that operates whenever the engine is operating.

(2) A suitable hull strainer must be installed in the circulating raw water intake line of an engine cooling water system.

(3) A closed fresh water system may be used to cool the engine.

(b) A propulsion or auxiliary diesel engine may be air cooled or employ an air cooled jacket water radiator when:

(1) Installed on an open deck and sufficient ventilation for machinery cooling is available; or

(2) Installed in an enclosed or partially enclosed space for which ventilation for machinery cooling that complies with the requirement of § 119.465(b) of this part is provided, and other necessary safeguards are taken so as not to endanger the vessel.

§ 119.422 Keel and grid cooler installations.

(a) A keel or grid cooler installation used for engine cooling must be designed to prevent flooding.

(b) Except as provided in paragraph (e), a shutoff valve must be located where the cooler piping penetrates the shell, as near the shell as practicable, except where the penetration is forward of the collision bulkhead.

(c) The thickness of the inlet and discharge connections, outboard of the shutoff values required by paragraph (b) of this section, must be at least Schedule 80.

(d) Short lengths of approved nonmetallic flexible hose, fixed by two hose clamps at each end of the hose, may be used at machinery connections for a keel cooler installation.

(e) Shutoff valves are not required for keel and grid coolers that are integral to the hull. A keel cooler is considered integral to the hull if the following conditions are satisfied:

(1) The cooler structure is fabricated from material of the same thickness and quality as the hull;

(2) The flexible connections are located well above the deepest subdivision draft;

(3) The end of the structure is faired to the hull with a slope no greater than 4 to 1; and

(4) Full penetration welds are employed in the fabrication of the structure and its attachment to the hull.

§ 119.425 Engine exhaust cooling.

(a) Except as otherwise provided in this paragraph, all engine exhaust pipes must be water cooled.

(1) Vertical dry exhaust pipes are permissible if installed in compliance with §§ 116.405(c) and 116.970 of this chapter.

(2) Horizontal dry exhaust pipes are permitted only if:

(i) They do not pass through living or berthing spaces;

(ii) They terminate above the deepest load waterline;

(iii) They are so arranged as to prevent entry of cold water from rough or boarding seas;

(iv) They are constructed of corrosion resisting material at the hull penetration; and

(v) They are installed in compliance with §§ 116.405(c) and 116.970 of this chapter.

(b) The exhaust pipe cooling water system must comply with the requirements of this paragraph.

(1) Water for cooling the exhaust pipe must be obtained from the engine cooling water system or a separate engine driven pump.

(2) Water for cooling an exhaust pipe, other than a vertical exhaust, must be injected into the exhaust system as near to the engine manifold as practicable. The water must pass through the entire length of the exhaust pipe.

(3) The part of the exhaust system between the point of cooling water injection and the engine manifold must be water-jacketed or effectively insulated and protected in compliance with §§ 116.400(b) and 116.970 of this chapter.

(4) Each vertical exhaust pipe must be water-jacketed or suitably insulated between the engine manifold and the spark arrester required by § 119.430(g) of this part.

(5) When the exhaust cooling water system is separate from the engine cooling water system, a suitable warning device, visual or audible, must be installed at the operating station to indicate any reduction in normal water flow in the exhaust cooling system.

(6) A suitable hull strainer must be installed in the circulating raw water intake line for the exhaust cooling system.

(c) Engine exhaust cooling systems built in accordance with the requirements of American Boat and Yacht Council (ABCY) P–1, ''Installation of Exhaust Systems for Propulsion and Auxiliary Engines,'' will be considered as meeting the requirements of this section.

§ 119.430 Engine exhaust pipe installation.

(a) The design of all exhaust systems must ensure minimum risk of injury to personnel. Protection must be provided in compliance with § 116.970 of this chapter at such locations where persons or equipment might come in contact with an exhaust pipe.

(b) Exhaust gas must not leak from the piping or any connections. The piping must be properly supported by noncombustible hangers or blocks.

(c) The exhaust piping must be so arranged as to prevent backflow of water from reaching engine exhaust ports under normal conditions.

(d) An exhaust pipe discharge located less than 75 millimeters (3 inches) above the deepest load waterline must be installed with a means to prevent the entrance of water.

(e) Pipes used for wet exhaust lines must be at least Schedule 80 or corrosion resistant material and adequately protected from mechanical damage.

(f) Where flexibility is necessary, a section of flexible metallic hose may be used. Nonmetallic hose may be used for wet exhaust systems provided it is especially adapted to resist the action of oil, acid, and heat, and has a wall thickness sufficient to prevent collapsing or panting, and is double clamped where practicable.

(g) Where an exhaust pipe passes through a watertight bulkhead, the watertight integrity of the bulkhead must be maintained. Noncombustible packing must be used in bulkhead penetration glands for dry exhaust systems. A wet exhaust pipe may be welded to a steel or equivalent bulkhead in way of a penetration if suitable arrangements are provided to relieve the stresses resulting from the expansion of the exhaust piping.

(h) A dry exhaust pipe must:

(1) If it passes through a combustible bulkhead or partition, be kept clear of, and suitably insulated or shielded from, combustible material.

(2) Be provided with noncombustible hangers and blocks for support.

(i) An exhaust pipe discharge terminating in a transom must be located as far outboard as practicable so that exhaust gases cannot reenter the vessel.

(j) Arrangements must be made to provide access to allow complete inspection of the exhaust piping throughout its length.

(k) An exhaust installation subject to pressures in excess of 105 kPa (15 psig) or having exhaust pipes passing through living or working spaces must meet the material requirements of Part 56 of subchapter F (Marine Engineering) of this chapter.

(1) Engine exhaust installations built in accordance with the requirements of ABYC P–1 will be considered as meeting the requirements of this section.

§ 119.435 integral fuel tanks.

(a) Diesel fuel tanks may not be built integral with the hull of a vessel unless the hull is made of steel or aluminum.

(b) During the initial inspection for certification of a vessel, integral fuel tanks must withstand a hydrostatic pressure test of 35 kPa (5 psig), or the maximum pressure head to which they may be subjected in service, whichever is greater. A standpipe of 3.5 meters (11.5 feet) in height attached to the tank may be filled with water to accomplish the 35 kPa (5 psig) test.

§ 119.440 Independent fuel tanks.

(a) *Materials and construction.* Independent fuel tanks must be designed and constructed of materials in compliance with the requirements of this paragraph.

(1) The material used and the minimum thickness allowed must be as indicated in Table 119.440(a)(1), except that other materials which provide equivalent safety may be approved for use under paragraph (a)(3) of this section. Tanks having a capacity of more than 570 liters (150 gallons) must be designed to withstand the maximum head to which they may be subjected in service, but in no case may the thickness be less than that specified in Table 119.440(a)(1).

TABLE 119.440(a)(1)

Material	ASTM Specification (latest edition)	Thickness in millimeters (inches) & [gage number] [1] vs. tank capacities for:		
		4 to 300 liter (1 to 80 gal) tanks	More than 300 liter (80 gal) and not more than 570 liter (150 gal) tanks	Over 570 liter (150 gal) [2] tanks
Nickel-copper	B127, hot rolled sheet or plate.	0.94 (0.037) [USSG 20] [3]	1.27 (0.050) [USSG 18]	2.72 (0.107) [USSG 12]
Copper-nickel [4].	B122, UNS alloy C71500.	1.14 (0.045) [AWG 17]	1.45 (0.057) [AWG 15]	3.25 (0.128) [AWG 8]
Copper [4]	B152, UNS alloy C11000.	1.45 (0.057) [AWG 15]	2.06 (0.081) [AWG 12]	4.62 (0.182) [AWG 5]
Copper-silicon [4].	B97, alloys A, B, and C.	1.29 (0.051) [AWG 16]	1.63 (0.064) [AWG 14]	3.66 (0.144) [AWG 7]
Steel or iron [5, 6].		1.90 (0.0747) [MSG 14]	2.66 (0.1046) [MSG 12]	4.55 (0.1793) [MSG 7]
Aluminum [7]	B209, alloy 5052, 5083, 5086.	6.35 (0.250) [USSG 3]	6.35 (0.250) [USSG 3]	6.35 (0.250) [USSG 3]
Fiber reinforced plastic.		as required [8]	as required [8]	as required [8]

[1] The gage numbers used in this table may be found in many standard engineering reference books. The letters ''USSG'' stand for ''U.S. Standard Gage,'' which was established by the act of March 3, 1892 (15 U.S.C. 206), for sheet and plate iron and steel. The letters ''AWG'' stand for ''American Wire Gage'' (or Brown and Sharpe Gage) for nonferrous sheet thicknesses. The letters ''MSG'' stand for ''Manufacturers' Standard Gage'' for sheet steel thickness.

[2] Tanks over 1514 liters (400 gallons) shall be designed with a factor of safety of four on the ultimate strength of the material used with a design held of not less than 1220 millimeters (4 feet) of liquid above the top of the tank.

[3] Nickel-copper not less than 0.79 millimeter (0.031 inch) [USSG 22] may be used for tanks up to 114- liter (30-gallon) capacity.

[4] Acceptable only for gasoline service.

[5] Gasoline fuel tanks constructed of iron or steel, which are less than 5 millimeter (0.1875 inch) thick, shall be galvanized inside and outside by the hot dip process. Tanks intended for use with diesel oil shall not be internally galvanized.

[6] Stainless steel tanks are not included in this category.

[7] Anodic to most common metals. Avoid dissimilar metal contact with tank body.

[8] The requirements of § 119.440(a)(2) apply.

(2) Fiber reinforced plastic may be used for diesel fuel tanks under the following provisions:

(i) The materials must be fire retardant. Flammability of the material must be determined by the standard test methods in American Society for Testing and Materials (ASTM) D635, ''Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position,'' and

ASTM D2863, ''Measuring the Minimum Oxygen Concentration to Support Candle-like Combustion of Plastics (Oxygen Index),'' or other standard specified by the Commandant. The results of these tests must show that the average extent of burning is less than 10 millimeters (0.394 inches), the average time of burning is less than 50 seconds, and the limiting oxygen index is greater than 21.

(ii) Tanks must meet UL 1102, ''Non integral Marine Fuel Tanks,'' or other standard specified by the Commandant. Testing may be accomplished by an independent laboratory or by the fabricator to the satisfaction of the cognizant OCMI.

(iii) Tanks must be designed to withstand the maximum head to which they may be subjected to in service.

(iv) Installation of nozzles, flanges or other fittings for pipe connections to the tanks must be acceptable to the cognizant OCMI.

(v) Baffle plates, if installed, must be of the same material and not less than the minimum thickness of the tank walls. Limber holes at the bottom and air holes at the top of all baffles must be provided. Baffle plates must be installed at the time the tests required by UL 1102, or other standard specified by the Commandant, are conducted.

(3) Materials other than those listed in Table 119.440(a)(1) must be approved by the Commandant. An independent tank using material approved by the Commandant under this paragraph must meet the testing requirements of UL 1102, or other standard specified by the Commandant. Testing may be accomplished by an independent laboratory or by the fabricator to the satisfaction of the OCMI.

(4) Tanks with flanged-up top edges that may trap and hold moisture are prohibited.

(5) Openings for fill pipes, vent pipes, and machinery fuel supply pipes, and openings for fuel level gauges, where used, must be on the topmost surfaces of tanks. Tanks may not have any openings in bottoms, sides, or ends, except for:

(i) An opening fitted with a threaded plug or cap installed for tank cleaning purposes; and

(ii) In a diesel fuel tank, openings for supply piping and tubular gauge glasses.

(6) All tank joints must be welded or brazed. Lap joints may not be used.

(7) Nozzles, flanges, or other fittings for pipe connections to a metal tank must be welded or brazed to the tank. Tank openings in way of pipe connections must be properly reinforced where necessary. Where fuel level gauges are used on a metal tank, the flanges to which gauge fittings are attached must be welded or brazed to the tank. Tubular gauge glasses, if fitted to diesel fuel tanks, must be of heat resistant materials, adequately protected from mechanical damage, and provided at the tank connections with devices that will automatically close in the event of rupture of the gauge or gauge lines.

(8) A metal tank exceeding 760 millimeters (30 inches) in any horizontal dimension must:

(i) Be fitted with vertical baffle plates, which meet paragraph (a)(9) of this section, at intervals not exceeding 760 millimeters (30 inches) to provide strength and to control the excessive surge of fuel; or

(ii) The owner shall submit calculations to the Commanding Officer, Marine Safety Center demonstrating the structural adequacy of the tank in a fully loaded static condition and in a worst case dynamic (sloshing) condition.

(9) Baffle plates, where required in metal tanks, must be of the same material and not less than the minimum thickness required in the tank walls and must be connected to the tank walls by welding or brazing. Limber holes at the bottom and air holes at the top of all baffles must be provided.

(10) Iron or steel diesel fuel tanks must not be galvanized on the interior. Galvanizing, paint, or other suitable coating must be used to protect the outside of iron and steel diesel fuel tanks.

(b) *Location and installation.* Independent fuel tanks must be located and installed in compliance with the requirements of this paragraph.

(1) Fuel tanks must be located in, or as close as practicable to, machinery spaces.

(2) Fuel tanks and fittings must be so installed as to permit examination, testing, or removal for cleaning with minimum disturbance to the hull structure.

(3) Fuel tanks must be adequately supported and braced to prevent movement. The supports and braces must be insulated from contact with the tank surfaces with a nonabrasive and nonabsorbent material.

(4) All fuel tanks must be electrically bonded to a common ground.

(c) *Tests.* Independent fuel tanks must be tested in compliance with the requirements of this part prior to being used to carry fuel.

(1) Prior to installation, tanks vented to the atmosphere must be hydrostatically tested to, and must withstand, a pressure of 35 kPa (5 psig) or 1.5 times the maximum pressure head to which they may be subjected in service, whichever is greater. A standpipe of 3.5 meters (11.5 feet) in height attached to the tank may be filled with water to accomplish the 35 kPa (5 psig) test. Permanent deformation of the tank will not be cause for rejection unless accompanied by leakage.

(2) After installation of the fuel tank on a vessel, the complete installation must be tested in the presence of a marine inspector, or an individual specified by the cognizant OCMI, to a head not less than that to which the tank may be subjected in service. Fuel may be used as the testing medium.

(3) All tanks not vented to the atmosphere must be constructed and tested in accordance with § 119.330 of this part.

§ 119.445 Fill and sounding pipes for fuel tanks.

(a) Fill pipes for fuel tanks must be not less than 40 millimeters (1.5 inches) nominal pipe size.

(b) There must be a means of accurately determining the amount of fuel in each fuel tank either by sounding, through a separate sounding pipe or a fill pipe, or by an installed marine type fuel gauge.

(c) Where sounding pipes are used, each opening must be at least as high as the opening of the fill pipe and they must be kept closed at all times except during sounding.

(d) Full pipes and sounding pipes must be so arranged that overflow of liquid or vapor cannot escape to the inside of the vessel.

(e) Fill pipes and sounding pipes must run as directly as possible, preferably in a straight line, from the deck connection to the top of the tank. Such pipes must terminate on the weather deck and must be fitted with shutoff valves, watertight deck plates, or screw caps, suitably marked for identification. Diesel fill pipes and sounding pipes may terminate at the top of the tank.

(f) Where a flexible fill pipe section is necessary, suitable flexible tubing or hose having high resistance to salt water, petroleum oils, heat and vibration, may be used. Such hose must overlap metallic pipe ends at least 1.5 times the pipe diameter and must be secured at each end by clamps. The flexible section must be accessible and as near the upper end of the fill pipe as practicable. When the flexible section is a nonconductor of electricity, the metallic sections of the fill pipe separated thereby must be joined by a conductor for protection against generation of a static charge when filling with fuel.

§ 119.450 Vent pipes for fuel tanks.

(a) Each unpressurized fuel tank must be fitted with a pipe connected to the highest point of the tank.

(b) The minimum net cross sectional area of the vent pipe for diesel fuel tanks must be as follows:

(1) Not less than the cross sectional area of 16 millimeters (0.625 inches) outer diameter (O.D.) tubing (0.9 millimeter (0.035 inch) wall thickness, 20 gauge), if the fill pipe terminates at the top of the tank;

(2) Not less than the cross sectional area of 19 millimeters (0.75 inches) O.D. tubing (9.8 millimeter (0.035) inch) wall thickness, 20 gauge), if the fill pipe extends into the tank; and

(3) Not less than the cross sectional area of the fill pipe if the tank is filled under pressure.

(c) The discharge ends of fuel tank vent pipes must terminate on the hull exterior as high above the waterline as practicable and remote from any hull openings, or they must terminate in U-bends as high above the weather deck as practicable and as far as practicable from opening into any enclosed spaces. Vent pipes terminating on the hull exterior must be installed or equipped to prevent the accidental contamination of the fuel by water under normal operating conditions.

(d) The discharge ends of fuel tank vent pipes must be fitted with removable flame screens or flame arresters. The flame screens must consist of a single screen of corrosion resistant wire of at least 30x30 mesh. The flame screens or flame arresters must be of such size and design as to prevent reduction in the net cross sectional area of the vent pipe and permit cleaning or renewal of the flame screens or arrester elements.

(e) Where a flexible vent pipe section is necessary, suitable flexible tubing or hose having high resistance to salt water, petroleum oils, heat and vibration, may be used. Such hose must overlap metallic pipe ends at least 1.5 times the pipe diameter and must be secured at each end by clamps. The flexible section must be accessible and as near the upper end of the vent pipe as practicable.

(f) Fuel tank vent pipes shall be installed to gradient upward to prevent fuel from being trapped in the line.

§ 119.455 Fuel piping.

(a) *Materials and workmanship.* The materials and construction of fuel lines, including pipe, tube, and hose, must comply with the requirements of this paragraph.

(1) Fuel lines must be annealed tubing of copper, nickel-copper, or copper-nickel having a minimum wall thickness of 0.9 millimeters (0.35 inches) except that:

(i) Diesel fuel piping of other materials, such as seamless steel pipe or tubing, which provide equivalent safety may be used;

(ii) Diesel fuel piping of aluminum is acceptable on aluminum hull vessels provided it is at lest Schedule 80; and

(iii) When used, flexible hose must meet the requirements of § 56.60–25 in subchapter F of this chapter.

(2) Tubing connections and fittings must be of nonferrous drawn or forged metal of the flared type except that flareless fittings of the nonbite type may be used when the tubing system is of nickel-copper or copper-nickel. When making tube connections, the tubing must be cut square and flared by suitable tools. Tube ends must be annealed before flaring.

(3) Cocks are prohibited except for the solid bottom type with tapered plugs and union bonnets.

(b) *Installation.* The installation of fuel lines, including pipe, tube, and hose, must comply with the requirements of this paragraph.

(1) Diesel fuel lines may be connected to the fuel tank at or near the bottom of the tank.

(2) Fuel lines must be accessible, protected from mechanical injury, and effectively secured against excessive movement and vibration by the use of soft nonferrous metal straps that have no sharp edges and are insulated to protect against corrosion. Where passing through bulkheads, fuel lines must be protected by close fitting ferrules or stuffing boxes. All fuel lines and fittings must be accessible for inspection.

(3) Shutoff valves, installed so as to close against the fuel flow, must be fitted in the fuel supply lines, one at the tank connection and one at the engine end of the fuel line to stop fuel flow when servicing accessories. The shutoff valve at the tank must be manually operable from outside the compartment in which the valve is located, preferably from an accessible position on the weather dock. If the handle to the shutoff valve at the tank is located inside the tank compartment, it must be located so that the operator does not have to reach more than 300 millimeters (12 inches) into the compartment and the valve handle must be shielded from flames by the same material the hull is constructed of, or some noncombustible material. Electric solenoid valves must not be used, unless used in addition to the manual valve.

(4) A loop of copper tubing or a short length of flexible hose must be installed in the fuel supply line at or near the engines. The flexible hose must meet the requirements of § 56.60–25 in subchapter F of this chapter.

(5) A suitable metal marine type strainer, meeting the requirements of the engine manufacturer, must be fitted in the fuel supply line in the engine compartment. Strainers must be leak free. Strainers must be of the type opening on top for cleaning screens. Fuel filter and strainer bowls must be highly resistant to shattering due to mechanical impact and resistant to failure due to thermal shock. Fuel filters fitted with bowls of other than steel construction must be approved by the Commandant and be protected from mechanical damage. Approval of bowls of other than steel construction will specify if a flame shield is required.

(6) All accessories installed in the fuel line must be independently supported.

(7) Valves for removing water or impurities from diesel fuel in water traps or strainers are permitted. These valves must be provided with caps or plugs to prevent fuel leakage.

§ 119.458 Portable fuel systems.

(a) Portable fuel systems, including portable tanks and related fuel lines and accessories, are prohibited except where used for outboard motor installations.

(b) The design, construction and stowage of portable tanks and related fuel lines and accessories must meet the requirements of ABYC H–25, ''Portable Gasoline Fuel Systems for Flammable Liquids,'' or other standard specified by the Commandant.

§ 119.465 Ventilation of spaces containing diesel machinery.

(a) A space containing diesel machinery must be fitted with adequate means, such as dripproof ventilators, ducts, or louvers, to provide sufficient air for proper operation of main engines and auxiliary engines.

(b) Air-cooled propulsion and auxiliary diesel engines installed below deck, as permitted by § 119.420 of this part, must be fitted with air supply ducts or piping from the weather deck. The ducts or piping must be so arranged and supported to be capable of safely sustaining stresses induced by weight and engine vibration and to minimize transfer of vibration to the supporting structure. Prior to installation of ventilation system for such engines, plans or sketches showing machinery arrangement including air supplies, exhaust stack, method of attachment of ventilation ducts to the engine, location of spark arresting mufflers and capacity of ventilation blowers must be submitted to the cognizant OCMI for approval.

(c) A space containing diesel machinery must be fitted with at least two ducts to furnish natural or powered supply and exhaust ventilation. The total inlet area and the total outlet area of each ventilation duct may not be less than one square inch for each foot of beam of the vessel. These minimum areas must be increased as necessary when the ducts are considered as part of the air supply to the engines.

(d) A duct must be of rigid permanent construction, which does not allow any appreciable vapor flow except through normal openings, and made of the same material as the hull or of noncombustible material. The duct must lead as directly as possible from its intake opening to its terminus and be securely fastened and supported.

(e) A supply duct must be provided with a cowl or scoop having a free area not less than twice the required duct area. When the cowl or scoop is screened, the mouth area must be increased to compensate for the area of the screen wire. A cowl or scoop must be kept open at all times except when the weather is such as to endanger the vessel if the openings are not temporarily closed.

(f) Dampers may not be fitted in a supply duct.

(g) A duct opening may not be located where the natural flow of air is unduly obstructed, adjacent to possible sources of vapor ignition, or where exhaust air may be taken into a supply duct.

(h) Provision must be made for closing all supply duct cowls or scoops and exhaust duct discharge openings for a space protected by a fixed gas extinguishing system. All closure devices must be readily available and mounted in the vicinity of the vent.

§ 119.470 Ventilation of spaces containing diesel fuel tanks.

(a) Unless provided with ventilation that complies with § 119.465 of this part, a space containing a diesel fuel tank and no machinery must meet one of the following requirements:

(1) A space of 14 cubic meters (500 cubic feet) or more in volume must have a gooseneck vent of not less than 65 millimeters (2.5 inches) in diameter; or

(2) A space of less than 14 cubic meters (500 cubic feet) in volume must have a gooseneck vent of not less than 40 millimeters (1.5 inches) in diameter.

(b) Vent openings may not be located adjacent to possible sources of vapor ignition.

Subpart E—Bilge and Ballast Systems

§ 119.500 General.

(a) A vessel must be provided with a satisfactory arrangement for draining any watertight compartment, other than small buoyancy compartments, under all practicable conditions. Sluice valves are not permitted in watertight bulkheads.

(b) Special consideration may be given to vessels, such as high speed craft, which have a high degree of subdivision and utilize numerous small buoyancy compartments. Where the probability of flooding of the space is limited to external hull damage, compartment drainage may be omitted provided it can be shown by stability calculations, submitted to the cognizant OCMI, that the safety of the vessel will not be impaired.

§ 119.510 Bilge piping system.

A vessel must be provided with a piping system that meets § 56.50–50 in subchapter F of this chapter, with the following exceptions:

(a) The space forward of the collision bulkhead need not be fitted with a bilge suction line when the arrangement of the vessel is such that ordinary leakage may be removed from this compartment by the use of a hand portable bilge pump or other equipment, and such equipment is provided; and

(b) The vessel need not comply with § 56.50–50(f) is subchapter F of this chapter.

§ 119.520 Bilge pumps.

(a) Each vessel must be provided with bilge pumps in accordance with § 56.50–55 in subchapter F of this chapter, with the following exceptions:

(1) Note 1 in Table 56.50–55(a) is not applicable and should be disregarded; and

(2) A non-self-propelled vessel must comply with § 56.50–55(a) in subchapter F of this chapter instead of § 56.50–55(b).

(b) In addition to the requirements of paragraph (a) of this section, a vessel of not more than 19.8 meters (65 feet) in length must have a portable hand bilge pump that must be:

(1) Capable of pumping water, but not necessarily simultaneously, from all watertight compartments; and

(2) Provided with suitable suction and discharge hoses capable of reaching the bilges of each watertight compartment, and discharging overboard.

(c) A second power pump is an acceptable alternative to a hand pump if it is supplied by a source independent of the first power bilge pump.

§ 119.530 Bilge high level alarms.

(a) Each vessel must be provided with a visual and audible alarms at the operating station to indicate a high water level in each of the following normally unmanned spaces:

(1) A space with a through-hull fitting below the deepest load waterline, such as a lazerette;

(2) A machinery space bilge, bilge well, shaft alley bilge, or other spaces subject to flooding from sea water piping within the space; and

(3) A space with a non-watertight closure , such as a space with a non-watertight hatch on the main deck.

(b) A visual indicator must be provided at the operating station to indicate when any automatic bilge pump is operating.

§ 119.540 Ballast systems.

Solid and water ballast must comply with the requirements of Subpart L of Part 116 of this subchapter.

Subpart F—Steering Systems.

§ 119.600 General.

A self-propelled vessel must meet the applicable requirements for main and auxiliary steering apparatus in subchapters F (Marine Engineering) and J (Electrical Engineering) of this chapter.

Subpart G—Piping Systems

§ 119.700 General.

Materials used in piping systems must meet the requirements of this subpart and be otherwise acceptable to the cognizant OCMI.

§ 119.710 Piping for vital systems.

(a) Vital systems are those systems that are vital to a vessel's survivability and safety. For the purpose of this part the following are vital systems:

(1) Fuel systems;

(2) Fire main;

(3) CO_2 and Halon systems;

(4) Bilge system;

(5) Steering system;

(6) Propulsion system and its necessary auxiliaries and controls;

(7) Ship's service and emergency electrical generation system and its necessary auxiliaries; and

(8) A marine engineering system identified by the cognizant OCMI as being crucial to the survival of the vessel or to the protection of the personnel on board.

(b) For the purpose of this part, a system not identified in paragraph (a) of this section is a non-vital system.

(c) Piping used in a vital system must meet § 56.60 in subchapter F of this chapter, except that § 119.730 of this part replaces § 56.60–20 in subchapter F of this chapter.

§ 119.715 Piping subject to more than 1,034 kPa (150 psig) in non-vital systems.

Piping subject to more than 1034 kPa (150 psig) in a non-vital system must be

designed, fabricated, and inspected in accordance with the principles of American National Standards Institute (ANSI) B 31.1 ''American National Standard Code for Pressure Piping, Power Piping,'' or other standard specified by the Commandant.

§ 119.720 Nonmetallic piping materials.

Nonmetallic piping materials, including nonmetallic flexible hose assemblies, must meet the requirements of § 56.60–25 in subchapter F of this chapter.

§ 119.730 Nonferrous metallic piping materials.

(a) Nonferrous metallic piping materials are acceptable for use in the following:

(1) Non-vital systems;

(2) Aluminum fuel piping on an aluminum hulled vessel, if at least Schedule 80;

(3) Aluminum bilge, ballast, and firemain piping on an aluminum hulled vessel;

(4) If acceptable to the cognizant OCMI, nonferrous metallic piping with a melting temperature above 927° C (1,700° F) may be used in vital systems that are deemed to be galvanically compatible; and

(5) Other uses specifically accepted by the cognizant OCMI.

(b) Where nonferrous metallic material is permitted for use in piping systems by this subpart, the restrictions in this paragraph apply:

(1) Provisions must be made to protect piping systems using aluminum alloys in high risk fire areas due to the low melting point of aluminum alloys;

(2) Provisions must be made to prevent or mitigate the effect of galvanic corrosion due to the relative solution potentials of copper, aluminum, and alloys of copper and aluminum, which are used in conjunction with each other, steel, or other metals and their alloys;

(3) A suitable thread compound must be used in making up threaded joints in aluminum pipe to prevent seizing. Pipe in the annealed temper must not be threaded;

(4) The use of aluminum alloys with a copper content exceeding 0.6 percent is prohibited; and

(5) The use of cast aluminum alloys in hydraulic fluid power systems must be in accordance with the requirements of § 58.30–15(f) in subchapter F of this chapter.

PART 120—ELECTRICAL INSTALLATION

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Authority: 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 120.100 Intent.

This part contains requirements for the design, construction, installation, and operation of electrical equipment and systems including power sources, lighting, motors, miscellaneous equipment, and safety systems.

§ 120.115 Applicability to existing vessels.

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

(b) An existing vessel must comply with the requirements of §§ 120.420 and 120.430 of this part.

(c) New installations of electrical equipment and material, and the repair or replacement of wire and cable, on an existing vessel, which are completed to the satisfaction of the cognizant Officer in Charge, Marine Inspection (OCMI) on or after March 11, 1996, must comply with this part. Replacement of existing equipment, not including wire or cable, installed on the vessel prior to March 11, 1996, need not comply with the regulations in this part.

Subpart B—General Requirements

§ 120.200 General design, installation, and maintenance requirements.

Electrical equipment on a vessel must be installed and maintained to:

(a) Provide services necessary for safety under normal and emergency conditions;

(b) Protect passengers, crew, other persons, and the vessel from electrical hazards, including fire, caused by or originating in electrical equipment, and electrical shock;

(c) Minimize accidental personnel contact with energized parts; and

(d) Prevent electrical ignition of flammable vapors.

§ 120.210 Protection from wet and corrosive environments.

(a) Electrical equipment used in the following locations must be dripproof:

(1) A machinery space;

(2) A location normally exposed to splashing, water washdown, or other wet conditions within a galley, a laundry, or a public washroom or toilet room that has a bath or shower; or

(3) Another space with a similar moisture level.

(b) Electrical equipment exposed to the weather must be watertight.

(c) Electrical equipment exposed to corrosive environments must be of suitable construction and corrosion-resistant.

§ 120.220 General safety provisions.

(a) Electrical equipment and installations must be suitable for the roll, pitch, and vibration of the vessel underway.

(b) All equipment, including switches, fuses, lampholders, etc., must be suitable for the voltage and current utilized.

(c) Receptacle outlets of the type providing a grounded pole or a specific

direct current polarity must be of a configuration that will not permit improper connection.

(d) All electrical equipment and circuits must be clearly marked and identified.

(e) Any cabinet, panel, box, or other enclosure containing more than one source of power must be fitted with a sign warning persons of this condition and identifying the circuits to be disconnected.

Subpart C—Power Sources and Distribution Systems

§ 120.310 Power sources.

(a)(1) Each vessel that relies on electricity to power the following loads must be arranged so that the loads can be energized from two sources of electricity:

(i) The vital systems listed in § 119.710 of this chapter;

(ii) Interior lighting except for decorative lights;

(iii) Communication systems including a public address system required under § 121.610 of this chapter; and

(iv) Navigation equipment and lights.

(2) Except as provided in § 120.312 of this part, a vessel with batteries of adequate capacity to supply the loads specified in paragraph (a)(1) of this section for three hours, and a generator or alternator driven by a propulsion engine, complies with the requirement in paragraph (a)(1) of this section.

(b) Where a ship service generator driven by a propulsion engine is used as a source of electrical power, a vessel speed change, throttle movement or change in direction of the propeller shaft rotation must not interrupt power to any of the loads specified in paragraph (a)(1) of this section.

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

A vessel of more than 19.8 meters (65 feet) in length with overnight accommodations for more than 49 passengers must have:

(a) Two generator sets;

(b) An electrical power system that complies with the requirements of §§ 111.10–4, 111.10–5, 111.10–9, 111.10–11 in subchapter J of this chapter;

(c) A final emergency power source, as defined by § 112.01–20 in subchapter J of this chapter, with sufficient capacity to power the loads listed in § 112.15–5 in subchapter J of this chapter for three hours; and

(d) The final emergency power source located outside the machinery space.

§ 120.320 Generators and motors.

(a) Each generator and motor must be:

(1) In a location that is accessible, adequately ventilated, and as dry as practicable; and

(2) Mounted above the bilges to avoid damage by splash and to avoid contact with low lying vapors.

(b) Each generator and motor must be designed for an ambient temperature of 50° C (122° F) except that:

(1) If the ambient temperature in the space where a generator or motor will be located will not exceed 40° C (104° F) under normal operating conditions, the generator or motor may be designed for an ambient temperature of 40° C (104° F); and

(2) A generator or motor designed for 40° (104° F) may be used in 50° C (122° F) ambient locations provided the generator or motor is derated to 80 percent of the full load rating, and the rating or setting of the overcurrent devices is reduced accordingly.

(c) A voltmeter and an ammeter, which can be used for measuring voltage and current of a generator that is in operation, must be provided for a generator rated at 50 volts or more. For each alternating current generator, a means for measuring frequency must also be provided.

(d) Each generator must have a nameplate attached to it containing the information required by Article 445 of the National Electrical Code (NEC) (National Fire Protection Association (NFPA) 70), and for a generator derated in accordance with paragraph (b)(2) of this section, the derated capacity.

(e) Each motor must have a nameplate attached to it containing the information required by Article 430 of the NEC (NFPA 70), and for a motor derated in accordance with paragraph (b)(2) of this section, the derated capacity.

(f) Each generator must be protected by an overcurrent device set at a value not exceeding 115 percent of the generator full load rating.

§ 120.322 Multiple generators.

When a vessel is equipped with two or more generators to supply ship's service power, the following requirements must be met:

(a) Each generator must have an independent prime mover; and

(b) The generator circuit breakers must be interlocked to prevent the generators from being simultaneously connected to the switchboard, except for the circuit breakers of a generator operated in parallel with another generator when the installation meets §§ 111.12–11(f), and 111.30–25(d) in subchapter J of this chapter.

§ 120.324 Dual voltage generators.

(a) A dual voltage generator installed on a vessel shall be of the grounded type, where:

(1) The neutral of a dual voltage system must be solidly connected at the switchboard's neutral bus; and

(2) The neutral bus shall be connected to ground.

(b) The neutral of a dual voltage system must be accessible for checking the insulation resistance of the generator to ground before the generator is connected to the bus.

(c) Ground detection must be provided that:

(1) For an alternating current system, meets § 111.05–27 in subchapter J of this chapter; and

(2) For a direct current system, meets § 111.05–29 in subchapter J of this chapter.

§ 120.330 Distribution panels and switchboards.

(a) Each distribution panel and switchboard must be in as dry a location as practicable, adequately ventilated, and protected from falling debris and dripping or splashing water.

(b) Each distribution panel or switchboard must be totally enclosed and of the dead front type.

(c) Each switchboard must have nonconductive handrails.

(d) Each switchboard must be fitted with a dripshield.

(e) Distribution panels and switchboards that are accessible from the rear must be constructed to prevent a person from accidentally contacting energized parts.

(f) Working space must be provided around all main distribution panels and switchboards of at least 610 millimeters (24 inches) in front of the switchboard, and at least 455 millimeters (18 inches) behind the switchboard. Rear access is prohibited when the working space behind the switchboard is less than 455 millimeters (18 inches).

(g) Nonconducting mats or grating must be provided on the deck in front of each switchboard and, if accessible from the rear, on the deck in the rear of the switchboard.

(g) All uninsulated current carrying parts must be mounted on noncombustible, nonabsorbent, high dielectric insulating material.

(i) Equipment mounted on a hinged door of an enclosure must be constructed or shielded so that a person will not accidentally contact energized parts of the door mounted equipment when the door is open and the circuit energized.

(j) In the design of control, interlock, or indicator circuit, the disconnect

device and its connections, including each terminal block for terminating the vessel's wiring, must not have electrically unshielded or uninsulated surfaces.

(k) Switchboards and distribution panels must be sized in accordance with § 111.30–19 in subchapter J of this chapter.

§ 120.340 Cable and wiring requirements.

(a) If individual wires, rather than cables, are used in systems greater than 50 volts, the wire must be in conduit.

(b) All cable and wire must:

(1) Have stranded copper conductors with sufficient current carrying capacity for the circuit in which they are used;

(2) Be installed in a manner to avoid or reduce interference with radio reception and compass indication;

(3) Be protected from the weather;

(4) Be installed with metal supports spaced not more than 610 millimeters (24 inches) apart, and in such a manner as to avoid chafing and other damage. The use of plastic tie wraps must be limited to bundling or retention of multiple cable installations, and not used as a means of support;

(5) Not be installed with sharp bends;

(6) Be protected by metal coverings or other suitable means if in areas subject to mechanical abuse. Horizontal pipes used for protection shall have 6 millimeter (.25 inch) holes for drainage every 1,520 millimeters (5 feet);

(7) Be suitable for low temperature and high humidity if installed in refrigerated compartments;

(8) Not be located in a tank unless the cable provides power to equipment in the tank; and

(9) Have sheathing or wire insulation compatible with the fluid in a tank when installed as allowed by paragraph (b)(8) of this section.

(c) Conductors in power and lighting circuits must be No. 14 American Wire Gauge (AWG) or larger. Conductors in control and indicator circuits must be No. 22 AWG or larger.

(d) Cable and wire for power and lighting circuits must:

(1) Meet Section 310–13 of the NEC (NFPA 70) except that asbestos insulated cable and dry location cables can not be used;

(2) Be listed by Underwriters Laboratories (UL), as UL Boat or UL Marine cable; or

(3) Meet § 111.60–1 in subchapter J of this chapter for cable and § 111.60–11 in subchapter J of this chapter for wire.

(e) Cable or wire serving vital systems listed in § 119.710 of this subchapter or emergency loads must be routed as far as practicable from high risk fire areas, such as galleys, laundries, and machinery spaces.

(f) Cable or wire serving duplicated equipment must be separated so that a casualty that affects one cable does not affect the other.

(g) Each connection to a conductor or terminal part of a conductor must be made within an enclosure and have either:

(1) A pressure type connector on each conductor;

(2) A solder lug on each conductor;

(3) A splice made with a pressure type connector to a flexible lead or conductor; or

(4) A splice that is soldered, brazed, or welded to a flexible lead or conductor.

(h) A connector or lug of the set screw type must not be used with a stranded conductor smaller than No. 14 AWG except if there is a nonrotating follower that travels with the set screw and makes pressure contact with the conductor.

(i) Each pressure type wire connector and lug must meet UL 486A, ''Wire Connectors and Soldering Lugs for Use With Copper Conductors,'' or other standard specified by the Commandant. The use of wire nuts is prohibited.

(j) Each terminal block must have 6–32 terminal screws or larger.

(k) Wire connectors utilized in conjunction with screw type terminal blocks must be of the captive type such as the ring or the flanged spade type.

(l) A cable must not be spliced in a hazardous location.

(m) A cable may be spliced in a location, other than a hazardous location, under the following conditions:

(1) A cable installed in a subassembly may be spliced to a cable installed in another subassembly;

(2) For a vessel receiving alterations, a cable may be spliced to extend a circuit;

(3) A cable having a large size or exceptional length may be spliced to facilitate its installation; and

(4) A cable may be spliced to replace a damaged section of the cable if, before replacing the damaged section, the insulation resistance of the remainder of the cable is measured, and it is determined that the condition of the insulation is unimpaired.

(n) All material in a cable splice must be chemically compatible with all other material in the splice and with the materials in the cable.

(o) Ampacities of wires must meet Section 310–15 of the NEC (NFPA 70), or other standard specified by the Commandant. Ampacities of cables must meet table A6 of Institute of Electrical and Electronic Engineers (IEEE) Standard 45, ''Recommended Practice for Electrical Installations on Shipboard,'' or other standard specified by the Commandant. Ampacities for Navy cable must meet NAVSEA Design Data Sheet (DDS) 304–2 ''Electrical Cable, Ratings and Characteristics'' as appropriate.

(p) Conductors must be sized so that the voltage drop at the load terminals does not exceed 10 percent. Table 120.3340(p) indicates the size of conductor required for corresponding lengths and steady state (stable) values to obtain not more than this voltage drop at the load terminals of a two conductor circuit.

TABLE 120.340(p)—CONDUCTOR SIZES FOR AMPERES—LENGTHS

Total current on circuit, amperes	Length of conductor in meters (feet) from source of current to most distant fixture										
	3.1 (10)	4.5 (15)	6.1 (20)	7.6 (25)	9.2 (30)	10.7 (35)	12.2 (40)	13.7 (45)	15.2 (50)	16.8 (55)	18.3 (60)
12 volts, 2-wire—10 percent drop wire sizes (A.W.G.)											
5	14	14	14	14	14	14	14	14	12	12	12
14	14	14	14	12	12	12	10	10	10	10	8
15	14	14	12	10	10	10	8	8	8	8	8
20	12	12	10	10	8	8	8	8	6	6	6
25	10	10	10	8	8	8	6	6	6	6	4

Other values can be computed by means of the following formula:

$$cm = \frac{K \times I \times L(\times 2 \text{ for two-wire circuit})}{E}$$

Where:

cm = Circular-mil area of conductor.
K = 3.28 ohms/mil-meter (metric)
K = 10.75 ohms/mil-foot (english)
= 10.75 ohms/mil-foot (english)
(a constant representing the resistance of cooper).
I = Load current, in amperes.
L = length of conductor from center of distribution, in meters (feet).
E = Voltage drop at load, in volts.

(q) If used, each armored cable metallic covering must:

(1) Be electrically continuous; and

(2) Be grounded at each end of the run to:

(i) The metallic hull; or

(ii) The common ground plate on nonmetallic vessels; and

(3) Have final sub-circuits grounded at the supply end only.

(r) A portable or temporary electric cord or cable must be constructed and used in compliance with the requirements of § 111.60–13 in subchapter J of this chapter for a flexible electric cord or cable.

§ 120.350 Batteries—general.

(a) Where provisions are made for charging batteries, there must be natural or induced ventilation sufficient to dissipate the gases generated.

(b) Each battery must be located as high above the bilge as practicable, secured to protect against shifting with the roll and pitch of the vessel, and free from exposure to water splash or spray.

(c) Batteries must be accessible for maintenance and removal.

(d) Connections must be made to battery terminals with permanent type connectors. Spring clips or other temporary type clamps are prohibited.

(e) Batteries must be mounted in trays lined with, or constructed of, a material that is resistant to damage by the electrolyte.

(f) Battery chargers must have an ammeter connected in the charging circuit.

(g) If the batteries are not adjacent to a distribution panel or switchboard that distributes power to the lighting, motor, and appliance circuits, the battery lead must have a fuse in series, located as close as practicable to the battery.

(h) Batteries used for engine starting are to be located as close as possible to the engine or engines served.

§ 120.352 Battery categories.

This section applies to batteries installed to meet the requirements of § 120.310 of this part for secondary sources of power to vital loads, or sources of power to final emergency loads.

(a) *Large.* A large battery installation is one connected to a battery charger having an output of more than 2 kilowatts (kw), computed from the highest possible charging current and the rated voltage of the battery installation.

(b) *Small.* A small battery installation is one connected to a battery charger having an output of 2 kw or less, computed as above.

§ 120.354 Battery installations.

(a) *Large batteries.* Each large battery installation must be located in a locker, room or enclosed box solely dedicated to the storage of batteries. Ventilation must be provided in accordance with § 111.15–10 in subchapter J of this chapter. Electrical equipment located within the battery enclosure must be approved by an independent laboratory for Class I, Division 1, Group B hazardous locations and meet § 111.105 in subchapter J of this chapter.

(b) *Small batteries.* Each small battery installation must be located in a well ventilated space and protected from falling objects. A small battery installation must not be in a closet, storeroom, or similar space.

§ 120.360 Semiconductor rectifier systems.

(a) Each semiconductor rectifier system must have an adequate heat removal system that prevents overheating.

(b) Where a semiconductor rectifier system is used in a propulsion system or in other vital systems it must:

(1) Have a current limiting circuit;

(2) Have external overcurrent protection; and

(3) Meet Sections 35.84.2 and 35.84.4 of the American Bureau of Shipping (ABS), ''Rules for Building and Classing Steel Vessels,'' or other standard specified by the Commandant.

§ 120.370 General grounding requirements

(a) A vessel's hull must not carry current as a conductor except for the following systems:

(1) Impressed current cathodic protection systems; or

(2) Battery systems for engine starting.

(b) Receptacle outlets and attachment plugs for portable lamps, tools, and similar apparatus operating at 100 volts or more, must have a grounding pole and a grounding conductor in the portable cord.

(c) Each nonmetallic mast and top mast must have a lightning ground conductor.

§ 120.372 Equipment and conductor grounding.

(a) All metallic enclosures and frames of electrical equipment must be permanently grounded to the hull on a metallic vessel. On a nonmetallic vessel, the enclosures and frames of electrical equipment must be bonded together to a common ground by a normally non-current carrying conductor. Metallic cases of instruments and secondary windings of instrument transformers must be grounded.

(b) On a nonmetallic vessel, where a ground plate is provided for radio equipment, it must be connected to the common ground.

(c) Equipment grounding conductors must be sized in accordance with Section 250–95 of the NEC (NFPA 70), or other standard specified by the Commandant.

(d) Each insulated grounding conductor of a cable must be identified by one of the following means.

(1) A green braid or green insulation;

(2) Stripping the insulation from the entire exposed length of the grounding conductor; or

(3) Marking the exposed insulation of the grounding conductor with green tape or green adhesive labels.

(e) Cable armor must not be used to ground electrical equipment of systems.

§ 120.376 Grounded distribution systems (Neutral grounded).

(a) If a grounded distribution system is provided, there must be only one connection to ground, regardless of the number of power sources. This ground connection must be at the switchboard or at the common ground plate, which must be accessible.

(b) Each propulsion, power, lighting, or distribution system having a neutral bus or conductor must have the neutral grounded.

(c) The neutral or each grounded generation and distribution system must be grounded at the generator switchboard and have the ground connection accessible for checking insulation resistance of the generator to ground before the generator is connected to the bus, except the neutral of an emergency power generation system must be grounded with:

(1) No direct ground connection at the emergency switchboard;

(2) The neutral bus permanently connected to the neutral bus on the main switchboard; and

(3) No switch, circuit breaker, or fuse in the neutral conductor of the bus-tie feeder connecting the emergency switchboard to the main switchboard.

(d) On a metallic vessel, a grounded alternating current system must be

grounded to the hull. On a nonmetallic vessel, the neutral must be connected to the common ground, except that aluminum grounding conductors must not be used.

§ 120.380 Overcurrent protection.

(a) Overcurrent protection must be provided for each ungrounded conductor for the purpose of opening the electric circuit if the current reaches a value that causes an excessive or dangerous temperature in the conductor or conductor insulation.

(b) The grounded conductor of a circuit must not be disconnected by a switch or circuit breaker, unless the ungrounded conductors are simultaneously disconnected.

(c) A conductor of a control, interlock, or indicator circuit, such as a conductor for an instrument, pilot light, ground detector light, or potential transformer, must be protected by an overcurrent device.

(d) Conductors must be protected in accordance with their current carrying capacities. If the allowable current carrying capacity does not correspond to a standard device size, the next larger overcurrent device may be used provided it does not exceed 150 per cent of the conductor current carrying capacity.

(e) Steering gear control system circuits must be protected against short circuit.

(f) Each steering gear feeder circuit must be protected by a circuit breaker that meets the requirements of paragraphs (a) and (b) § 111.93–11 in subchapter J of this chapter.

(g) Each lighting branch circuit must be protected against overcurrent either by fuses or circuit breakers rated at not more than 30 amperes.

(h) Overcurrent devices capable of carrying the starting current of the motor must be installed to protect motors, motor conductors, and control apparatus against:

(1) Overcurrent due to short circuits or ground faults; and

(2) Overload due to motor running overcurrent, in accordance with § 111.70–1 in subchapter J of this chapter. A protective device integral with the motor, which is responsible to both motor current and temperature, may be used.

(i) An emergency switch must be provided in the normally ungrounded main supply conductor from a battery. The switch must be accessible and located as close to the battery as practicable.

(j) Disconnect means must be provided on the supply side of and adjacent to all fuses for the purpose of de-energizing the fuses for inspection and maintenance purposes.

(k) If the disconnect means is not within sight of the equipment that the circuit supplies, means must be provided for locking the disconnect device in the open position.

(l) Fuses must be of the cartridge type only and be listed by Underwriters Laboratories or another independent laboratory recognized by the Commandant.

(m) Each circuit breaker must meet UL 489, ''Molded-Case Circuit Breakers and Circuit Breaker Enclosures,'' or other standard specified by the Commandant, and be of the manually reset type designed for:

(1) Inverse time delay;

(2) Instantaneous short circuit protection; and

(3) Switching duty if the breaker is used as a switch.

(n) Each circuit breaker must indicate whether it is in the open or closed position.

§ 120.390 Shore power.

A vessel with an electrical system operating at more than 50 volts, which is provided with a means to connect to shore power, must meet the following:

(a) A shore power connection box or receptacle must be permanently installed at a convenient location:

(b) A cable connecting the shore power connection box or receptacle to the switchboard or main distribution panel must be permanently installed;

(c) A circuit breaker must be provided at the switchboard or main distribution panel for the shore power connection; and

(d) The circuit breaker, required by paragraph (c) of this section, must be interlocked with the vessel's power sources so that shore power and the vessel's power sources may not be operated simultaneously.

§ 120.392 Radiotelephone installations.

A separate circuit, with overcurrent protection at the main distribution panel, must be provided for each radiotelephone installation.

Subpart D—Lighting Systems

§ 120.410 Lighting fixtures.

(a) Each lighting fixture globe, lens, or diffuser must have a guard or be made of high strength material, except in an accommodation space, radio room, galley, or similar space where it is not subject to damage.

(b) A lighting fixture may not be used as a connection box for a circuit other than the branch circuit supplying the fixture.

(c) A lighting fixture must be installed as follows:

(1) Each fixture must comply with § 120.200.

(2) Each lighting fixture and lampholder must be fixed. A fixture must not be supported by the screw shell of a lampholder.

(3) Each pendant type lighting fixture must be suspended by and supplied through a threaded, rigid conduit stem.

(4) Each table lamp, desk lamp, floor lamp, or similar equipment must be secured in place so that it cannot be displaced by the roll or pitch of the vessel.

(d) An exterior lighting fixture in an electrical system operating at more than 50 volts must comply with the requirements of UL 595, ''Marine Type Electric Lighting Fixtures,'' or other standard specified by the Commandant. A lighting fixture in an accommodation space, radio room, galley or similar interior space may comply with, UL 1570, ''Fluorescent Lighting Fixtures,'' UL 1571, ''Incandescent Lighting Fixtures,'' UL 1572, ''High Intensity Discharge Lighting Fixtures,'' UL 1573, ''Stage and Studio Lighting Units,'' or UL 1574, ''Track Lighting Systems,'' as long as the general marine requirements of UL 595 are satisfied.

§ 120.420 Navigation lights.

All vessels must have navigation lights that are in compliance with the applicable sections of the International and Inland Navigation Rules, except that a vessel of more than 19.8 meters (65 feet) in length must also have navigation lights that meet UL 1104, ''Marine Navigation Lights,'' or other standard specified by the Commandant.

§ 120.430 Portable lights.

Each vessel must be equipped with at least two operable portable battery lights. One of these lights must be located at the operating station and the other at the access to the propulsion machinery space.

§ 120.432 Emergency lighting.

(a) Each vessel must have adequate emergency lighting fitted along the line of escape to the main deck from all passenger and crew accommodation spaces located below the main deck.

(b) The emergency lighting required by paragraph (a) of this section must automatically actuate upon failure of the main lighting system. If a vessel is not equipped with a single source of power for emergency lighting, it must have individual battery powered lights which:

(1) Are automatically actuated upon loss of normal power;

(2) Are not readily portable;

(3) Are connected to an automatic battery charger; and

(4) Have sufficient capacity for a minimum of 6 hours of continuous operation.

(c) A vessel of more than 19.8 meters (65 feet) in length with overnight accommodations for more than 49 passengers must have an emergency lighting system that complies with Part 112 in subchapter J of this chapter.

§ 120.434 Lifeboat and liferaft floodlights on vessels of more than 19.8 meters (65 feet) in length with overnight accommodations for more than 49 passengers.

Each vessel of more than 19.8 meters (65 feet) in length with overnight accommodations for more than 49 passengers must have floodlights for illuminating the stowage position and embarkation station of lifeboats, liferafts, rescue boats, and rescue platforms, where installed. These floodlights must meet the requirements of § 111.75–16 in subchapter J of this chapter.

Subpart E—Miscellaneous Systems and Requirements

§ 120.520 Lifeboat winches.

Each electric power operated lifeboat winch must meet § 111.95 in subchapter J and § 160.015 in subchapter Q of this chapter, or other standard specified by the Commandant.

§ 120.530 Hazardous areas.

(a) Electrical equipment in lockers used to store paint, oil, turpentine, or other flammable liquids must be explosion-proof or be part of an intrinsically safe system.

(b) Explosion-proof equipment and intrinsically safe systems must meet the requirements of § 111.105 in subchapter J of this chapter.

§ 120.540 Elevators.

Each elevator on a vessel must meet the requirements of American National Standards Institute (ANSI) A17.1. ''Safety Code for Elevators, and Escalators,'' or other standard specified by the Commandant.

§ 120.550 General alarm systems.

(a) All vessels with overnight accommodations must be equipped with a general alarm system.

(b) A vessel of more than 19.8 meters (65 feet) in length with overnight accommodations for more than 49 passengers must have a general alarm that meets the requirements of § 113.25 in subchapter J of this chapter.

(c) The public address system required by § 121.610 of this chapter may be used to sound the general alarm signal.

PART 121—VESSEL CONTROL AND MISCELLANEOUS SYSTEMS AND EQUIPMENT

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121.702 Oil pollution prevention equipment and procedures.
121.704 Marine sanitation devices.
121.710 First aid kits.

Authority: 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 121.000 General requirement.

(a) Vessel control systems and other miscellaneous systems and equipment required by this part must be suitable for the purposes intended.

(b) The cognizant Officer in Charge, Marine Inspection (OCMI) may require navigation, control, or communications equipment, in excess of the equipment specifically required by this part, on a vessel that is of a novel design, operates at high speeds in restricted or high traffic areas, operates in a dynamically supported mode, or operates on extended routes or in remote locations.

§ 121.115 Applicability to existing vessels.

(a) An existing vessel need not comply with §§ 121.402(c), 121.404, 121.410, and 121.602 of this part unless the cognizant OCMI specifically requires compliance due to the route or service of the vessel.

(b) An existing vessel need not comply with the requirements of § 121.610 of this part until March 11, 2001, or 10 years after its keel was laid or the vessel was at a similar stage of construction, whichever is later.

(c) An existing vessel need not comply with the requirements of § 121.710 of this part until March 11, 1997.

Subpart B—Cooking and Heating

§ 121.100 General.

Cooking and heating equipment must be suitable for marine use. Equipment designed and installed in accordance with American Boat and Yacht Council (ABYC) A–3, ''Recommended Practices and Standards Covering Galley Stoves,'' and A–7, ''Recommended Practices and Standards Covering Boat Heating Systems,'' or with National Fire Protection Association (NFPA) 302, ''Pleasure and Commercial Motor Craft,'' complies with this requirement, except as restricted by § 121.202 of this part.

§ 121.202 Restrictions.

(a) The use of gasoline for cooking, heating, or lighting is prohibited on all vessels.

(b) Fireplaces or other space heating equipment with open flames are prohibited on all vessels.

(c) Vessels permitted to use liquefied and non-liquefied gases as cooking fuels by 46 Code of Federal Regulations (CFR) Part 147 must meet the requirements of § 121.240. The use of these fuels for cooking, heating, and lighting on ferry vessels is prohibited by Part 147 in subchapter N of this chapter.

§ 121.210 Heating equipment.

(a) Each heater must be so constructed and installed as to prevent contact with combustible materials such as towels and clothing.

(b) Each electric space heater must be provided with a thermal cutout to prevent overheating.

(c) Each heater element of an electric space heater must be of an enclosed type, and the element case or jacket must be made of a corrosion resistant material.

§ 121.220 Cooking equipment.

(a) Doors on a cooking appliance must be provided with heavy duty hinges and locking devices to prevent accidental opening in heavy seas.

(b) A cooking appliance must be installed to prevent movement in heavy seas.

(c) For a grill or similar type of cooking appliance, means must be

provided to collect grease or fat and to prevent its spillage on wiring or the deck.

(d) Grab rails must be installed on a cooking appliance when determined by the cognizant OCMI to be necessary for safety.

(e) Sea rails, with suitable barriers to prevent accidental movement of cooking pots, must be installed on a cooking range.

(f) Electric connections for a cooking appliance must be dripproof.

§ 121.240 Gas systems.

Cooking systems using liquefied petroleum gas (LPG) and compressed natural gas (CNG) must meet the following requirements:

(a) The design, installation and testing of each LPG system must meet ABYC A–1, ''Marine Liquefied Petroleum Gas (LPG) Systems,'' Chapter 6 of NFPA 302, or other standard specified by the Commandant.

(b) The design, installation and testing of each CNG system must meet ABYC A–22, ''Marine Compressed Natural Gas (CNG) Systems,'' Chapter 6 of NFPA 302, or other standard specified by the Commandant.

(c) Cooking systems using Chapter 6 of NFPA 302 as the standard must meet the following additional requirements.

(1) The storage or use of CNG containers within the accommodation area, machinery spaces, bilges, or other enclosed spaces is prohibited;

(2) LPG or CNG must be odorized in accordance with ABYC A–1, appendix 4, or A–22, appendix 4, respectively;

(3) The marking and mounting of LPG cylinders mut be in accordance with ABYC A–1, appendix 7; and

(4) LPG cylinders must be of the vapor withdrawal type as specified in ABYC A–1, secgion 1.7.

(d) Continuous pilot lights or automatic glow plugs are prohibited for an LPG or CNG installation using ABYC A–1 or A–22 as the standard.

(e) CNG installation using ABYC A–22 as the standard must meet the following additional requirements:

(1) The storage or use of CNG containers within the accomodation area, machinery spaces, bilges, or other enclosed spaces is prohibited:

(2) CNG cylinders, regulating equipment, and safety equipment must meet the installation, stowage, and testing requirements of paragraph 6–5.12 of NFPA 302; and

(3) The use or stowage of stoves with attached CNG cylinders is prohibited as specified in paragraph 6–5.1 of NFPA 302.

(f) If the fuel supply line of an LPG or CNG system enters an enclosed space on the vessel, a remote shut off valve must be installed that can be operated from a position adjacent to the appliance. The valve must be located between the fuel tank and the point where the fuel supply line enters the enclosed portion of the vessel. A power operated valve installed to meet this requirement must be of a type that will fail closed.

(g) The following variances from ABYC A–1 section 1.12 are allowed for CNG:

(1) The storage locker or housing access opening need not be in the top; and

(2) The locker or housing need not be above the waterline.

(h) The following variances from NFPA 302 are allowed.

(1) The storage locker or housing for CNG tank installations need not be above the waterline as required by paragraph 6–5.12.1.1(a); and

(2) Ignition protection need not be provided as required by paragraph 6–5.4.

Subpart C—Mooring and Towing Equipment

§ 121.300 Ground tackle and mooring lines.

A vessel must be fitted with ground tackle and mooring lines necessary for the vessel to be safely anchored or moored. The ground tackle and mooring lines provided must be satisfactory for the size of the vessel, the waters on which the vessel operates, subject to the approval of the cognizant OCMI.

Subpart D—Navigation Equipment

§ 121.402 Compasses.

(a) Except as otherwise provided in this section every vessel must be fitted with a suitable magnetic compass designed for marine use, to be mounted at the primary operating station.

(b) The following vessels need not be fitted with a compass:

(1) A vessel on a rivers route;

(2) A non-self-propelled vessel; and

(3) A vessel operating on short restricted routes on lakes, bays, and sounds.

(c) Except on a vessel limited to daytime operations, the compass must be illuminated.

§ 121.404 Radars.

(a) Except as allowed by paragraph (b) of this section, all self-propelled vessels must be fitted with a Federal Communications Commission (FCC) type accepted general marine radar system for surface navigation with a radar screen mounted at the primary operating station.

(b) The following vessels are not required to carry a radar:

(1) A ferry that operates on a rivers route within one mile of land; and

(2) A vessel operated on a short restricted route, when the cognizant OCMI has determined that a radar is not necessary due to the vessel's route and local weather conditions.

(c) The radar and its installation must be suitable for the intended speed and route of the vessel.

§ 121.410 Electronic position fixing devices.

A vessel on an oceans route must be equipped with an electronic position fixing device, capable of providing accurate fixes for the area in which the vessel operates, to the satisfaction of the cognizant OCMI.

§ 121.420 Charts and nautical publications.

(a) As appropriate for the intended voyage, a vessel must carry adequate and up-to-date:

(1) Charts of large enough scale to make safe navigation possible;

(2) U.S. Coast Pilot or similar publication;

(3) Coast Guard Light List;

(4) Tide tables; and

(5) Current tables, or a river current publication issued by the U.S. Army Corps of Engineers or a river authority.

(b) Extracts from the publications listed above for the areas to be transited may be provided instead of the complete publication.

Subpart E—Radio

§ 121.502 Requirements of the Federal Communications Commission.

A vessel must comply with the applicable requirements for any radio and Electronic Position Indicating Radiobeacon (EPIRB) installations, including the requirements for a station license and installation certificates to be issued by the FCC, as set forth in 47 CFR Part 80.

§ 121.506 Emergency broadcast placard.

A durable placard must be posted next to all radiotelephone installations with the emergency broadcast instructions and information, specific to the individual vessel.

§ 121.510 Recommended emergency broadcast instructions.

The following emergency broadcast instructions, when placed on a placard, will satisfy the requirement contained in § 121.506 for an emergency broadcast placard:

(a) Emergency Broadcast Instructions.

(1) Make sure your radiotelephone is on.

(2) Select 156.8 MHz (channel 16 VHF) or 2182 kHz. (Channel 16 VHF and 2182 kHz on SSB are for emergency and calling purposes only.)

(3) Press microphone button and, speaking slowly—clearly—calmly, say:

(i) ''MAYDAY—MAYDAY—MAYDAY'' for situations involving Immediate Danger to Life and Property; or

(ii) ''PAN—PAN—PAN'' for urgent situations where there is No Immediate Danger to Life or Property.

(4) Say: ''THIS IS (INSERT VESSEL'S NAME), (INSERT VESSEL'S NAME), (INSERT VESSEL'S NAME), (INSERT VESSEL'S CALL SIGN), OVER.''

(5) Release the microphone button briefly and listen for acknowledgment. If no one answers, repeat steps 3 & 4.

(6) If there is no acknowledgment, or if the Coast Guard or another vessel responds, say: ''MAYDAY'' or ''PAN'', (INSERT VESSEL'S NAME).''

(7) DESCRIBE YOUR POSITION using latitude and longitude coordinates, LORAN coordinates, or range and bearing from a known point.

(8) STATE THE NATURE OF THE DISTRESS.

(9) GIVE NUMBER OF PERSONS ABOARD AND THE NATURE OF ANY INJURIES.

(10) ESTIMATE THE PRESENT SEAWORTHINESS OF YOUR VESSEL.

(11) BRIEFLY DESCRIBE YOUR VESSEL: (INSERT LENGTH, COLOR, HULL TYPE, TRIM, MASTS, POWER, ANY ADDITIONAL DISTINGUISHING FEATURES).

(12) Say: ''I WILL BE LISTENING ON CHANNEL 16/2182.''

(13) End message by saying: ''THIS IS (INSERT VESSEL'S NAME & CALL SIGN).''

(14) If your situation permits, stand by the radio to await further communications with the Coast Guard or another vessel. If no answer, repeat, then try another channel.

(b) [Reserved]

Subpart F—Control and Internal Communications Systems

§ 121.602 Internal communications systems.

(a) A vessel equipped with pilothouse control must have a fixed means of two-way communications from the operating station to the location where the means of controlling the propulsion machinery, required by § 121.620(a), is located. Twin screw vessels with pilothouse control for both engines are not required to have a fixed communications system.

(b) A vessel equipped with auxiliary means of steering, required by § 119.600 of this chapter, must have a fixed means of two-way communications from the operating station to the location where the auxiliary means of steering is controlled.

(c) When the propulsion machinery of a vessel cannot be controlled from the operating station, an efficient communications system must be provided between the operating station and the propulsion machinery space.

(d) When the locations addressed in paragraphs (a), (b), and (c) of this section are sufficiently close together, direct voice communications satisfactory to the cognizant OCMI is acceptable instead of the required fixed means of communications.

(e) The OCMI may accept hand held portable radios as satisfying the communications system requirement of this section.

§ 121.610 Public address systems.

(a) Except as noted in paragraph (d) below, each vessel must be equipped with a public address system.

(b) On a vessel of more than 19.8 meters (65 feet) in length, the public address system must be a fixed installation and be audible during normal operating conditions throughout the accommodation spaces and all other spaces normally manned by crew members.

(c) A vessel with more than one passenger deck and a vessel with overnight accommodations must have the public address system operable from the operating station.

(d) On a vessel of not more than 19.8 meters (65 feet) in length, a battery powered bullhorn may serve as the public address system if audible throughout the accommodation spaces of the vessel during normal operating conditions. The bullhorn's batteries are to be continually maintained at a fully charged level by use of a battery charger or other means acceptable to the cognizant OCMI.

§ 121.620 Propulsion engine control systems.

(a) A vessel must have two independent means of controlling each propulsion engine. Control must be provided for the engine speed, direction of shaft rotation, and engine shutdown.

(1) One of the means may be the ability to readily disconnect the remote engine control linkage to permit local operation.

(2) A multiple engine vessel with independent remote propulsion control for each engine need not have a second means of controlling each engine.

(b) In addition to the requirements of paragraph (a) of this section, a vessel must have a reliable means for shutting down a propulsion engine, at the main pilot house control station, which is independent of the engine's speed control.

(c) A propulsion engine control system, including pilothouse control, must be designed so that a loss of power to the control system does not result in an increase in shaft speed or propeller pitch.

(d) All microprocessor or computer based systems must meet the requirements of Part 62 in subchapter F of this chapter.

Subpart G—Miscellaneous

§ 121.702 Oil pollution prevention equipment and procedures.

A vessel must comply with the applicable design, equipment, personnel, procedures, and record requirements of 33 CFR Parts 151, 155, and 156.

§ 121.704 Marine sanitation devices.

A vessel with installed toilet facilities must have a marine sanitation device that complies with 3 CFR Part 159.

§ 121.710 First aid kits.

A vessel must carry a first aid kit approved in accordance with § 160.041 in subchapter Q of this chapter, or other standard specified by the Commandant, or a kit with equivalent contents and instructions. For equivalent kits, the contents must be stowed in a suitable container that is marked, ''First Aid Kit''. A first aid kit shall be easily visible and readily available to the crew.

PART 122—OPERATIONS

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Authority: 46 U.S.C. 2103, 3306, 6101; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 122.100 General requirement.

A vessel must be operated in accordance with applicable laws and regulations and in such a manner as to afford adequate precaution against hazards that might endanger the vessel and the persons being transported.

§ 122.115 Applicability to existing vessels.

(a) An existing vessel need not comply with the hull marking requirements in § 122.602(b) until completion of a vessel's first drydock required by § 115.600 of this chapter that occurs after March 11, 1996.

(b) An existing vessel need not comply with the marking requirements in §§ 122.604 and 122.610, where the size and contents of the markings required by §§ 122.604 and 122.610 vary from the size and contents of required markings on lifesaving equipment, watertight doors, and watertight hatches on the vessel prior to March 11, 1996, until the existing markings are no longer legible, as determined by the cognizant Officer in Charge, Marine Inspection (OCMI).

(c) An existing vessel need not comply with the requirements of §§ 122.514, 122.515, 122.516, and 124.604(j) until completion of the first inspection for certification that occurs after March 11, 1996.

Subpart B—Marine Casualties and Voyage Records

§ 122.202 Notice of marine casualty.

(a) Immediately after addressing resultant safety concerns, the owner, agent, master, or person in charge of a vessel involved in a marine casualty shall notify the nearest Marine Safety Office, Marine Inspection Office, or Coast Guard Group Office whenever a vessel is involved in a marine casualty consisting of:

(1) An unintended grounding, or an unintended strike of (allision with) a bridge:

(2) An intended grounding, or an intended strike of a bridge, that creates a hazard to navigation, the environment, or the safety of a vessel, or that meets any criterion of paragraphs (a)(3) through (a)(7) of this section;

(3) Loss of main propulsion or primary steering, or any associated component or control system, that reduces the maneuverability of the vessel;

(4) An occurrence materially and adversely affecting the vessel's seaworthiness or fitness for service or route, including but not limited to fire, flooding, failure of or damage to fixed fire extinguishing systems, lifesaving equipment, auxiliary power generating equipment, or bilge pumping systems;

(5) Loss of life;

(6) Injury that requires professional medical treatment (treatment beyond first aid) and, if the person is engaged or employed on board a vessel in commercial service, which renders the individual unfit to perform his or her routine duties; or

(7) An occurrence not meeting any of the above criteria but causing property damage in excess of $25,000. This damage includes the cost of labor and material to restore the property to its condition before the occurrence, but does not include the cost of salvage, cleaning, gas freeing, drydocking, or demurrage.

(b) A vessel is excluded from the requirements of paragraphs (a)(5) and (a)(6) of this section with respect to the death or injury of shipyard or harbor workers when such accidents are not the result of either a vessel casualty (e.g., collision) or a vessel equipment casualty (e.g., cargo boom failure) and are subject to the reporting requirements of the Occupational Safety and Health Administration (OSHA) in 29 Code of Federal Regulations (CFR) Part 1904.

(c) Notice given as required by § 122.203 satisfies the requirement of this section if the marine casualty involves a hazardous condition.

§ 122.203 Notice of hazardous conditions.

Whenever there is a hazardous condition, as defined by § 114.400 of this chapter, on board the vessel, the owner, master, agent, or person in charge shall immediately notify the Captain of the Port of the port or place of destination and the Captain of the Port of the port or place in which the vessel is located of the hazardous condition.

§ 122.206 Written report of marine casualty.

(a) The owner, master, agent, or person in charge shall, within five days, file a written report of any marine casualty. This written report is in addition to the immediate notice required by § 122.202. This written report must be delivered to a Coast Guard Marine Safety Office, or Marine Inspection Office. It must be provided on Form CG–2692 (Report of Marine Accident, Injury, or Death), Supplemented as necessary by appended Forms CG–2692A (Barge Addendum) and CG–2692B (Report of Required Chemical Drug and Alcohol

Testing Following a Serious Marine Incident).

(b) If filed without delay after the occurrence of the marine casualty, the notice required by paragraph (a) of this section suffices as the notice required by § 122.202.

§ 122.208 Accidents to machinery.

The owner, managing operator, or master shall report damage to a boiler, unfired pressure vessel, or machinery that renders further use of the item unsafe until repairs are made, to the OCMI at the port in which the casualty occurred or nearest the port of first arrival, as soon as practicable after the damage occurs.

§ 122.210 Alcohol or drug use by individuals directly involved in casualties.

(a) For each marine casualty required to be reported by § 122.202, the owner, agent, master, or person in charge of the vessel shall determine whether there is any evidence of alcohol or drug use by individuals directly involved in the casualty.

(b) The owner, agent, master, or person in charge of the vessel shall include in the written report (Form CG–2692), submitted for the casualty information which:

(1) Identifies those individuals for whom evidence of drug or alcohol use, or evidence of intoxication, has been obtained; and

(2) Specifies the method used to obtain such evidence, such as personal observation of the individual, or by chemical testing of the individual.

(c) An entry must be made in the Official Logbook, if carried, pertaining to those individuals for whom evidence of intoxication is obtained. The individual must be informed of this entry and the entry must be witnessed by a second person.

(d) If an individual directly involved in a casualty refuses to submit to, or cooperate in, the administration of a timely chemical test, when directed by a Coast Guard commissioned, warrant, or petty officer, or any other law enforcement officer authorized to obtain a chemical test under Federal, State, or local law, or by the owner, agent, master, or person in charge, this fact must be noted in the official Logbook, if carried, and in the written report (Form CG 2692), and will be admissible as evidence in any administrative proceeding.

§ 122.212 Mandatory chemical testing following serious marine incidents.

A marine employer whose vessel is involved in a casualty or incident that is, or is likely to become, a serious marine incident as defined in § 4.03–2 in subchapter A of this chapter shall comply with the requirements of § 4.06 in subchapter A of this chapter.

§ 122.220 Records of a voyage resulting in a marine casualty.

The owner, agent, master, or person in charge of any vessel involved in a marine casualty for which a report is required under § 122.202 shall retain all voyage records maintained by the vessel, including rough and smooth deck and engine room logs, bell books, navigation charts, navigation work books, compass deviation cards, gyrocompass records, stowage plans, records of draft, aids to mariners, night order books, radiograms sent and received, radio logs, crew and passenger lists and counts, articles of shipment, official logs, and other material that might be of assistance in investigating and determining the cause of the casualty. The owner, agent, master, other officer, or person responsible for the custody thereof, shall make these records available upon request, to a duly authorized investigating officer, administrative law judge, officer or employee of the Coast Guard.

§ 122.230 Report of accident to aid to navigation.

Whenever a vessel collides with a buoy, or other aid to navigation under the jurisdiction of the Coast Guard, or is connected with any such collision, the person in charge of such vessel shall report the accident to the nearest OCMI. No report on Form CG 2692 is required unless otherwise required under § 122.202 of this part.

§ 122.260 Reports of potential vessel casualty.

(a) An owner, charterer, managing operator, or agent of a vessel shall immediately notify either of the following Coast Guard offices if there is reason to believe the vessel is lost or imperiled:

(1) The Coast Guard district rescue coordination center (RCC) cognizant over the area in which the vessel was last operating; or

(2) The Coast Guard search and rescue authority nearest to where the vessel was last operating.

(b) Reasons for belief that a vessel is in distress include, but are not limited to, lack of communication with or nonappearance of the vessel.

(c) The owner, charterer, managing operator, or agent notifying the Coast Guard under paragraph (a) of this section, shall provide the name and identification number of the vessel, a description of the vessel, the names or number of individuals on board, and other information that may be requested by the Coast Guard.

§ 122.280 Official logbook for foreign voyages.

(a) Every vessel on a voyage from a port in the United States to a foreign port except to a port in Canada, or vice versa, must have an Official Logbook.

(b) The master shall make or have made in the Official Logbook the following entries:

(1) Each legal conviction of a seaman of the vessel and the punishment inflicted;

(2) Each offense committed by a seaman of the vessel for which it is intended to prosecute or to enforce under a forfeiture, together with statements about reading the entry and the reply made to the charge as required by 46 U.S.C. 11502;

(3) A statement of the conduct, character, and qualifications of each seaman of the vessel or a statement that the master declines to give an opinion about that conduct, character, and qualifications;

(4) Each illness of or injury to a seaman of the vessel, the nature of the illness or injury, and the medical treatment;

(5) Each death on board, with the cause of death, and if a seaman, the following information required by 46 U.S.C. 10702:

(i) The wages due to a seaman who dies during the voyage and the gross amount of all deductions to be made from the wages; and

(ii) The sale of the property of a seaman who dies during the voyage, including a statement of each article sold and the amount received for the property.

(6) Each birth on board, with the sex of the infant and name of the parents;

(7) Each marriage on board, with the names and ages of the parties;

(8) The name of each seaman who ceases to be a crew member (except by death), with the place, time, manner, and the cause why the seaman ceased to be a crew member; and

(9) When a marine casualty occurs, a statement about the casualty and the circumstances under which it occurred, made immediately after the casualty when practicable to do so.

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

Except for a vessel required to have an Official Logbook by § 122.280, the owner, managing operator, or master of a vessel of more than 19.8 meters (65

feet) in length with overnight accommodations for more than 49 passengers shall maintain logs or records in any form, which will be considered to take the place of the Official Logbook and may be used for the purpose of making entries therein as required by law or regulations in this subchapter. Such logs or records shall be kept available for review by a marine inspector for a period of one year after the date to which the records refer.

Subpart C—Miscellaneous Operating Requirements

§ 122.304 Navigation underway.

(a) The movement of a vessel shall be under the direction and control of the master or a licensed mate at all times. The master shall operate the vessel keeping the safety of the passengers and crew foremost in mind by directing the vessel in order to prevent a casualty. Special attention should be paid to:

(1) The current(s) velocity and direction of the transmitting area;

(2) Tidal state;

(3) Prevailing visability and weather conditions;

(4) Density of marine traffic;

(5) Potential damage caused by own wake;

(6) The danger of each closing visual or each closing radar contact;

(7) Vessels's handling characteristics; and

(8) Magnetic variation and deviation errors of the compass.

§ 122.306 Passengers excluded from operating station.

When practicable the master shall exclude passengers from the operating station of a vessel when the passengers could distract the navigating crew from their responsibilities, or when otherwise directed by the cognizant OCMI.

§ 122.315 Verification of vessel compliance with applicable stability requirements.

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. The vessel may not depart until it is in compliance with these requirements.

§ 122.320 Steering gear, controls, and communication system tests.

The master of a vessel shall have examined and tested the steering gear, signaling whistle, propulsion controls, and communication systems of the vessel prior to getting underway for a voyage, except that such examination and testing need not be conducted more than once in any 24 hour period.

§ 122.330 Hatches and other openings.

(a) Except when operating on lakes, bays, and sounds, or river routes in calm weather, all hatches and openings in the hull, except loading doors, of a vessel must be kept tightly closed except when being used.

(b) All watertight doors in subdivision bulkheads must be kept tightly closed during the navigation of the vessel except when being used for transit between compartments.

§ 122.335 Loading doors.

(a) Except as allowed by paragraph (b) of this section, the master of a vessel fitted with loading doors shall assure that all loading doors are closed watertight and secured during the entire voyage.

(b) Loading doors, other than bow visors, may be opened when operating in protected or partially protected waters, provided the master of the vessel determines that the safety of the vessel is not impaired.

(c) For the purpose of this section, ''loading doors'' include all weathertight ramps, bow visors, and openings used to load personnel, equipment, and stores, in the collision bulkhead, the side shell, and the boundaries of enclosed superstructures that are continuous with the shell of the vessel.

§ 122.340 Vessels carrying vehicles.

(a) Automobiles or other vehicles must be stowed in such a manner as to permit both passengers and crew to get out and away from the vehicles freely in the event of fire or other disaster. The decks, where necessary, must be distinctly marked with painted lines to indicate the vehicle runways and the aisle spaces.

(b) The master shall take any necessary precautions to see that automobiles or other vehicles have their motors turned off and their emergency brakes set when the vessel is underway, and that the motors are not started until the vessel is secured to the landing. In addition, a vehicle at each end of a line of vehicles or next to a loading ramp must have its wheels securely blocked, while the vessel is being navigated.

(c) The master shall have appropriate ''NO SMOKING'' signs posted and shall take all necessary precautions to prevent smoking or carrying of lighted or smoldering pipes, cigars, cigarettes, or similar items in the deck area assigned to automobiles or other vehicles.

(d) The master shall, prior to getting underway, ensure that vehicles are properly distributed consistent with the guidance in the vessel's stability letter and Certificate of Inspection, if applicable.

§ 122.356 Carriage of hazardous materials.

A vessel that transports a hazardous material, listed in 49 CFR 172.101, in commerce shall ensure the material is handled and transported in accordance with 49 CFR Parts 171 through 179.

§ 122.360 Use of auto pilot.

Whenever an automatic pilot is used the master shall ensure that:

(a) It is possible to immediately establish manual control of the vessel's steering;

(b) A competent person is ready at all times to take over steering control; and

(c) The changeover from automatic to manual steering and vice versa is made by, or under the supervision of, the master or the mate on watch.

Subpart D—Crew Requirements

§ 122.402 Licenses.

Each licensed individual employed upon any vessel subject to the provisions of this subchapter shall have his or her license on board and available for examination at all times when the vessel is operating.

§ 122.410 Watchmen.

The owner, charterer, master, or managing operator of a vessel carrying overnight passengers shall have a suitable number of watchmen patrol throughout the vessel during the nighttime, whether or not the vessel is underway, to guard against, and give alarm in case of, a fire or other danger.

§ 122.420 Crew training.

(a) The owner, charterer, master, or managing operator shall instruct each crew member, upon first being employed and prior to getting underway for the first time on a particular vessel and at least once every three months, as to the duties that the crew member is expected to perform in an emergency including, but not limited to, the emergency instructions listed on the emergency instruction placard required by § 122.510, when applicable, the duties listed in the station bill required by § 122.514.

(b) Crew training shall be logged or otherwise documented for review by the Coast Guard upon request. The training entry shall include the following information:

(1) Date of the training; and

(2) General description of the training topics.

Subpart E—Preparations for Emergencies

§ 122.502 Crew and passenger list.

(a) The owner, charterer, managing operator, or master of the following vessels must keep a correct list of the names of all persons that embark on and disembark from the vessel:

(1) A vessel making a coastwise or oceans voyage where:

(i) passengers embark or disembark from the vessel to another vessel or port other than at the port of origin; or

(ii) Passengers are carried overnight;

(2) A vessel making a voyage of more than 300 miles on the Great Lakes, except from a Canadian to a United States port; and

(3) A vessel arriving from a foreign port, except at a United States Great Lakes port from a Canadian Great Lakes port.

(b) The master of a vessel required to prepare a crew and passenger list by paragraph (a) of this section shall see that the list is prepared prior to departing on a voyage. The list must be communicated verbally or in writing ashore at the vessel's normal berthing location or with a representative of the owner or managing operator of the vessel. The crew and passenger list shall be available to the Coast Guard upon request.

§ 122.503 Voyage plan.

(a) The master of the following vessels shall prepare a voyage plan:

(1) A vessel making an oceans or coastwise voyage;

(2) A vessel making a voyage of more than 300 miles on the Great Lakes, except from a Canadian to a United States port;

(3) A vessel, with overnight accommodations for passengers, making an overnight voyage; and

(4) A vessel arriving from a foreign port, except at a United States Great Lakes port from a Canadian Great Lakes port.

(b) The voyage plan required by paragraph (a) of this section must be prepared prior to departing on a voyage and communicated verbally or in writing, ashore at the vessel's normal berthing location or with a representative of the owner or managing operator of the vessel. The voyage plan shall be available to the Coast Guard upon request.

§ 122.504 Passenger count.

The master of a vessel, except a vessel listed in § 122.502(a), shall keep a correct, written count of all passengers that embark on and disembark from the vessel. Prior to departing on a voyage, the passenger count must be communicated verbally or in writing, and available ashore at the vessel's normal berthing location or with a representative of the owner or managing operator of the vessel. The passenger count shall be available to the Coast Guard upon request.

§ 122.506 Passenger safety orientation.

(a) Except as allowed by paragraph (b) of this section, before getting underway on a voyage, the master of a vessel shall ensure that suitable public announcements are made informing all passengers of the information in this section when applicable to the vessel's operations and arrangement:

(1) The location of emergency exits, survival craft embarkation areas, and ring life buoys;

(2) The stowage location(s) of life jackets;

(3) Either:

(i) The proper method of donning and adjusting life jackets of the type(s) carried on the vessel including a demonstration of the proper donning of a lifejacket, or

(ii) That passengers may contact a crew member for a demonstration, as appropriate, prior to beginning an oceans or coastwise voyage;

(4) The location of the instruction placards for life jackets and other lifesaving devices;

(5) That all passengers will be required to don life jackets when possible hazardous conditions exist, as directed by the master; and

(6) If the vessel is operating with reduced manning or equipment requirements in § 115.114 of this chapter.

(b) On a vessel with other than an oceans or coastwise route, as an alternative to an announcement that complies with paragraph (a) of this section, the master or other designated person may:

(1) Prior to getting underway, deliver to each passenger, or on a vessel that does not carry vehicles and that has seats for each passenger, place near each seat, a card or pamphlet that has the information listed in paragraphs (a)(1) through (a)(6) of this section; and

(2) Make an abbreviated announcement consisting of:

(i) A statement that passengers should follow the instructions of the crew in an emergency;

(ii) The location of life jackets; and

(iii) That further information concerning emergency procedures including the donning of life jackets, location of other emergency equipment, and emergency evacuation procedures are located on the card or pamphlet that was given to each passenger or is located near each seat.

(c) The master of a vessel shall ensure that a passenger, who boards the vessel on a voyage after the initial public announcement has been made as required by paragraphs (a) or (b) of this section, is also informed of the required safety information.

(d) On a vessel on a voyage of more than 24 hours duration, passengers shall be requested to don life jackets and go to the appropriate embarkation station during the safety orientation. If only a small number of passengers embark at a port after the original muster has been held, these passengers must be given the passenger safety orientation required by paragraphs (a) or (b) of this section if another muster is not held.

§ 122.508 Wearing of life jackets.

(a) The master of a vessel shall require passengers to don life jackets when possible hazardous conditions exist, including, but not limited to:

(1) When transiting hazardous bars and inlets;

(2) During severe weather;

(3) In event of flooding, fire, or other events that may possibly call for evacuation; and

(4) When the vessel is being towed, except a non-self-propelled vessel under normal operating conditions.

(b) The master or crew shall assist passengers in obtaining a life jacket and donning it, as necessary.

§ 122.510 Emergency instructions.

(a) The master and crew of a vessel will be familiar with the content of and have mounted at the operating station, emergency instructions containing the actions to be taken in the event of fire, flooding, heavy weather, or man overboard conditions.

(b) Except when in the judgment of the cognizant OCMI the operation of a vessel does not present one of the hazards listed, the emergency instruction placard should contain at least the applicable portions of the ''Emergency Instructions'' listed in § 122.512. The emergency instructions must be designed to address the particular equipment, arrangement, and operation of each individual vessel.

(c) If the cognizant OCMI determines that there is no suitable mounting surface aboard the vessel, the emergency instructions need not be posted but must be carried aboard the vessel and be available to the crew for familiarization.

§ 122.512 Recommended emergency instructions format.

An Emergency instruction placard containing the following information

will satisfy the requirements of § 122.510 of this part.

(a) *Emergency instructions.* (1) *Rough weather at sea, crossing hazardous bars, or flooding.* (i) Close all watertight and weathertight doors, hatches, and airports to prevent taking water aboard or further flooding in the vessel.

(ii) Keep bilges dry to prevent loss of stability due to water in bilges. Use power driven bilge pump, hand pump, and buckets to dewater.

(iii) Align fire pumps to use as bilge pump if possible.

(iv) Check all intake and discharge lines, which penetrate the hull, for leakage.

(v) Passengers must remain seated and evenly distributed.

(vi) Passengers must don life jackets if the going becomes very rough, vessel is about to cross a hazardous bar, or when otherwise instructed by the master.

(vii) Never abandon the vessel unless actually forced to do so.

(viii) If assistance is needed follow the procedures on the emergency broadcast placard posted by the radiotelephone.

(ix) Prepare survival craft (life floats, (inflatable) rafts, (inflatable) buoyant apparatus, boats) for launching.

(2) *Man overboard.* (i) Throw a ring buoy overboard as close to the person as possible.

(ii) Post a lookout to keep the person overboard in sight.

(iii) Launch rescue boat and maneuver to pick up person in the water, or maneuver the vessel to pick up the person in the water.

(iv) Have crew member put on life jacket, attach a safety line to him or her, and have him or her stand by to jump into the water to assist the person if necessary.

(v) If person is not immediately located, notify Coast Guard and other vessels in vicinity by radiotelephone.

(vi) Continue search until released by Coast Guard.

(3) *Fire.*

(i) Cut off air supply to fire—close openings such as hatches, ports, doors, ventilators, and louvers, and shut off ventilation system.

(ii) Cut off electrical system supplying affected compartment if possible.

(iii) If safe, immediately use portable fire extinguishers at base of flames for flammable liquid or grease fires or water for fires in ordinary combustible materials. Do not use water on electrical fires.

(iv) If fire is in machinery spaces, shut off fuel supply and ventilation and activate fixed extinguishing system if installed.

(v) Maneuver vessel to minimize effect of wind on fire.

(vi) If unable to control fire, immediately notify the Coast Guard and other craft in the vicinity by radiotelephone.

(vii) Move passengers away from fire, have them put on life jackets, and if necessary, prepare to abandon the vessel.

(b) [Reserved.]

§ 122.514 Station bill.

(a) A station bill must be posted by the master on a vessel of more than 19.8 meters (65 feet) in length having:

(1) Overnight accommodations for more than 49 passengers; or

(2) A Certificate of Inspection requiring more than four crew members at any one time, including the master.

(b) A vessel of more than 19.8 meters (65 feet) in length with overnight accommodations for more than 49 passengers must comply with the requirements of § 78.13 in subchapter H of this chapter in regards to the content of a station bill, the duties of the crew, emergency signals, an emergency squad, and instructions.

(c) Except when paragraph (b) of this section is applicable, the station bill of a vessel of more than 19.8 meters (65 feet) in length required to have more than four crew members, must set forth the special duties and duty station of each crew member for various emergencies. The duties must, as far as possible, be comparable with the regular work of the individual. The duties must include at least the following and any other duties necessary for the proper handling of a particular emergency.

(1) The closing of hatches, airports, watertight doors, vents, scuppers, and valves for intake and discharge lines that penetrate the hull, the stopping of fans and ventilating systems, and the operating of all safety equipment;

(2) The preparing and launching of survival craft and rescue boats;

(3) The extinguishing of fire; and

(4) The mustering of passengers including the following:

(i) Warning the passengers;

(ii) Assembling the passengers and directing them to their appointed stations; and

(iii) Keeping order in the passageways and stairways and generally controlling the movement of the passengers.

(d) The station bill must be posted at the operating station and a conspicuous location in each crew accommodation space.

§ 122.515 Passenger safety bill.

(a) A passenger safety bill must be posted by the master in each passenger cabin or stateroom on a vessel of more than 19.8 meters (65 feet) in length with overnight accommodations for more than 49 passengers.

(b) Each passenger safety bill required by this section must list:

(1) The embarkation station and the number and location of the survival craft to which each occupant of the space is assigned;

(2) The fire and emergency signal and the abandon ship signal;

(3) Essential action that must be taken in an emergency; and

(4) If immersion suits are provided for passengers, the location of the suits and illustrated instructions on the method of donning the suits.

§ 122.516 Life jacket placards.

(a) Placards containing instructions for the donning and use of the life jackets aboard the vessel must be posted in conspicuous places that are regularly accessible and visible to the crew and passengers.

(b) Life jacket placards must be posted in each passenger cabin or stateroom on a vessel of more than 19.8 meters (65 feet) in length with overnight accommodations for more than 49 passengers.

(c) If the cognizant OCMI determines that there is no suitable mounting surface aboard the vessel, the life jacket placards need not be posted but must be carried aboard the vessel and be available to the crew and passengers for familiarization.

§ 122.518 Inflatable survival craft placards.

(a) Every vessel equipped with an inflatable survival craft must have approved placards or other cards containing instructions for launching and inflating inflatable survival craft for the information of persons on board posted in conspicuous places by each inflatable survival craft.

(b) Under the requirement in § 160.051–6(c)(1) in subchapter Q of this chapter, or other standard specified by the Commandant, the manufacturer of approved inflatable liferafts is required to provide approved placards containing such instructions with each liferaft. Similar placards must be used for other inflatable survival craft.

§ 122.520 Abandon ship and man overboard drills and training.

(a) The master shall conduct sufficient drills and give sufficient instructions to make sure that all crew members are familiar with their duties during emergencies that necessitate abandoning ship or the recovery of persons who have fallen overboard.

(b) An abandon ship drill must be conducted as follows:

(1) Each member of the crew shall participate in at least one abandon ship drill each month; and

(2) If more than 25% of the crew have not participated in an abandon ship drill on board that particular vessel in the previous month, a drill must be conducted before the vessel gets underway with passengers aboard.

(c) Each abandon ship drill must include:

(1) Summoning the crew to report to assigned stations and prepare for assigned duties;

(2) Summoning passengers on a vessel on an overnight voyage to areas of refuge or embarkation stations and ensuring that they are made aware of how the order to abandon ship will be given;

(3) Checking that life jackets are correctly donned;

(4) Operation of any davits used for launching liferafts; and

(5) Instruction on the automatic and manual deployment of survival craft.

(d) Each abandon ship drill must, as far as practicable, be conducted as if there were an actual emergency.

(e) Each rescue boat required in accordance with § 117.210 of this subchapter must be launched with its assigned crew aboard and maneuvered in the water as if during the actual man overboard situation;

(1) Once each month, if reasonable and practicable; but

(2) At least once within a 3 month period before the vessel gets underway with passengers.

(f) Onboard training in the use of davit launched liferafts must take place at intervals of not more than 3 months on a vessel with a davit launched liferaft.

(g) Abandon ship and man overboard drills and training shall be logged or otherwise documented for review by the Coast Guard upon request. The drill entry shall include the following information:

(1) Date of the drill and training; and

(2) General discription of the drill scenario and training topics.

§ 122.524 Fire fighting drills and training.

(a) The master shall conduct sufficient fire drills to make sure that each crew member is familiar with his or her duties in case of a fire.

(b) A fire drill must be conducted at least once each month.

(c) Each fire drill must include:

(1) Summoning passengers on a vessel on an overnight voyage to areas of refuge or embarkation stations;

(2) Summoning the crew to report to assigned stations and to prepare for and demonstrate assigned duties; and

(3) Instruction in the use of fire extinguishers and any other fire fighting equipment on board.

(d) Each fire drill must, as far as practicable, be conducted as if there were an actual emergency.

(e) Fire fighting drills and training shall be logged or otherwise documented for review by the Coast Guard upon request. The drill entry shall include the following information:

(1) Date of the drill and training; and

(2) General discription of the drill scenario and training topics.

§ 122.530 Responsibilities of licensed individuals.

Nothing in the emergency instructions or a station bill required by this subpart exempts any licensed individual from the exercise of good judgment in an emergency situation.

Subpart F—Markings Required

§ 122.602 Hull markings.

(a) This section applies to each vessel that fits into any one of the following categories:

(1) A vessel of more than 19.8 meters (65 feet) in length.

(2) A sailing vessel of more than 19.8 meters (65 feet) in length.

(3) A vessel authorized to carry more than 150 passengers.

(4) A vessel authorized to carry more than 12 passengers on an international voyage.

(5) A vessel with more than 1 deck above the bulkhead deck exclusive of a pilot house.

(b) Each vessel must be marked as required by Part 67 in subchapter G of this chapter.

(c) Each vessel must:

(1) Have permanent draft marks at each end of the vessel; or

(2) Have permanent loading marks placed on each side of the vessel forward, amidships, and aft to indicate the maximum allowable draft and trim.

(d) A loading mark required by paragraph (c)(2) of this section must be a horizontal line of at least 205 millimeters (8 inches) in length and 25 millimeters (1 inch) in height, with its upper edge passing through the point of maximum draft. The loading mark must be painted in a contrasting color to the sideshell paint.

(e) On a vessel that has a load line, the amidships marks required by paragraph (c)(2) of this section will be those required by the 1966 International Load Line Convention.

(f) 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.

(g) On a vessel on which the number of passengers permitted on the upper decks is limited by stability criteria, as indicated by the vessel's stability letter, the maximum number of passengers allowed on an upper deck must be indicated by a durable marking of at least 25 millimeters (1 inch) numbers and letters at the entranceway to each such deck.

§ 122.604 Lifesaving equipment markings.

(a) The name of a vessel must be marked or painted in clearly legible letters and numbers at least 76 millimeters (3 inches) high:

(1) On each side of the bow of each rescue boat; and

(2) On each life float and buoyant apparatus.

(b) Each life jacket, immersion suit, and ring life buoy must be marked in clearly legible block capital letters with the vessel's name. The marking is not required on a life jacket carried to meet a temporary need for additional life jackets, if the life jacket has the name of another vessel marked on it. For an immersion suit, the name of the person to whom the immersion suit is assigned is an acceptable alternative to the name of the vessel.

(c) The name of the vessel must be marked or painted in clearly legible letters on each Emergency Position Indicating Radiobeacon (EPIRB), except on an EPIRB in an inflatable liferaft.

(d) The number of persons capacity must be marked or painted in clearly legible letters on each side of the bow of each rescue boat in letters and numbers at least 40 millimeters (1.5 inches) high.

(e) The number of persons capacity must be marked or painted in clearly legible letters on each life float and buoyant apparatus in letters and numbers at least 40 millimeters (1.5 inches) high. This number must:

(1) Be the number of persons the device is equipped for; and

(2) Not be greater than the number of persons the device is approved for as shown on the nameplate.

(f) The number and identification of the items stowed inside, and their sizes, must be marked in clearly legible letters and numbers on each container for life jackets and immersion suits. Identification of the items may be in words, or the appropriate symbols in International Maritime Organization (IMO) Resolution A.760(18), ''Symbols Related to Life-Saving Appliances and Arrangements.'' Letters and numbers must be at least 50 millimeters (2

inches) high. Symbols must be at least 100 millimeters (4 inches) square.

(g) The name of the vessel must be marked or painted in clearly legible letters on each life float paddle.

(h) Each life jacket must be marked with Type I retroreflective material approved in accordance with § 164.018 in subchapter Q of this chapter, or other standard specified by the Commandant. The arrangement of the retroreflective material applied after March 11, 1995 must be as specified by IMO Resolution A.658(16), ''Use and Fitting of Retro-Reflective Materials on Life-Saving Appliances.''

(i) Each rescue boat ring life buoy must be marked with Type II retroreflective material approved in accordance with § 164.018 in subchapter Q of this chapter, or other standard specified by the Commandant. The arrangement of the retroreflective material applied after March 11, 1996, must be as specified by IMO Resolution A.658(16).

§ 122.606 Escape hatches and emergency exits.

All escape hatches and other emergency exits used as means of escape must be marked on both sides in clearly legible letters at least 50 millimeters (2 inches) high: ''EMERGENCY EXIT, KEEP CLEAR'', unless such markings are deemed unnecessary by the cognizant OCMI.

§ 122.608 Fuel shutoff valves.

Remote fuel shutoff stations must be marked in clearly legible letters at least 25 millimeters (1 inch) high indicating purpose of the valve and direction of operations.

§ 122.610 Watertight doors and watertight hatches.

Watertight doors and watertight hatches must be marked on both sides in clearly legible letters at least 25 millimeters (1 inch) high: ''WATERTIGHT DOOR—KEEP CLOSED'' or ''WATERTIGHT HATCH—KEEP CLOSED'', unless such marking are deemed unnecessary by the cognizant OCMI.

§ 122.612 Fire protection equipment.

(a) Complete but simple instructions for the operation of a fixed gas fire extinguishing system must be located in a conspicuous place at or near each pull box and stop valve control and in the space where the extinguishing agent cylinders are stored. If the storage cylinders are separate from the protected space, the instructions must also include a schematic diagram of the system and instructions detailing alternate methods of releasing the extinguishing agent should the local manual release or stop valve controls fail to operate. Each control valve to a distribution line must be marked to indicate the space served.

(b) An alarm for a fixed gas fire extinguishing system must be clearly and conspicuously marked in clearly legible letters ''WHEN ALARMS SOUNDS–VACATE AT ONCE. CARBON DIOXIDE BEING RELEASED.'' Where a different extinguishing agent is installed, that agent shall be marked in place of ''carbon dioxide.''

(c) Each distribution line valve of a fixed gas fire extinguishing system and the fire main, must be plainly, conspicuously, and permanently marked indicating the space served.

(d) A manual fire alarm box must be conspicuously marked in clearly legible letters ''IN CASE OF FIRE BREAK GLASS''.

(e) An alarm for an automatic fire detecting system or a manual alarm system must be conspicuously marked in clearly legible letters ''FIRE ALARM''.

(f) An alarm for an automatic sprinkler system must be conspicously marked in cleared legible letters ''SPRINKLER ALARM''.

(g) An alarm bell for a smoke detecting system must be conspicuously marked in clearly legible letters ''SMOKE DETECTION ALARM''.

(h) A control cabinet or space containing valves, manifolds, or controls for any fixed gas fire extinguishing system must be conspicuously marked in clearly legible letters ''CARBON DIOXIDE FIRE EXTINGUISHING APPARATUS'', or as otherwise required by the cognizant OCMI. Where a different extinguishing agent is installed, that agent shall be marked in place of ''carbon dioxide.''

§ 122.614 Portable watertight container for distress flares and smoke signals.

Portable watertight containers for distress flares and smoke signals shall be of a bright color, and containers shall be clearly marked in legible contrasting letters at least 12.7 millimeters (0.5 inches) high: ''DISTRESS SIGNALS''.

Subpart G—Operational Readiness, Maintenance, and Inspection of Lifesaving Equipment

§ 122.700 Operational readiness.

(a) Each launching appliance and each survival craft and rescue boat on a vessel must be in good working order and ready for immediately use before the vessel leaves port and at all times when the vessel is underway.

(b) Each deck where survival craft or rescue boats are stowed or boarded must be kept clear of obstructions that would interfere with the boarding and launching of the survival craft or rescue boat.

§ 122.702 Maintenance.

(a) The manufacturer's instructions for inboard maintenance of survival craft, rescue boats, and launching appliances, manufactured on or after March 11, 1996, must be onboard a vessel of more than 19.8 meters (65 feet) in length and readily available for a vessel of not more than 19.8 meters (65 feet) in length. The instructions must also be readily available at each inspection for certification and reinspection.

(b) The owner or managing operator shall ensure that maintenance is carried out in accordance with the instructions required under paragraph (a) of this section.

(c) The cognizant OCMI may accept, instead of the instructions required under paragraph (a) of this section, a shipboard planned maintenance program that includes the items listed in that paragraph.

(d) The inspection and maintenance of the equipment listed in paragraph (a) of this section shall be logged or otherwise documented for review by the Coast Guard upon request.

§ 122.704 Maintenance of falls.

(a) Each fail used in a launching appliance on a vessel must be turned end for end at intervals of not more than 30 months.

(b) Each fall must be renewed when necessary due to deterioration or at internals of not more than 5 years, whichever is earlier.

(c) Each fall must have a corrosion resistant tag with the following permanently marked on it in clearly legible letters:

(1) The date the new fall was installed; and

(2) If the fall has been turned end for end, the date it was turned.

§ 122.720 Weekly maintenance and inspections.

The following tests and inspections must be carried out weekly on a vessel:

(a) Each survival craft, rescue boat, and launching appliance must be visually inspected to ensure its readiness for use;

(a) Each rescue boat engine must be run ahead and astern for not less than 3 minutes, unless the ambient temperature is below the minimum temperature required for starting the engine; and

(c) Each battery for rescue boat engine starting must be brought up to full charge at least once each week if:

(1) The battery is of a type that requires recharging; and

(2) The battery is not connected to a device that keeps it continuously charged.

§ 122.722 Monthly inspections.

Each survival craft, rescue boat, and launching appliance on a vessel must be inspected monthly, using the manufacturer's instructions, to make sure it is complete and in good order.

§ 122.724 Quarterly inspections.

(a) Each winch control apparatus of a launching appliance on a vessel, including motor controllers, emergency switches, master switches, and limit switches, must be examined once in each 3 months.

(b) The examination required by paragraph (a) of this section must include the removal of drain plugs and the opening of drain valves to make sure that enclosures are free of water.

§ 122.726 Annual inspections.

(a) Each rescue boat must be stripped, cleaned, thoroughly inspected, and any necessary repairs made, at least once each year, including emptying and cleaning of each fuel tank, and refilling it with fresh fuel.

(b) Each davit, winch, fall and other launching appliance must be thoroughly inspected, and any necessary repairs made, once each year.

(c) Each item of lifesaving equipment with an expiration date must be replacing during the annual inspection and repair if the expiration date has passed.

(d) Each battery used in an item of lifesaving equipment, except inflatable survival craft equipment, must be replaced during the annual inspection if the expiration date of the battery has passed. The expiration date of the battery may be marked on the battery in clearly legible letters or the owner or managing operator may have a record of the expiration date from the manufacturer of a battery marked with a serial number.

(e) Except for a storage battery used in a rescue boat, each battery without an expiration date indicated on it or for which the owner or managing operator does not have a record of the expiration date, used in an item of lifesaving equipment, must be replaced during the annual inspection.

§ 122.728. Testing and servicing of Emergency Position Indicating Radiobeacons (EPIRB).

The master of the vessel shall ensure that:

(a) Each EPIRB, other than an EPIRB in an inflable liferaft, must be tested monthly, using the integrated test circuit and output indicator, to determine that it is operative;

(b) The EPIRB's battery is replaced after it is used, or before the date required by FCC regulations in 47 CFR Part 80, whichever comes sooner; and

(c) The EPIRB test required by paragraph (a) shall be logged or otherwise documented, as applicable.

§ 122.730 Servicing of inflatable liferafts, inflatable buoyant apparatus, inflatable life jackets and inflated rescue boats.

(a) Each inflatable liferaft, inflatable buoyant apparatus, inflatable life jacket, and hybrid inflatable life jacket or work vest must be serviced:

(1) Within 12 months of its initial packing; and

(2) Within 12 months of each subsequent servicing, except when servicing is delayed until the next scheduled inspection of the vessel, provided that the delay does not exceed 5 months.

(b) Each inflatable liferaft and inflatable buoyant apparatus must be serviced:

(1) Whenever the container of the raft is damaged, or the straps or seal are broken; and

(2) In accordance with the servicing procedure under § 160.151 in subchapter Q of this chapter, or other standard specified by the Commandant.

(c) Each inflatable life jacket must be serviced in accordance with the servicing procedure under § 160.176 in subchapter Q of this chapter, or other standard specified by the Commandant.

(d) Each hybrid inflatable life jacket or work vest must be serviced in accordance with the servicing procedure under § 160.077 in subchapter Q of this chapter, or other standard specified by the Commandant.

(e) Repair and maintenance of inflated rescue boats must be in accordance with the manufacturer's instructions. All repairs must be made at a servicing facility approved by the Commandant, except for emergency repairs carried out on board the vessel.

§ 122.740 Periodic servicing of hydrostatic release units.

(a) Each hydrostatic release unit, other than a disposable unit, must be serviced:

(1) Within 12 months of its manufacture and within 12 months of each subsequent servicing, except when servicing is delayed until the next scheduled inspection of the vessel, provided that the delay does not exceed 5 months; and

(2) In accordance with the repair and testing procedure under § 160.062 in subchapter Q of this chapter, or other standard specified by the Commandant.

(b) Each disposable hydrostatic release unit must be marked in clearly legible letters with an expiration date of two years after the date on which the unit is installed.

Subpart H—Penalties

§ 122.900 Penalty for violations.

Violation of the provisions of this subchapter the violator to the applicable penalty provisions of Subtitle II of Title 46, United States Code.

§ 122.910 Suspension and revocation.

An individual holding a license, certificate or registry, or merchant mariner's document who commits an act of misconduct, negligence, or incompetence, or who violates or fails to comply with this subchapter or any other law or regulation intending to promote marine safety, is subject to proceedings under the provisions of 46 U.S.C. 7703 and Part 5 is subchapter A of this chapter with respect to suspension or revocation of a license, certificate, or document.

PARTS 123–139 [RESERVED]

SUBCHAPTERS—SUBDIVISION AND STABILITY

PART 170—STABILITY REQUIREMENTS FOR ALL INSPECTED VESSELS

2. The authority citation for Part 170 is amended to read a follows:

Authority: 43 U.S.C. 1333; 46 U.S.C. 2103, 3306, 3703; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

§ 170.001 [Amended]

3–4. Section 170.001 is amended by removing ''January 3, 1984'' in paragraphs (a) introducing text and (b) and inserting in its place ''March 11, 1996''.

5. Section 170.055 is amended by adding two sentences to the end of paragraph (i)(l) and adding paragraph (w) to read as follows:

§ 170.055 Definitions concerning a vessel.

* * * * *

(i) * * *

(l) * * * For a small passenger vessel which has underwater projections extending forward of the forward-most point or aft of the after-most point on the deepest waterline of the vessel, the Commanding Officer, U.S. Coast Guard Marine Safety Center, may include the length or a portion of the length of the underwater projections in the value used for the LBP for the purposes of this subchapter. The length or a portion of

the length of projections which contribute more than 2 percent of the underwater volume of the vessel is normally added to the actual LBP.

* * * * *

(w) ''Small passenger vessel'' means a vessel of less than 100 gross tons-

(1) carrying more than 6 passengers, including at least one passenger for hire;

(2) that is chartered with the crew provided or specified by the owner or owner's representative and carrying more than 6 passengers;

(3) that is chartered with no crew provided or specified by the owner or owner's representative and carrying more than 12 passengers; or

(4) that is a submersible vessel carrying at least one passenger for hire.

§ 170.075 [Amended]

6. Paragraph (b) of § 170.075 is amended by removing the citation ''§ 171.030(b)(2)'' and adding, in its place. ''§ 178.320'' and by removing the citation ''§ 171.043'' and adding, in its place, ''§ 179.220''.

§ 170.105 [Amended]

7. Section 170.105 is amended by removing paragraph (b)(1) and by redesignating paragraphs (b)(2) through (b)(5) as paragraphs (b)(1) through (b)(4), respectively.

8. The heading to part 170, subpart E, is revised to read as follows:

Subpart E—Weather Criteria

* * * * *

§ 170.160 [Amended]

9. Section 170.160 is amended by removing paragraph (b)(1) and by redesignating paragraphs (b)(2) through (b)(4) as paragraphs (b)(1) through (b)(3), respectively.

10. In § 170.170, paragraph (a) is amended by revising the definition of ''T'' and paragraph (d) is revised to read as follows:

§ 170.170 Calculations required.

* * * * *

(a) * * *

T=cither:

(1) the lesser of either 14 degrees heel or the angle of heel in degrees at which one-half the freeboard to the deck edge is immersed; or

(2) for a sailing vessel, T = the lesser of either 14 degrees or the angle of heel in degrees to the deck edge.

The deck edge is to be taken as the intersection of the sideshell and the uppermost continuous deck below which the sideshell is weathertight.

* * * * *

(d) The criterion specified in this section is complete for flush deck vessels of ordinary proportion and form that carry cargo below the weather deck. For other types of vessels, calculations in addition to those in paragraph (a) of this section are required. For a vessel under 100 meters (328 feet) in length, other than a tugboat or a towboat, the requirements in § 170.173 apply.

§ 170.173 [Amended]

11. In § 170.173, paragraph (b)(2) is amended by removing the word ''maximum''.

§ 170.200 [Amended]

12. In § 170.200, paragraph (a)(2) is amended by replacing the words ''Is or ordinary proportions'' with ''Is of ordinary proportions''.

13 and 14. In § 170.265, paragraph (c) is amended by removing the words ''dmor sills'', and adding the words ''door sills'' in their place, and paragraph (d) introductory text and (d)(2) are revised to read as follows:

§ 170.265 Class 3 doors; required locations.

* * * * *

(d) Doors below a deck, the molded line of which, at its lowest point at side, is less than 2.14 meters (7 feet) above the deepest load line if—

(1) * * *

(2) The vessel is required by § 171.065 of this subchapter to have a factor of subdivision of 0.5 or less.

15. In § 170.270, paragraph (e) is revised to read as follows:

§ 170.270 Door design, operation, installation, and testing.

* * * * *

(e) For each watertight door which is in a required subdivision bulkhead, an indicator light must be installed in the pilothouse and at each other vessel operating station from which the door is not visible. The indicator must show whether the door is open or closed.

PART 171—SPECIAL RULES PERTAINING TO VESSELS CARRYING PASSENGERS

16. The authority citation for Part 171 is revised to read as follows:

Authority. 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277;, 49 CFR 1.46.

17–18. Section 171.001 is amended by revising paragraph (a) to read as follows:

§ 171.001 Applicability

(a) This part applies to passenger vessels inspected under subchapter K or H of this chapter.

* * * * *

19. Section 171.010 is amended by revising paragraphs (a), (d)(1) and (d)(3), and redesignating paragraphs (e) through (k) and paragraphs (1), (m) and (n) as (f) through (l), (n), (p) and (q), respectively, and by adding paragraphs (e), (m), and (o) to read as follows:

§ 171.010 Definitions.

(a) ''Cockpit'' means an exposed recess in the weather deck extending no more than one-half of the vessel's length over deck (LOD) measured over the weather deck.

* * * * *

(d) * * *

(1) Operates in other than ocean or coastwise service;

* * * * *

(3) Operates on a short run on a frequent schedule between two points over the most direct water route;

* * * * *

(e) ''Freeing port'' means any direct opening through the vessel's bulwark or hull to quickly drain overboard water which has been shipped on exposed decks.

* * * * *

(m) ''Small passenger vessel'' means a vessel of less than 100 gross tons—

(1) carrying more than 6 passengers, including at least one passenger for hire;

(2) that is chartered with the crew provided or specified by the owner or owner's representative and carrying more than 6 passengers;

(3) that is chartered with no crew provided or specified by the owner or owner's representative and carrying more than 12 passengers; or

(4) that is a submersible vessel carrying at least one passenger for hire.

* * * * *

(o) ''Scupper'' means a pipe or tube of at least 30 millimeters (1.25 inches) in diameter leading down from a deck or sole and through the hull to drain water overboard.

* * * * *

Subpart B—[Removed and reserved]

20. Subpart B consisting of §§ 171.020 through 171.043, is removed and reserved.

21. Paragraphs (a) and (b) of § 171.057 are amended by revising the equation, and the definitions in each paragraph to read as follows:

§ 171.057 Intact stability requirements for a sailing catamaran.

(a) * * *

$$\frac{0.1(W)B}{(As)(Hc)} \geq X$$

Where—

B=the distance between hull centerlines in meters (feet).

As=the maximum sail area in square meters (square feet).
Hc=the height of the center of effort of the sail area above the deck, in meters (feet).
W=the total displacement of the vessel, in kilograms (pounds).
X=4.88 kilograms/square meter (1.0 pounds/square foot).

(b) * * *

$$\frac{0.1(W)B}{(As)(Hc)} \geq X$$

Where—
B=the distance between hull centerlines in meters (feet).
As=the maximum sail area in square meters (square feet).
Hc=the height of the center of effort of the sail area above the deck, in meters (feet).
W=the total displacement of the vessel, in kilograms (pounds).
X=7.32 kilograms/square meter (1.5 pounds/square foot).

22. In § 171.085, paragraphs (a), (h)(1), and (j)(2) are revised to read as follows:

§ 171.085 Collision bulkhead.

(a) Paragraphs (b) through (g) of this section apply to each vessel of 100 gross tons or more and paragraphs (h) through (j) of this section apply to each vessel that is less than 100 gross tons.

* * * * *

(h) * * *

(1) Must extend to the deck above the bulkhead deck if in ocean service as defined in § 170.050(f) of this chapter or to the bulkhead deck if in service on other waters.

* * * * *

(j) * * *

(1) * * *

(2) No more than 15 percent of the LBP from the forward perpendicular if the space forward of the collision bulkhead is not subject to damage stability requirements and at any location aft of the location described in paragraph (j)(1) of this section if the space forward of the collision bulkhead is subject to damage stability requirements.

§ 171.110 [Amended]

23. Section 171.110 is amended by removing paragraph (b) and by removing the paragraph designation ''(a)''.

§ 171.114 [Removed]

24. Section 171.114 is removed.

§ 171.115 [Amended]

25. Section 171.115 is amended by removing paragraph (b) and by removing the paragraph designation ''(a)''.

§ 171.119 [Removed]

26. Section 171.119 is removed.

27. Section 171.120 is revised to read as follows:

§ 171.120 Specific applicability.

A vessel of at least 100 gross tons must comply with § 171.122.

28. Section 171.122, paragraph (f)(1), is revised to read as follows:

§ 171.122 Watertight integrity above the margin line in a vessel of 100 gross tons or more.

* * * * *

(f) * * *

(1) Have a coaming that complies with the height requirements in Table 171.122; and

* * * * *

Table 171.124 [Redesignated as Table 171.122]

29. Table 171.124 is redesignated Table 171.122.

§ 171.124 [Removed]

30. Section 171.124 is removed.

§ 171.130 [Amended]

31. Section 171.130 is amended by removing paragraph (b) and by removing the paragraph designation ''(a)''.

§§ 171.140, 171.145, 171.150, and 171.155 [Removed]

32. Sections 171.140, 171.145, 171.150 and 171.155 are removed.

PART 173—SPECIAL RULES PERTAINING TO VESSEL USE

33. The authority citation for Part 173 continues to read as follows:

Authority: 43 U.S.C. 1333; 46 U.S.C. 2113, 3306, 5115; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

34. In § 173.005 paragraph (b) is revised to read as follows:

§ 173.005 Specific applicability.

* * * * *

(b) Has a maximum heeling moment due to hook load greater than or equal to—

(0.67)(W)(GM)(F/B) in meter-metric tons (foot-long tons), where—
W=displacement of the vessel with the hook load included in metric (long) tons.
GM=metacentric height with hook load included in meters (feet).
F=freeboard to the deck edge amidships in meters (feet).
B=beam in meters (feet).

35. In § 173.020, the introductory text in paragraph (c) is revised to read as follows:

§ 173.020 Intact stability standards: Counterballasted and non-counterballasted vessels.

* * * * *

(c) If the vessel's hull proportions fall within all three of the following limits, in lieu of complying with paragraph (b) of this section, the vessel owner may demonstrate in the presence of the OCMI that the vessel will not heel beyond the limits specified in paragraph (d) of this section:

(l) * * *

36. In § 173.025, paragraphs (b) and (c) and Graph 173.025 are revised to read as follows:

§ 173.025 Additional intact stability standards: Counterballasted vessels.

* * * * *

(b) When doing the calculations required by this section, the hook load and counterballast heeling arms and vessel righting arms, as plotted on graph 173.025, must define areas that satisfy the following equation:

Area II > Area I + K

Where—

* * * * *

(c) Each heeling arm curve must be defined by—

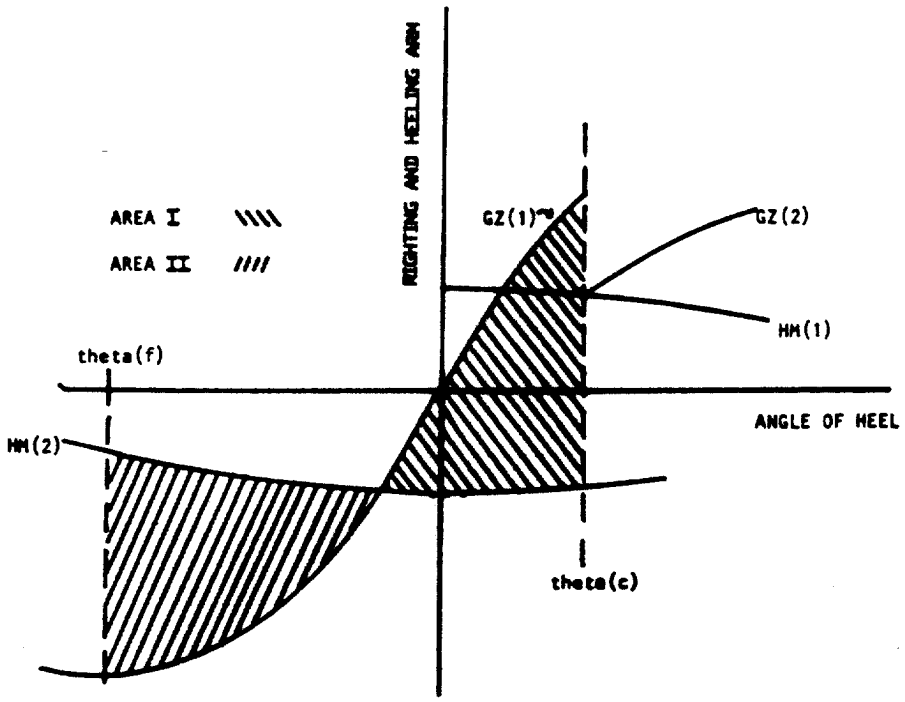
HA=HAO cos (T)

Where—

HA=heeling arm.
HAO=heeling arm at 0 degrees of heel.
T=angle of heel.

BILLING CODE 4910–14–M

GRAPH 173.025



BILLING CODE 4910–14–C

Where—

GZ(1) is the righting arm curve at the displacement corresponding to the vessel without hooking load.

GZ(2) is the righting arm curve at the displacement corresponding to the vessel with hook load.

HA(1) is the heeling arm curve due to the combined heeling moments of the hook load and the counterballast at the displacement with hook load.

HA(2) is the heeling arm due to the counterballast at the displacement without hook load.

Theta(c) is the angle of static equilibrium due to the combined hook load and counterballast heeling moments.

Theta(f) is the downflooding angle on the counterballasted side of the vessel.

§§ 173.054, 173.063 [Amended]

37. The cited sections or paragraphs of part 173 listed in Column 1 of the following table, are amended by removing the existing reference, listed in Column 2, in the cited section or paragraph and adding in its place the new reference listed in Column 3.

Column 1, cite	Column 2, existing reference	Column 3, new reference
173.054(a)(1)	171.040(a)(1)	179.210(a) of this chapter.
173.054(b)(1)	171.040(a)(1)	179.210(a) of this chapter.
173.054(b)(1)	171.043	179.220 of this chapter.
173.063(a)	171.035	170.170, 171.050, and 171.055 of this chapter.
173.063(d)	171.035(d) through (h).	178.300 & 178.310 of this chapter.

§§ 173.059, 173.060, 173.061, 173.062 [Amended]

38. The cited sections or paragraphs of part 173 listed in column 1 of this paragraph, are amended by adding the corresponding phrase, listed in Column 2, to the end of this cited section or paragraph.

Column 1, cited	Column 2, new phrase
173.059	"Or §§ 179.320, 179.330, and 179.340 in subchapter T of this chapter."
173.060(a)	"Or § 179.350 in subchapter T of this chapter."
173.061	"Or § 360 in subchapter T of this chapter."
173.062	"Or Subpart D of Part 178 in subchapter T of this chapter."

39. Subchapter T is revised to read as follows:

Part
175 General provisions
176 Inspection and certification
177 Construction and arrangement
178 Intact stability and seaworthiness
179 Subdivision, damage stability, and watertight integrity
180 Lifesaving equipment and arrangements
181 Fire protection equipment
182 Machinery installation
183 Elecyrical installation
184 Control and miscellaneous systems
185 Operations

PART 175—GENERAL PROVISIONS

Sec.
175.100 Purpose.
175.110 General applicability.
175.112 Specific applicability for individual parts.
175.120 Vessels on an international voyage.
175.122 Load lines.
175.200 Gross tonnage as a criterion for requirements.
175.400 Definitions of terms used in this subchapter.
175.540 Equivalents.
175.550 Special consideration.
175.560 Appeals.
175.600 Incorporation by reference.
175.800 Approved equipment and material.
175.900 OMB control numbers.

Authority: 46 U.S.C. 2103, 3306, 3703; 49 U.S.C. App. 1804; 49 CFR 1.45, 1.46; 175.900 also issued under authority of 44 U.S.C. 3507.

§ 175.100 Purpose.

The purpose of this subchapter is to implement applicable sections of Subtitle II of Title 46, United States Code, which require the inspection and certification of small passenger vessels.

§ 175.110 General applicability.

(a) Except as provided in paragraphs (b) and (c) of this section, this subchapter applies to each vessel of less than 100 gross tons that carries more than six passengers.

(b) A vessel of less than 100 gross tons must comply with subchapter K of this chapter if it is:

(1) A vessel that carries more than 150 passengers;

(2) A vessel with overnight accommodations for more than 49 passengers; or

(3) A vessel of more than 61 meters (200 feet) in length that carries more than six passengers.

(c) This subchapter does not apply to:

(1) A vessel operating exclusively on inland waters that are not navigable waters of the United States;

(2) An oceanographic research vessel;

(3) A boat forming part of a vessel's lifesaving equipment and that is not used for carrying passengers except in emergencies or during emergency drills;

(4) A vessel of a foreign country that is a party to the International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS), to which the United States Government is currently a party, and that has on board a current valid SOLAS Passenger Ship Safety Certificate; or

(5) A vessel of a foreign country, whose government has inspection laws approximating those of the United States and that by its laws accords similar privileges to vessels of the United States, which has on board a current valid certificate of inspection, permitting the carrying of passengers, issued by its government.

(d) The relationship between this subchapter and other subchapters pertaining to the inspection and certification of small passenger vessels is provided in the table below, which shows the breakpoints between subchapters T, K, and K' of this chapter.

TABLE 175.110(d)

Subchapter T	Subchapter K	Subchapter K[1]
≤150 passengers or overnight accommodations for ≤49 passengers and ≤61 meters (200 feet).	151–600 passengers or overnight accommodations for 50–150 passengers and ≤61 meters (200 feet).	≥601 passengers or overnight accommodations for ≥151 passengers or >61 meters (200 feet).

[1] Vessels in this category are small passenger vessels (passenger vessels less than 100 GT) but are required to comply with Parts 72 and 76 of subchapter H, Parts 114, 115, 117, 121 of subchapter K, and the applicable requirements of subchapters F and J.

§ 175.112 Specific applicability for individual parts.

At the beginning of certain parts of this subchapter, a more specific application is given for all or particular portions of that part. This application sets forth the type, size, service, or age of a vessel to which certain portions of that part apply or particular dates by which an existing vessel must comply with certain portions of that part.

§ 175.120 Vessels on an international voyage.

A mechanically propelled vessel that carries more than 12 passengers on an international voyage must comply with the applicable requirements of SOLAS, as well as this subchapter.

§ 175.122 Load lines.

A vessel of 24 meters (79 feet) in length or more, the keel of which was laid or that was at a similar stage of construction on or after July 21, 1968, and that is on a voyage other than a domestic voyage is subject to load line assignment, certification, and marking under suchapter E (Load Lines) of this chapter.

§ 175.200 Gross tonnage as criterion for requirements.

(a) The regulations in this subchapter take into account a vessel's length, passenger capacity, construction, equipment, intended service, and operating area. The criterion for application of this subchapter is the gross tonnage of the vessel. When the Commandant determines that the gross tonnage of a particular 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 regulations for a vessel of such physical size, the Commandant will prescribe the regulations to be made applicable to the vessel.

(b) When the Commandant determines that the gross tonnage is not a valid criterion for the use of certain regulations based on the relative size of the vessel, the owner will be informed of the determination and of the regulations applicable to the vessel. The vessel must be brought into compliance with all additional requirements before a Certificate of Inspection is issued.

§ 175.400 Definitions of terms used in this subchapter.

The following terms are used in this subchapter:

Accommodation space means a space (including a space that contains a microwave oven or other low heat appliance with a maximum heating element temperature of less than 121°C (250°F)) used as a:

(1) Public space:

(2) Hall:

(3) Dining room and mess room:

(4) Lounge or cafe:

(5) Public sales room;

(6) Overnight accommodation space;

(7) Barber shop or beauty parlor;

(8) Office of conference room;

(9) Washroom or toilet space;

(10) Medical treatment room or dispensary; or

(11) Game or hobby room.

''Beam'' or ''B'' means the maximum width of a vessel from:

(1) Outside of planking to outside of planking on wooden vessels; and

(2) Outside of frame to outside of frame on all other vessels.

Bulbous bow means a design of bow in which the forward underwater frames ahead of the forward perpendicular are

swelled out at the forefoot into a bulbous formation.

Bulkhead deck means the uppermost deck to which watertight bulkheads and the watertight shell extend.

Cable means single or multiple insulated conductors with an outer protective jacket.

Cargo space means a:

(1) *Cargo space* means a:

(1) Cargo hold;

(2) Refrigerated cargo space;

(3) A trunk leading to or from a space listed above: or

(4) A vehicle space.

Coast Guard District Commander or *District Commander* means an officer of the Coast Guard designated as such by the Commandant to command Coast Guard activities within a district.

Coastwise means a route that is not mote than 20 nautical miles offshore on any of the following waters:

(1) Any ocean;

(2) The Gulf of Mexico;

(3) The Caribbean Sea;

(4) The Bering Sea;

(5) The Gulf of Alaska; or

(6) Such other similar waters as may be designated by a Coast Guard District Commander.

Cockpit vessel means a vessel with an exposed recess in the weather deck extending not more than one-half of the length of the vessel measured over the weather deck.

Cold water means water where the monthly mean low water temperature is normally 15 degrees Celsius (59 degrees Fahrenheit or less.

Commandant means the Commandant of the Coast Guard or an authorized Headquarters staff officer designated in § 1.01 of this chapter.;

Consideration means an economic benefit, inducement, right, or profit including pecuniary payment according to an individual, person, or entity, but not including a 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.

Corrosion-resistant material or *corrosion-resistant* means made of one of the following materials in a grade suitable for its intended use in a marine environment:

(1) Silver;

(2) Cooper;

(3) Brass;

(4) Bronze;

(5) Aluminum alloys with a copper content of no more than 0.4 percent;

(6) Cooper-nickel;

(7) Plastics;

(8) Stainless steel;

(9) Nickel-copper; or

(10) A material, which when tested in accordance with ASTM B–117 for 200 hours, does not show pitting, cracking, or other deterioration.

Crew accommodation space means an accommodation space designated for the use of crew members and that passengers are normally not allowed to occupy.;

Custom engineered means, when referring to a fixed gas fire extinguishing system, a system that is designed for a specific space requiring individual calculations for the extinguishing agent volume, flow rate, piping, and similar factors for the space.

Dead cover means a metal cover to close or protect a port light to avoid glass breakage in case of heavy weather.

Distribution panel means an electrical panel that receives energy from the switchboard and distributes the energy to energy consuming devices or other panels.;

Draft means the vertical distance from the molded baseline of a vessel amidships to the waterline.;

Dripprof means enclosed equipment so constructed or protected that falling drops of liquid or solid particles striking the enclosure at any angle from 0 to 15 degrees downward from the vertical do not interfere with the operation of the equipment. A National Electrical Manufacturers Association type 1 enclosure with a dripshield is considered to be dripproof.

Embarkation station means the place on the vessel from which a survival craft is boarded.

Enclosed space means a compartment that is not exposed to the atmosphere when all access and ventilation closures are secured.

Existing vessel means a vessel that is not a new vessel.

Exposed waters is a term used in connection with stability criteria and means:

(1) Waters, except the Great Lakes, more than 20 nautical miles from a harbor of safe refuge;

(2) Those portions of the Great Lakes more than 20 nautical miles from a harbor of safe refuge from October 1 of one year through April 15 of the next year (winter season); and

(3) Those waters less than 20 nautical miles from a harbor of safe refuge that the cognizant Officer in Charge, Marine Inspection, determines are not partially protected waters or protected waters because they present special hazards due to weather or other circumstances.

Ferry means a vessel that:

(1) Operates in other than ocean or coastwide service;

(2) Has provisions only for deck passengers or vehicles, or both;

(3) Operates on a short run on a frequent schedule between two points over the most direct water route; and

(4) Offers a public service of a type normally attributed to a bridge or tunnel.

Fiber reinforced plastic means plastics reinforced with fibers or strands of some other material.

Flash point means the temperature at which a liquid gives off a flammable vapor when heated using the Pensky-Martens Closed Cup Tester method in accordance with ASTM D–93.

Float-free launching or arrangement means that method of launching a survival craft whereby the survival craft is automatically released from a sinking vessel and is ready for use.

Flush deck vessel means a vessel with a continuous weather deck located at the uppermost sheer line of the hull.

Freeing port means any direct opening through the vessel's bulwark or hull to quickly drain overboard water that has been shipped on exposed decks.

Galley means a space containing appliances with cooking surfaces that may exceed 121° C (250° F), such as ovens, griddles, and deep fat fryers.

Great Lakes means a route on the waters of any of the Great Lakes, except that for the purposes of Parts 178 and 179 of this subchapter, ''Great Lakes'' means both the waters of the Great Lakes and of the St. Lawrence River as far east as a straight line drawn from Cap de Rosiers to West Point, Anticosti Island, and west of a line along the 63rd meridian from Anticosti Island to the north shore of the St. Lawrence River.

Gross tonnage and *gross tons* is an indicator of a vessel's approximate volume as determined in accordance with Part 69 (Measurement of Vessels) of this chapter and recorded on the vessel's Tonnage Certificate (formerly Certificate of Admeasurement).

Harbor of safe refuge means a port, inlet, or other body of water normally sheltered from heavy seas by land and in which a vessel can navigate and safely moor. The suitability of a location as a harbor of safe refuge shall be determined by the cognizant Officer in Charge, Marine Inspection, and varies for each vessel, dependent on the vessel's size, maneuverability, and mooring gear.

Hazardous condition means any condition that could adversely affect the safety of any vessel, bridge, structure or shore area or the environmental quality of any port, harbor, or navigable water of the United States. This condition could include but is not limited to, fire, explosion, grounding, leaking, damage, illness of a person on board, or a manning shortage.

High seas means all waters that are neither territorial seas (the waters in a belt 3 nautical miles wide, that is adjacent to the coast and seaward of the territorial sea baseline) nor internal waters of the Untied States or of any foreign country.

High Speed Craft means a craft that is operable on or above the water and that has characteristics so different from those of conventional displacement ships, to which the existing international conventions, particularly SOLAS, apply, that alternative measures should be used to achieve an equivalent level of safety. Within the aforementioned generality, a craft that complies with the following characteristics would be considered a high speed craft:

The craft is capable of a maximum speed equal to or exceeding:$V = 3.7 \times \text{Displ}^{1667}$

Where V is the maximum speed and Displ is the vessel displacement corresponding to the design waterline in cubic meters.

Independent laboratory means a laboratory accepted under Part 159, Subpart 159.010 of this chapter.

Inflatable survival craft or ''inflatable life jacket'' means one that depends upon nonrigid, gas-filled chambers for buoyancy, and which is normally kept uninflated until ready to use.

International voyage means a voyage between a country to which SOLAS applies and a port outside that country. A country, as used in this definition, includes every territory for the international relations of which a contracting government to the convention is responsible or for which the United Nations is the administering authority. For the U.S., the term ''territory'' includes the Commonwealth of Puerto Rico, all possessions of the United States, and all lands held by the United States under a protectorate or mandate. For the purposes of this subchapter, vessels are not considered as being on an ''international voyage'' when solely navigating 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.

''Lakes, bays, and sounds'' means a route on any of the following waters:

(1) A lack other than the Great Lakes;

(2) A bay;

(3) A sound; or

(4) Such other similar waters as may be designated by a Coast Guard District Commander.

Launching appliance means a device for transferring a survival craft or rescue boat from its stowed position safely to the water. For a launching appliance using a davit, the term includes the davit, winch, and falls.

Length when used in terms of the vessel's length (excluding bow sprits, bumpkins, rudders, outboard motor brackets, handles, and other similar fittings, attachments, and extensions), means:

(1) The length listed on the vessel's Certificate of Documentation issued under the provisions of Part 67 (Documentation of Vessels) of this chapter or Certificate of Number issued under the provisions of 33 CFR Part 173, Subpart B (Numbering); or

(2) For a vessel that does not have a Certificate of Documentation or a Certificate of Number, the ''registered length'' as defined in § 69.53 in subchapter G of this chapter or, for a vessel that is less than 24 meters (79 feet) in overall length and is measured using simplified admeasurement, the registered length as defined in § 69.203 in subchapter G of this chapter; or

(3) For the purposes of Part 179 in subchapter S, the ''length'' of a vessel with a bulbous bow means the larger of the length as defined in the first paragraph of this definition or the straight line horizontal measurement from the forwardmost tip of the bulbous bow to the aftermost part of the vessel measured parallel to the centerline.

Length between perpendiculars or *LBP* means the horizontal distance measured between perpendiculars taken at the forwardmost and aftermost points on the waterline corresponding to the deepest operating draft.

Limited coastwise means a route that is not more than 20 nautical miles from a harbor of safe refuge.

Machinery space means a space including a trunk, alleyway, stairway, or duct to such a space, that contains:

(1) Propulsion machinery of any type;

(2) Steam or internal combustion machinery:

(3) Oil transfer equipment;

(4) Electrical motors of more than 10 hp;

(5) Refrigeration equipment;

(6) One or more oil-fired boilers or heaters; or

(7) Electrical generating machinery.

Main transverse watertight bulkhead means a transverse bulkhead that must be maintained watertight in order for the vessel to meet the damage stability and subdivision requirements of this subchapter.

Major conversion means a conversion of a vessel that, as determined by the Commandant:

(1) Substantially changes the dimensions or carrying capacity of the vessel:

(2) Changes the type of vessel;

(3) Substantially prolongs the life of the vessel; or

(4) Otherwise so changes the vessel that it is essentially a new vessel.

Marine inspector or *inspector* means any civilian employee or military member of the Coast Guard assigned by an Officer in Charge, Marine Inspection, or the Commandant to perform duties with respect to the inspection, enforcement, and administration of vessel safety and navigation laws and regulations.

Master means the individual having command of the vessel and who is the holder of a valid license that authorized the individual to serve as master of a smaller passenger vessel.

Means of escape means a continuous and unobstructed way of exit travel from any point in a vessel to an embarkation station. A means of escape can be both vertical and horizontal, and includes doorways, passageways, stairtowers, stairways, and public spaces. Cargo spaces, machinery spaces, auxiliary machinery spaces, rest rooms, hazardous areas determined by the cognizant OCMI, escalators, and elevators must not be any part of a means of escape. It consists of three distinct components.

(1) The exit access;

(2) The exit; and

(3) The exit discharge.

New vessel means a vessel:

(1) The initial construction of which began on or after March 11, 1996;

(2) Which was issued an initial Certificate of Inspection on or after September 11, 1996.

(3) Which underwent a major conversion that was initiated on or after March 11, 1996; or

(4) Which underwent a major conversion that was completed and for which an amended Certificate of Inspection was issued on or after September 11, 1996.

Noncombustible material means any material approved in accordance with § 164.009 in subchapter Q, of this chapter or other standard specified by the Commandant.

Non-self-propelled vessel means a vessel that does not have installed means of propulsion, including propulsive machinery, masts, spars, or sails.

Oceans means a route that is more than 20 nautical miles offshore on any of the following waters:

(1) Any ocean;

(2) The Gulf of Mexico;

(3) The Caribbean Sea;

(4) The Bering Sea;

(5) The Gulf of Alaska; or

(6) Such other similar waters as may be designated by a Coast Guard District Commander.

Officer In Charge, Marine Inspection, or ''OCMI'' means an officer 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 a marine inspection zone, described in Part 1 of this chapter, for the performance of duties with respect to the inspection, enforcement, and administration of vessel safety and navigation laws and regulations. The ''cognizant OCMI'' is the OCMI that has immediate jurisdiction over a vessel for the purpose of performing the duties previously described.

Open boat means a vessel not protected from entry of water by means of a complete weathertight deck, or by a combination of a partial weathertight deck and superstructure that is structurally suitable for the waters upon which the vessel operates.

Open deck means a deck that is permanently open to the weather on one or more sides and, if covered, any spot on the overhead is less than 4.5 meters (15 feet) from the nearest opening to the weather.

Open to the atmosphere means a compartment that has at least 9,375 square millimeters (15 square inches) of open area directly exposed to the atmosphere for each cubic meter (foot) of net compartment volume.

Operating station means the principal steering station on the vessel from which the individual on duty normally navigates the vessel.

Overnight accommodations or *overnight accommodation space* means an accommodation space for use by passengers or by crew members, which has one or more berths, including beds or bunks, for passengers or crew members to rest for extended periods. Staterooms, cabins, and berthing areas are normally overnight accommodation spaces. Overnight accommodations do not include spaces that contain only seats, including reclining seats.

Partially enclosed space means a compartment that is neither open to the atmosphere nor an enclosed space.

Partially protected waters is a term used in connection with stability criteria and means:

(1) Waters not more than 20 nautical miles from the mouth of a harbor of safe refuge, unless determined by the cognizant OCMI to be exposed waters;

(2) Those portions of rivers, estuaries, harbors, lakes, and similar waters that the cognizant OCMI determines not to be protected waters; and

(3) Waters of the Great Lakes from April 16 through September 30 of the same year (summer season).

Passenger means an individual carried on a vessel, except:

(1) 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;

(2) The master; or

(3) A member of the crew engaged in the business of the vessel who has not contributed consideration for carriage and who is paid for on board services.

Passenger accommodation space means an accommodation space designated for the use of passengers.

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.

Pilothouse control means that controls to start and stop the engines and control the direction and speed of the propeller of the vessel are located at the operating station.

Piping system includes piping, fittings, and appurtenances as described in § 56.07–5 in subchapter F of this chapter.

Port light means a hinged glass window, generally circular, in a vessel's side or deckhouse for light and ventilation.

Protected waters is a term used in connection with stability criteria and means sheltered waters presenting no special hazards such as most rivers, harbors, and lakes, and that is not determined to be exposed waters or partially protected waters by the cognizant OCMI.

Pre-engineered means, when referring to a fixed gas fire extinguishing system, a system that is designed and tested to be suitable for installation without modification as a complete unit in a space of a set volume, regardless of the specific design of the vessel on which it is installed.

Rivers means a route on any of the following waters:

(1) A river;

(2) A canal; or

(3) Such other similar waters as may be designated by a Coast Guard District Commander.

Sailing vessel means a vessel principally equipped for propulsion by sail even if the vessel has an auxiliary means of propulsion.

Scantlings means the dimensions of all structural parts such as frames, girders, and plating, used in building a vessel.

Scupper means a pipe or tube of at least 30 millimeters (1.25 inches) in diameter leading down from a deck or sole and through the hull to drain water overboard.

Self-bailing cockpit means a cockpit, with watertight sides and floor (sole), which is designed to free itself of water by gravity drainage through scuppers.

Ship's service loads means services necessary for maintaining the vessel in normal operational and habitable conditions. These loads include, but are not limited to, safety, lighting, ventilation, navigational, and communications loads.

Short international voyage means an international voyage where:

(1) The vessel is not more than 200 nautical miles from a port or place in which the passengers and crew could be placed in safety; and

(2) The total distance between the last port of call in the country in which the voyage began and the final port of destination does not exceed 600 nautical miles.

Stairway means an inclined means of escape between two decks.

Steel or equivalent material means steel or any noncombustible material that, by itself or due to insulation provided, has structural and integrity properties equivalent to steel at the end of the standard fire test.

Survival craft means a lifeboat, rigid liferaft, inflatable liferaft, life float, inflatable buoyant apparatus, buoyant apparatus, or a small boat carried aboard a vessel in accordance with § 180.200(b) of this subchapter.

Switchboard means an electrical panel that receives power from a generator, battery, or other electrical power source and distributes power directly or indirectly to all equipment supplied by the generating plant.

Trunk means a vertical shaft or duct for the passage of pipes, wires, or other devices except that for the purposes of Part 179 of this chapter, ''trunk'' means a large enclosed passageway through any deck or bulkhead of a vessel.

Vehicle space means a space not on an open deck, for the carriage of motor vehicles with fuel in their tanks, into and from which such vehicles can be driven and to which passengers have access.

Vessel includes every description of watercraft or other artificial contrivance, used or capable of being used as a means of transportation on water.

Vessel of the United States means a vessel documented or numbered under the laws of the United States, the states of the United States, Guam, Puerto Rico, the Virgin Islands, American Samoa, the District of Columbia, the Northern

Mariana Islands, and any other territory or possession of the United States.

Warm water means water where the monthly mean low water temperature is normally more than 15 degrees Celsius (59 degrees Fahrenheit).

Watertight means designed and constructed to withstand a static head of water without any leakage, except that ''watertight'' for the purposes of electrical equipment means enclosed so that water does not enter the equipment when a stream of water from a hose with a nozzle one inch in diameter that delivers at least 246 liters (65 gallons) per minute is sprayed on the enclosure from any direction from a distance of ten feet for five minutes.

Weather deck means a deck that is partially or completely exposed to the weather from above or from at least two sides, except that for the purposes of Parts 178 and 179 in subchapter S, ''weather deck'' means the uppermost deck exposed to the weather to which a weathertight sideshell extends.

Weathertight means that water will not penetrate in any sea condition, except that ''weathertight equipment'' means equipment constructed or protected so that exposure to a beating rain will not result in the entrance of water.

Well deck vessel means a vessel with a weather deck fitted with solid bulwarks that impede the drainage of water over the sides or a vessel with an exposed recess in the weather deck extending more than one-half of the length of the vessel measured over the weather deck.

Wire means an individual insulated conductor without an outer protective jacket.

Work space means a space, not normally occupied by a passenger, in which a crew member performs work and includes, but is not limited to, a galley, operating station, or machinery space.

§ 175.540 Equivalents.

(a) The Commandant may approve any arrangement, fitting, appliance, apparatus, equipment, calculation, information, or test, which provides a level of safety equivalent to that established by specific provisions of this subchapter. Requests for approval must be submitted to the Marine Safety Center via the cognizant OCMI. If necessary, the Marine Safety Center may require engineering evaluations and tests to demonstrate the equivalence of the substitute.

(b) The Commandant may accept compliance by a high speed craft with the provisions of the pending International Maritime Organization (IMO) ''Code of Safety for High Speed Craft'' as an equivalent to compliance with applicable requirements of this subchapter. Requests for a determination of equivalency for a particular vessel must be submitted to the Marine Safety Center via the cognizant OCMI.

(c) The Commandant may approve a novel lifesaving appliance or arrangement as an equivalent if it has performance characteristics at least equivalent to the appliance or arrangement required under this part, and:

(1) Is evaluated and tested under IMO Resolution A. 520(13), ''Code of Practice for the Evaluation, Testing and Acceptance of Prototype Novel Life-Saving Appliances and Arrangements''; or

(2) Has successfully undergone an evaluation and tests that are substantially equivalent to those recommendations.

§ 175.550 Special consideration.

In applying the provisions of this subchapter, the OCMI may give special consideration to authorizing departures from the specific requirements when unusual circumstances or arrangements warrant such departures and an equivalent level of safety is provided. The OCMI of each marine inspection zone in which the vessel operates must approve any special consideration granted to a vessel.

§ 175.560 Appeals.

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 § 1.03 in subchapter A of this chapter.

§ 175.600 Incorporation by reference.

(a) Certain material is incorporated by reference into this subchapter with the approval of the Director of the Federal Register in accordance with Title 5 United States Code (U.S.C.) 552(a) and Title 1 Code of Federal Regulations (CFR) Part 51. To enforce any edition other than that specified in paragraph (b) of this section, the Coast Guard must publish a notice of change in the Federal Register and make the material available to the public. All approved material is on file at the Office of the Federal Register. 800 North Capitol Street NW., suite 700, Washington, DC, and at the U.S. Coast Guard, Standards Evaluation and Development Division (G–MES), 2100 Second Street SW., Washington, DC 20593–0001 and is available from the sources indicated in paragraph (b) of this section.

(b) The material approved for incorporation by reference in this subchapter and the sections affected are:

American Boat and Yacht Council (ABYC), 3069 Solomon's Island Rd., Edgewater, MD 21037	
A–1–93—Marine Liquefied Petroleum Gas (LPG) Systems	184.240
A–3–93—Galley Stoves	184.200
A–7–70—Boat Heating Systems	184.200
A–16–89—Electric Navigation Lights	183.130
A–22–93—Marine Compressed Natural Gas (CNG) Systems	184.240
E–8–94—Alternating Current (AC) Electrical Systems on Boats	183.130
E–9–90—Direct Current (DC) Electrical Systems on Boats	183.130
H–2–89—Ventilation of Boats Using Gasoline	182.130; 182.460
H–22–86—DC Electric Bilge Pumps Operating Under 50 Volts	182.130; 182.500
H–24–93—Gasoline Fuel Systems	182.130; 182.440; 182.445; 182.450; 182.455
H–25–94—Portable Gasoline Fuel Systems for Flammable Liquids	182.130; 182.458
H–32–87—Ventilation of Boats Using Diesel Fuel	182.130; 182.465; 182.470
H–33–89—Diesel Fuel Systems	182.130; 182.440; 182.445; 182.450; 182.455
P–1–93—Installation of Exhaust Systems for Propulsion and Auxiliary Engines	177.405; 177.410; 182.130; 182.425; 182.430
P–4–89—Marine Inboard Engines	182.130; 182.420
American Bureau of Shipping (ABS), ABS Plaza, 16855 Northchase Drive, Houston, TX 77060	
Rules for Building and Classing Aluminum Vessels, 1975	177.300
Rules for Building and Classing Reinforced Plastic Vessels, 1978	177.300
Rules for Building and Classing Steel Vessels, 1995	182.410; 183.360

Rules for Building and Classing Steel Vessels Under 61 Meters (200 feet) in Length, 1983.	177.300
Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways, 1995.	177.300
American National Standards Institute (ANSI), United Engineering Center, 345 East 47th St., New York, NY 10017	
A 17.1–1984, including supplements A 17.1a and b–1985—Safety Code for Elevators and Escalators.	183.540
B 31.1–1986—Code for Pressure Piping, Power Piping	182.710
Z 26.1–1977, including 1980 supplement—Safety Glazing Materials For Glazing Motor Vehicles Operating on Land Highways.	177.1030
American Society for Testing and Materials (ASTM), 1916 Race St., Philadelphia, PA 19103	
B–117–73 (Reapproved 1979)—Method of Salt Spray (Fog) Testing	175.400
D–93–94—Flash Point By Pensky-Martens Closed Cup Tester	175.400
D–635–91—Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.	182.440
D–2863–91—Measuring the Minimum Oxygen Concentration to Support Candle-like Combustion of Plastics (Oxygen Index).	182.440
E–84–94—Surface Burning Characteristics of Building Materials	177.410
Institute of Electrical and Electronics Engineers, Inc. (IEEE), IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854	
Standard 45–1977—Recommended Practice for Electrical Installations on Shipboard	183.340
International Maritime Organization (IMO), International Maritime Organization, 4 Albert Embankment, London SE1 7SR	
Code of Practice for the Evaluation, Testing and Acceptance of Prototype Novel Life-Saving Appliances and Arrangements—Resolution A.520(13), dated 17 November 1983.	175.540(c)
Use and Fitting of Retro-Reflective Materials on Life-Saving Appliances—Resolution A.658(16), dated 20 November 1989.	185.604
Fire Test Procedures For Ignitability of Bedding Components, Resolution A.688(17), dated 06 November 1991.	177.405
Symbols Related to Life-Saving Appliances and Arrangements, Resolution A.760(18), dated 17 November 1993.	185.604(g)
Lloyd's Register of Shipping, 17 Battery Place, Suite 1013, New York, NY 10004	
Rules and Regulations for the Classification of Yachts and Small Craft, as amended through 1983.	177.300
National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269–9101	
NFPA 10–1994—Portable Fire Extinguishers	176.810
NFPA 17–1994—Dry Chemical Extinguishing Systems	181.425
NFPA 17A–1994—Wet Chemical Extinguishing Systems	181.425
NFPA 70–1993—National Electrical Code (NEC)	
Section 250–95	183.370
Section 310–13	183.340
Section 310–15	183.340
Article 430	183.320
Article 445	183.320
NFPA 302–1994—Pleasure and Commercial Motor Craft, Chapter 6	184.200; 184.240
NFPA 306–1993—Control of Gas Hazards on Vessels	176.710
NFPA 1963–1989—Fire Hose Connections	181.320
Naval Publications and Forms Center, Customer Service Code 1052, 5801 Tabor Ave., Philadelphia, PA 19120	
Military Specification MIL–P–21929B (1970)—Plastic Material, Cellular Polyurethane, Foam-in-Place, Rigid (2 and 4 pounds per cubic foot).	179.240
Society of Automotive Engineers (SAE), 400 Commonwealth Drive, Warrendale, PA 15096–0001	
SAE J–1475—Hydraulic Hose Fittings For Marine Applications, 1984	182.720
SAE J–1928—Devices Providing Backfire Flame Control for Gasoline Engines in Marine Applications, August 1989.	182.415
SAE J–1942—Hose and Hose Assemblies for Marine Applications, 1992	182.720
Underwriters Laboratories Inc. (UL), 12 Laboratory Drive, Research Triangle Park, NC 27709	
UL 19–1992—Lined Fire Hose and Hose Assemblies	181.320
UL 174–1989, as amended through June 23, 1994—Household Electric Storage Tank Heaters.	182.320
UL 217–1993—Single and Multiple Station Smoke Detectors	181.450
UL 486A–1992—Wire Connectors and Soldering Lugs For Use With Copper Conductors.	183.340
UL 489–1995—Molded—Case Circuit Breakers and Circuit Breaker Enclosures	183.380
UL 595–1991—Marine Type Electric Lighting Fixtures	183.410
UL 710–1990, as amended through September 16, 1993—Exhaust Hoods For Commercial Cooking Equipment.	181.425

UL 1058–1989, as amended through April 19, 1994—Halogenated Agent Extinguishing System Units.	181.410
UL 1102–1992—Non integral Marine Fuel Tanks	182.440
UL 1110–1988, as amended through May 16, 1994—Marine Combustible Gas Indicators.	182.480
UL 1111–1988—Marine Carburetor Flame Arresters	182.415
UL 1453–1988, as amended through June 7, 1994—Electric Booster and Commercial Storage Tank Water Heaters.	182.320
UL 1570–1995—Fluorescent Lighting Fixtures	183.410
UL 1571–1995—Incandescent Lighting Fixtures	183.410
UL 1572–1995—High Intensity Discharge Lighting Fixtures	183.410
UL 1573–1995—Stage and Studio Lighting Units	183.410
UL 1574–1995—Track Lighting Systems	183.410

§ 175.800 Approved equipment and material.

(a) Equipment and material that is required by this subchapter to be approved or of an approved type, must have been manufactured and approved in accordance with the design and testing requirements in subchapter Q (Equipment, Construction, and Materials: Specifications and Approval) of this chapter or as otherwise specified by the Commandant.

(b) Notice regarding equipment approvals is published in the Federal Register. Coast Guard publication COMDTINST M16714.3 (Series), ''Equipment Lists, Items Approved, Certificated or Accepted under Marine Inspection and Navigation Laws,'' lists approved equipment by type and manufacturer. COMDTINST M16714.3 (Series) may be obtained from the Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402–9328.

§ 175.900 OMB control numbers.

(a) *Purpose.* This section lists the control numbers assigned to information collection and recordkeeping 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 OMB for each approved agency information collection requirement.

(b) *Display.*

46 CFR Section where identified	Current OMB Control Number
176.105(a)	2115–0578
176.202	2115–0578
176.204	2115–0578
176.302	2115–0578
176.306	2115–0578
176.310	2115–0578
176.500(a)	2115–0578
176.612	2115–0578
176.700	2115–0578
176.704	2115–0578
176.710	2115–0578
176.810(b)	2115–0578
176.920(c)	2115–0578
176.930	2115–0578
177.202	2115–0578
177.315	2115–0589
177.330	2115–0578
177.335	2115–0589
177.340	2115–0578
178.210	2115–0578
178.220	2115–0559
178.230	2115–0559
181.610	2115–0578
182.460(e)	2115–0578
182.610(f)	2115–0578
183.220(d)	2115–0578
183.320 (d) and (e)	2115–0578
184.420	2115–0578
184.506	2115–0578
185.202	2115–0003
185.206	2115–0003
185.208	2115–0578
185.220	2115–0578
185.230	2115–0578
185.280	2115–0578
185.340(c)	2115–0578
185.402	2115–0578
185.420	(1)
185.502	2115–0578
185.503	2115–0578
185.504	2115–0578
185.506	2115–0578
185.510	2115–0578
185.514	2115–0578
185.516	2115–0578
185.518	2115–0578
185.520	(1)
185.524	(1)
185.602	2115–0578
185.604	2115–0578
185.606	2115–0578
185.608	2115–0578
185.610	2115–0578
185.612	2115–0578
185.702	2115–0578
185.704(c)	2115–0578
185.728(c)	(1)

[1] Will be displayed when assigned by OMB.

PART 176—INSPECTION AND CERTIFICATION

Subpart A—Certificate of Inspection

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Subpart I—International Convention for Safety of Life at Sea, 1974, as Amended (SOLAS)

176.900 Applicability.
176.910 Passenger Ship Safety Certificate.
176.920 Exemptions.
176.930 Equivalents.

Authority. 33 U.S.C. 1321(j); 46 U.S.C. 2103, 3306; 49 U.S.C. App. 1804; E.O. 11735, 38 FR 21243, 3 CFR, 1971–1975 Comp., p.793; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p.277; 49 CFR 1.46.

Subpart A—Certificate of Inspection

§ 176.100 When required.

(a) A vessel to which this subchapter applies may not be operated without having on board a valid U.S. Coast Guard Certificate of Inspection.

(b) Except as noted in § 176.114 of this part, each vessel inspected and certificated under the provisions of this subchapter must, when any passengers are abroad during the tenure of the certificate, be in full compliance with the terms of the certificate.

(c) If necessary to prevent delay of the vessel, a temporary Certificate of Inspection may be issued pending the issuance and delivery of the regular Certificate of Inspection. The temporary certificate must be carried in the same manner as the regular certificate and is considered the same as the regular Certificate of Inspection that it represents.

(d) A vessel on a foreign voyage between a port in the United States and a port in a foreign country, whose Certificate of Inspection expires during the voyage, may lawfully complete the voyage without a valid Certificate of Inspection provided the voyage is completed within 30 days of expiration and the certificate did not expire within 15 days of sailing on the foreign voyage from a U.S. port.

§ 176.103 Description.

The Certificate of Inspection issued to a vessel describes the vessel, the route(s) that it may travel, the minimum manning requirements, the survival and rescue craft carried, the minimum fire extinguishing equipment and lifejackets required to be carried, the maximum number of passengers and total persons that may be carried, the number of passengers the vessel may carry in overnight accommodation spaces, the name of the owner and managing operator, any equivalencies accepted or authorized by the Commandant or any Officer in Charge, Marine Inspection (OCMI) in accordance with §§ 175.540 or 175.550 of this chapter, and such other conditions of operations as may be determined by the cognizant OCMI.

§ 170.105 How to obtain or renew.

(a) A Certificate of Inspection is obtained or renewed by making application on Form CG 3752, ''Application for Inspection of U.S. Vessel,'' to the Coast Guard OCMI of the marine inspection zone in which the inspection is to be made. Form CG–3752 may be obtained at any U.S. Coast Guard Marine Safety Office or Marine Inspection Office.

(b) The application for initial inspection of a vessel being newly constructed or converted must be submitted prior to the start of the construction or conversion.

(c) The construction, arrangement, and equipment of each vessel must be acceptable to the cognizant OCMI as a prerequisite of the issuance of the initial Certificate of Inspection. Acceptance is based on the information, specifications, drawings and calculations available to the OCMI, and on the successful completion of an initial inspection for certification.

(d) A Certification of Inspection is renewed by the issuance of a new Certification of Inspection.

(e) The condition of the vessel and its equipment must be acceptable to the cognizant OCMI as a prerequisite to the Certification of Inspection renewal. Acceptance is based on the condition of the vessel as found at the periodic inspection for certification.

§ 176.107 Period of validity.

(a) A Certification of Inspection is issued for a period of three years.

(b) A Certification of Inspection may be suspended and withdrawn or revoked by the cognizant OCMI at any time for noncompliance with the requirements of this subchapter.

§ 176.110 Routes permitted.

(a) The area of operation for each vessel and any necessary operational limits are determined by the cognizant OCMI, and recorded on the vessel's Certification of Inspection. Each area of operation, referred to as a route, is described on the Certification of Inspection under the major headings ''Oceans,'' ''Coastwise,'' ''Limited Coastwise,'' ''Great Lakes,'' ''Lakes, Bays, and Sounds,'' or ''Rivers,'' as applicable. Further limitations imposed or extensions granted are described by reference to bodies of waters, geographical points, distance from geographical points, distances from land, depths of channel, seasonal limitations, and similar factors.

(b) Operation of a vessel on a route of lesser severity than those specifically described or designated on the Certification of Inspection is permitted unless expressly prohibited on the Certification of Inspection. The general order of severity of routes is: oceans, coastwise, limited coastwise, Great Lakes, lakes, bays, and sounds, and rivers. The cognizant OCMI may prohibit a vessel from operating on a route of lesser severity than the primary route a vessel is authorized to operate on if local conditions necessitate such a restriction.

(c) Non-self-propelled vessels are prohibited from operating on an oceans, coastwise, limited coastwise, or Great Lakes route unless the Commandant approves such a route.

(d) When designating a permitted route or imposing any operational limits on a vessel, the OCMI may consider:

(1) Requirements of this subchapter for which compliance is based on the route of the vessel;

(2) The performance capabilities of the vessel based on design, scantlings, stability, subdivision, propulsion, speed, operating modes, maneuverability, and other characteristics; and

(3) The suitability of the vessel for nighttime operations and use in all weather conditions.

§ 176.112 Total persons permitted.

The cognizant OCMI determines the total number of persons permitted to be carried on a vessel. In determining the total number of persons permitted to be carried, the OCMI may consider stability restrictions and subdivision requirements of the vessel, the vessel's route, general arrangement, means of escape, lifesaving equipment, the minimum manning requirements, and the maximum number of passengers permitted in accordance with § 176.113.

§ 176.113 Passengers permitted.

(a) The maximum number of passengers permitted must be not more than that allowed by the requirements of this section, except as authorized by the OCMI under paragraph (d) of this section.

(b) The maximum number of passengers permitted on any vessel may be the greatest number permitted by the length of rail criterion, deck area criterion, or fixed seating criterion described in this paragraph or a combination of these criteria as allowed by paragraph (c) of this section.

(1) *Length of rail criterion*. One passenger may be permitted for each 760 millimeters (30 inches) of rail space available to the passengers at the periphery of each deck. The following rail space may not be used in determining the maximum number of passengers permitted:

(i) Rail space in congested areas unsafe for passengers, such as near anchor handling equipment or line handling gear, in the way of sail booms, running rigging, or paddle wheels, or along pulpits;

(ii) Rail space on stairways; and

(iii) Rail space where persons standing in the space would block the vision of the licensed individual operating the vessel.

(2) *Deck area criterion.* One passenger may be permitted for each 0.9 square meters (10 square feet) of deck area available for the passengers' use. In computing such deck area, the areas occupied by the following must be excluded;

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

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

(iii) Toilets and washrooms;

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

(v) Spaces below deck that are unsuitable for passengers or that would not normally be used by passengers;

(vi) Interior passageways less than 840 millimeters (34 inches) wide and passageways on open deck, less than 710 millimeters (28 inches) wide;

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

(viii) Deck areas in way of paddle wheels; and

(ix) Aisle area provided in accordance with § 177.820(d) in this subchapter.

(3) *Fixed seating criterion.* One passenger may be permitted for each 455 millimeter (18 inches) of width of fixed seating provided by § 177.820 of this subchapter. Each sleeping berth in overnight accommodation spaces shall be counted as only one seat.

(c) Different passenger capacity criteria may be used on each deck of a vessel and added together to determine the total passenger capacity of that vessel. Where seats are provided on part of a deck and not on another, the number of passengers permitted on a vessel may be the sum of the number permitted by the seating criterion for the space having seats and the number permitted by the deck area criterion for the space having no seats. The length of rail criterion may not be combined with either the deck area criterion or the fixed seating criterion when determining the maximum number of passengers permitted on an individual deck.

(d) For a vessel operating on short runs on protected waters such as a ferry, the cognizant OCMI may give special consideration to increases in passenger allowances.

§ 176.114 Alternative requirements for a vessel operating as other than a small passenger vessel.

(a) When authorized by the cognizant OCMI by an endorsement of the vessel's certificate of Inspection, a small passenger vessel carrying six or less passengers, or operating as a commercial fishing vessel or other uninspected vessel, or carrying less than twelve passengers and operating as a recreational vessel, need not meet requirements of:

(1) Subparts C, D, and E, of Part 180 of this chapter if the vessel is in satisfactory compliance with the lifesaving equipment regulations for an uninspected vessel or recreational vessel in a similar service;

(2) Subpart C of Part 177, and Parts 178 and 179 of this chapter if the vessel is in satisfactory compliance with applicable regulations for an uninspected vessel or recreational vessel in a similar service or if the owner of the vessel otherwise establishes to the satisfaction of the cognizant OCMI that the vessel is seaworthy for the intended service; and

(3) Sections 184.404 and 184.410 of this chapter providing the vessel is in satisfactory compliance with applicable regulations for an uninspected or recreational vessel in a similar service.

(b) A vessel operating under the alternative regulations of paragraph (a) of this section must:

(1) Not alter the arrangement of the vessel nor remove any equipment required by the certificate for the intended operation, without the consent of the cognizant OCMI;

(2) Comply with the minimum manning specified on the Certificate of Inspection, which may include reduced manning depending on the number of passengers and operation of the vessel;

(3) When carrying from one to six passengers, except for a vessel being operated as a recreational vessel, make the announcement required by § 185.506(a) of this chapter before getting underway; and

(4) If a vessel of more than 15 gross tons, not carry freight for hire.

(c) The endorsement issued under paragraph (a) of this section must indicate the route, maximum number of passengers, and the manning required to operate under the provisions of this section.

§ 176.120 Certificate of Inspection amendment.

(a) An amended Certificate of Inspection may be issued at any time by any OCMI. The amended Certificate of Inspection replaces the original, but the expiration date remains the same as that of the original. An amended Certificate of Inspection may be issued to authorize and record a change in the dimensions, gross tonnage, owner, managing operator, manning, persons permitted, route permitted, conditions of operations, or equipment of a vessel, from that specified in the current Certificate of Inspection.

(b) A request for an amended Certificate of Inspection must be made to the cognizant OCMI by the owner or managing operator of the vessel at any time there is a change in the character of a vessel or in its route, equipment, ownership, operation, or similar factors specified in its current Certificate of Inspection.

(c) The OCMI may require an inspection prior to the issuance of an amended Certificate of Inspection.

Subpart B—Special Permits and Certificates

§ 176.202 Permit to proceed.

(a) When a vessel is not in compliance with its Certificate of Inspection or fails to comply with a regulation of this subchapter, the cognizant OCMI may permit the vessel to proceed to another port for repair, if in the judgment of the OCMI, the trip can be completed safely, even if the Certificate of Inspection of the vessel has expired or is about to expire.

(b) Form CG–948, ''Permit to Proceed to another Port for Repairs,'' may be issued by the cognizant OCMI to the owner, managing operator, or the master of the vessel stating the conditions under which the vessel may proceed to another port. The permit may be issued only upon the written application of the owner, managing operator, or master, and after the vessel's Certificate of Inspection is turned over tot he OCMI.

(c) A vessel may not carry passengers when operating in accordance with a permit to proceed, unless the cognizant OCMI determines that it is safe to do so.

§ 176.204 Permit to carry excursion party.

(a) The cognizant OCMI may permit a vessel to engage in a temporary excursion operation with a greater number of persons or on a more extended route, or both, than permitted by its Certificate of Inspection when, in the opinion of the OCMI, the operation can be undertaken safely.

(b) Upon the written application of the owner or managing operator of the

vessel, the cognizant OCMI may issue a Form CG–949, ''Permit To Carry Excursion Party,'' to indicate his or her permission to carry an excursion party. The OCMI will indicate on the permit the conditions under which it is issued, the number of persons the vessel may carry, the crew required, any additional lifesaving or safety equipment required, the route for which the permit is granted, and the dates on which the permit is valid.

(c) The number of passengers normally permitted on an excursion vessel shall be governed by § 176.113.

(d) The OCMI will not normally waive the applicable minimum safety standards when issuing an excursion permit. In particular, a vessel that is being issued an excursion permit will normally be required to meet the minimum stability, survival craft, life jacket, fire safety, and manning standards applicable to a vessel in the service for which the excursion permit is requested.

(e) The permit acts as a temporary, limited duration supplement to the vessel's Certificate of Inspection and must be carried with the Certificate of Inspection. A vessel operating under a permit to carry an excursion party must be in full compliance with the terms of its Certificate of Inspection as supplemented by the permit.

(f) The OCMI may require an inspection prior to the issuance of a permit to carry an excursion party.

Subpart C—Posting of Certificates, Permits, and Stability Letters

§ 176.302 Certificates and permits.

The Certificate of Inspection and any SOLAS Certificates must be posed under glass or other suitable transparent material, such that all pages are visible, in a conspicuous place on the vessel where observation by passengers is likely. If posting is impracticable, such as an open boats, the certificates must be kept on board in a weathertight container readily available for use by the crew and display to passengers and others on request.

§ 176.306 Stability letter.

When, in accordance with § 178.210 of this chapter, a vessel must be provided with a stability letter, the stability letter must be posed under glass or other suitable transparent material, such that all pages are visible, at the operating station of the vessel. If posting is impracticable, the stability letter must be kept on board in a weathertight container readily available for use by the crew and display to passengers and others on request.

§ 176.310 Certification expiration date stickers.

(a) A Certificate Expiration Date Sticker indicates the date upon which the vessel's Certificate of Inspection expires and is provided by the cognizant OCMI in the number required, upon issuance or renewal of the Certificate of Inspection.

(b) A vessel that is issued a Certificate of Inspection under the provisions of this subchapter must be not be operated without a valid Certificate Expiration Date Sticker affixed to the vessel on a place that is:

(1) A glass or other smooth surface from which the sticker may be removed without damage to the vessel;

(2) Readily visible to each passenger prior to boarding the vessel and to patrolling Coast Guard law enforcement personnel; and

(3) Acceptable to the Coast Guard marine inspector.

(c) The Coast Guard marine inspector may require the placement of more than one sticker in order to insure compliance with paragraph (b)(2) of this section.

Subpart D—Inspection for Certification

§ 176.000 General.

(a) An inspection is required before the issuance of a Certification of Inspection. Such an inspection for certification is not made until after receipt of the application for inspection required by § 176.105.

(b) Upon receipt of a written application for inspection, the cognizant OCMI assigns a marine inspector to inspect the vessel for compliance with this subchapter at a time and place mutually agreed upon by the OCMI and the owner, managing operator, or representative thereof.

(c) The owner, managing operator, or a representative thereof shall be present during the inspection.

§ 176.402 Initial inspection for certification.

(a) Before construction or conversion of a vessel intended for small passenger vessel service, the owner of the vessel shall submit plans, manuals, and calculations indicating the proposed arrangement, construction, and operations of the vessel, to the cognizant OCMI for approval, except when submitted to the Marine Safety Center (MSC) as allowed by Part 177 of this subchapter. The plan, manuals, and calculations required to be submitted and the disposition of these plans are set forth in Part 177, Subpart B of this chapter.

(b) The initial inspection is conducted to determine that the vessel and its equipment comply with applicable regulations and that the vessel was built or converted in accordance with approved plans, manuals, and calculations. Additionally, during the inspection, the materials, workmanship, and condition of all parts of the vessel and its machinery and equipment may be checked to determine if the vessel is satisfactory in all respects for the service intended.

(c) The owner or managing operator of a vessel shall ensure that the vessel complies with the laws and regulations applicable to the vessel and that the vessel is otherwise satisfactory for the intended service. The initial inspection may include an inspection of the following items:

(1) The arrangement, installation, materials, and scantlings of the structure including the hull and superstructure, yards, masts, spars, rigging, sails, piping, main and auxiliary machinery, pressure vessels, steering apparatus, electrical installation, fire resistant construction materials, life saving appliances, fire detecting and extinguishing equipment, pollution prevention equipment, and all other equipment;

(2) Sanitary conditions and fire hazards; and

(3) Certificates and operating manuals, including certificates issued by the FCC.

(d) During an initial inspection for certification the owner or managing operator shall conduct all tests and make the vessel available for all applicable inspections discussed in this paragraph, and in Subpart H of this part, to the satisfaction of the cognizant OCMI, including the following:

(1) The installation of each rescue boat, liferaft, inflatable buoyant apparatus, and launching appliance as listed on its Certificate of Approval (Form CGHQ–10030).

(2) The operation of each rescue boat and survival craft launching appliance required by Part 180 of this chapter.

(3) Machinery, fuel tanks, and pressure vessels as required by Part 182 of this chapter.

(4) A stability test or a simplified stability test when required by § 170.175 of this chapter or § 178.320 of this chapter.

(5) Watertight bulkheads as required by Part 179 of this chapter.

(6) Firefighting systems as required by Part 181 of this chapter.

(7) The operation of all smoke and fire detecting systems, and fire alarms and sensors.

§ 176.404 Subsequent inspections for certification.

An inspection for renewal of a Certificate of Inspection normally includes inspection and testing of the structure, machinery, equipment, and on a sailing vessel, rigging and sails. The owner or managing operator shall conduct all tests as required by the marine inspector, and make the vessel available for all specific inspections and drills required by Subpart H of this part. In addition, the OCMI may require the vessel to get underway as part of the inspection for certification. The inspection is conducting to determine if the vessel is in satisfactory condition, fit for the service intended, and complies with the applicable regulations in this subchapter.

Subpart E—Reinspection

§ 176.500 When required.

(a) The owner or managing operator shall make a vessel available for reinspections within 60 days of each anniversary of the date of issuance of the Certificate of Inspection during each triennial inspection period. The owner or managing operator shall contact the cognizant OCMI to arrange for a reinspection to be conducted at a time and place acceptable to the OCMI.

(B) In addition to the requirements of paragraph (a) of the section, a reinspection may be made at such other times as may be required by the cognizant OCMI.

§ 176.502 Scope.

In general, the scope of the reinspection is the same as the inspection for certification but in less detail unless it is determined that a major change has occurred since the last inspection for certification.

Subpart F—Hull and Tailshaft Examinations

§ 176.600 Drydock and internal structural examination intervals.

(a) The owner or managing operator shall make a vessel available for drydock examinations and internal structural examinations required by this section.

(b) A vessel making an international voyage must undergo a drydock examination and an internal structural examination at least once every 12 months. If the vessel becomes due for a drydock examination or an internal structural examination during the voyage, it may lawfully complete the voyage prior to the examination if it undergoes the required examination upon completion of the voyage to the United States but not later than 30 days after the examination was due. If the vessel is due for an examination within 15 days of sailing on an international voyage from the United States port, it must undergo the required examination before sailing.

(c) Except as provided in paragraph (d) of this section, a vessel not making an international voyage must undergo a drydock examination and an internal structural examination as follows:

(1) A vessel that is exposed to salt water more than three months in any 12 month period since the last examination must undergo a drydock examination and an internal structural at least once every two years; and

(2) A vessel that is exposed to salt water not more than three months in any 12 month period since the last examination must undergo a drydock examination and an internal structural examination at least once every five years.

(d) Whenever damage or deterioration to hull plating or structural members that may affect the seaworthiness of a vessel is discovered or suspected, the cognizant OCMI may conduct an internal structural examination in any affected space including fuel tanks, and may require the vessel to be drydocked or taken out of service to assess the extent of the damage, and to effect permanent repairs. The OCMI may also decrease the drydock examination intervals to monitor the vessel's structural condition.

§ 176.610 Scope of drydock and internal structural examinations.

(a) A drydock examination conducted in compliance with § 176.600 must be conducted while the vessel is hauled out of the water or placed in a drydock or slipway. During the examination all accessible parts of the vessel's underwater body and all through hull fittings, including the hull plating and planking, appendages, propellers, shafts, bearings, rudders, sea chests, sea valves, and sea strainers shall be made available for examination. Sea chests, sea valves, and sea strainers must be opened for examination. On wooden vessels, fastenings may be required to be pulled for examination.

(b) An internal structural examination conducted in compliance with § 176.600 may be conducted while the vessel is afloat or out of the water and consists of a complete examination of the vessel's main strength members, including the major internal framing, the hull plating and planking, voids, and ballast, cargo, and fuel oil tanks. Where the internal framing, plating, or planking of the vessel is concealed, sections of the lining, ceiling or insulation may be removed or the parts otherwise probed or exposed so that the inspector may be satisfied as to the condition of the hull structure. 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.

§ 176.612 Notice and plans required.

(a) The owner or managing operator shall notify the cognizant OCMI as far in advance as possible whenever a vessel is to be hauled out or placed in a drydock or slipway in compliance with § 176.600 or to undergo repairs or alterations affecting the safety of the vessel, together with the nature of any repairs or alterations contemplated. Hull repairs or alternations that affect the safety of the vessel include but are not limited to the replacement, repair, or refastening of planking, plating, or structural members including the repair of cracks.

(b) Whenever a vessel is hauled out or placed in a drydock or slipway in excess of the requirements of this subpart for the purpose of maintenance, such as changing a propeller, painting, or cleaning the hull, no report need be made to the cognizant OCMI.

(c) The owner or managing operator of each vessel that holds a Load Line Certificate shall make plans showing the vessel's scantlings available to the Coast Guard marine inspector whenever the vessel undergoes a drydock examination or internal structural examination or whenever repairs or alterations affecting the safety or seaworthiness of the vessel are made to the vessel's hull.

§ 176.630 Tailshaft examinations.

(a) The marine inspector may require any part or all of the propeller shafting to be drawn for examination of the shafting and stern bearing of a vessel whenever the condition of the shafting and bearings are in question.

(b) The marine inspector may conduct a visual examination and may require nondestructive testing of the propeller shafting whenever the condition of shafting is in question.

§ 176.670 Extension of examination intervals.

The intervals between drydock examinations and internal structural examinations specified in § 176.600 of this part may be extended by the cognizant OCMI or Commandant.

Subpart G—Repairs and Alterations

§ 176.700 Permission for repairs and alterations.

(a) Repairs or alterations to the hull, machinery, or equipment that affect the safety of the vessel must not be made without the approval of the cognizant OCMI, except during an emergency. When repairs are made during an emergency, the owner, managing operator, or master shall notify the OCMI as soon as practicable after such repairs or alternations are made. Repairs or alterations that affect the safety of the vessel include, but are not limited to: replacement, repair, or refastening of deck or hull planking, plating, and structural members; repair of plate or frame cracks; damage repair or replacement, other than replacement in kind, of electrical wiring, fuel lines, tanks, boilers and other pressure vessels, and steering, propulsion and power supply systems; alterations affecting stability; and repair or alteration of lifesaving, fire detecting, or fire extinguishing equipment.

(b) The owner or managing operator shall submit drawings, sketches, or written specifications describing the details of any proposed alterations to the cognizant OCMI. Proposed alterations must be approved by the OCMI before work is started.

(c) Drawings are not required to be submitted for repairs or replacements in kind.

(d) The OCMI may require an inspection and testing whenever a repair or alteration is undertaken.

§ 176.702 Installation tests and inspections.

Whenever a launching appliance, survival craft, rescue boat, fixed gas fire extinguishing system, machinery, fuel tank, or pressure vessel is installed aboard a vessel after completion of the initial inspection for certification of the vessel, as replacement equipment or as a new installation, the owner or managing operator shall conduct the tests and make the vessel ready for the inspections required by § 176.402(d) to the satisfaction of the cognizant OCMI.

§ 176.704 Breaking of safety valve seals.

The owner, managing operator, or master shall notify the cognizant OCMI as soon as practicable after the seal on a boiler safety valve on a vessel is broken.

§ 176.710 Inspection and testing prior to hot work.

(a) An inspection for flammable or combustible gases must be conducted by a certified marine chemist or other person authorized by the cognizant OCMI in accordance with the provisions of National Fire Protection Association (NFPA) 306, ''Control of Gas Hazards on Vessels,'' before alterations, repairs, or other operations involving riveting, welding, burning, or other fire producing actions may be made aboard a vessel:

(1) Within or on the boundaries of fuel tanks; or

(2) To pipelines, heating coils, pumps, fittings, or other appurtenances connected to fuel tanks.

(b) An inspection required by paragraph (a) of this section must be conducted as required by this paragraph.

(1) In ports or places in the United States or its territories and possessions, the inspection must be conducted by a marine chemist certificated by the NFPA. However, if the services of a certified marine chemist are not reasonably available, the cognizant OCMI, upon the recommendation of the vessel owner or managing operator, may authorize another person to inspect the vessel. If the inspection indicates that the operations can be undertaken safely, a certificate setting forth this fact in writing must be issued by the certified marine chemist or the authorized person before the work is started. The certificate must include any requirements necessary to reasonably maintain safe conditions in the spaces certified throughout the operation, including any precautions necessary to eliminate or minimize hazards that may be present from protective coatings or residues from cargoes.

(2) When not in a port or place in the United States or its territories and possessions, and when a marine chemist or a person authorized by the cognizant OCMI is not reasonably available, the master shall conduct the inspection and enter the results in the inspection in the vessel's logbook.

(c) The owner, managing operator, or master shall obtain a copy of certificates issued by the certified marine chemist or the other person authorized by the cognizant OCMI, and shall ensure that all conditions on the certificates are observed and that the vessel is maintained in a safe condition. The owner, managing operator, or master shall maintain a safe condition on the vessel by requiring full observance, by persons under his or her control, of all requirements listed in the certificate.

Subpart H—Material Inspections

§ 176.800 Inspection standards.

(a) A vessel is inspected for compliance with the standards required by this subchapter. Machinery, equipment, materials, and arrangements not covered by standards in this subchapter may be inspected in accordance with standards acceptable to the cognizant OCMI as good marine practice.

(b) In the application of inspection standards due consideration must be given to the hazards involved in the operation permitted by a vessel's Certificate of Inspection. Thus, the standards may vary in accordance with the vessel's area of operation or any other operational restrictions or limitations.

(c) The published standards of classification societies and other recognized safety associations may be used as guides in the inspection of vessels when such standards do not conflict with the requirements of this subchapter.

§ 176.801 Notice of inspection deficiencies and requirements.

(a) If during the inspection of a vessel, the vessel or its equipment is found not to conform to the requirements of law or the regulations in this subchapter, the marine inspector will point out deficiencies observed and discuss all requirements with the owner, managing operator, or a representative thereof. Normally, the marine inspector will list all such requirements that have not been completed and present the list to the owner, managing operator, or a representative thereof. However, when a deficiency presents a serious safety hazard to the vessel or it's passengers or crew, and exists through negligence or willful noncompliance, the marine inspector may issue a Report of Violation (ROV) to the owner, managing operator, or a representative thereof.

(b) In any case where further clarification of or reconsideration of any requirement placed against the vessel is desired, the owner, managing operator, or a representative thereof, may discuss the matter with the cognizant OCMI.

§ 176.802 Hull.

(a) At each initial and subsequent inspection for certification of a vessel, the owner or managing operator shall be prepared to conduct tests and have the vessel ready for inspections of the hull structure and its appurtenances, including the following:

(1) Inspection of all accessible parts of the exterior and interior of the hull, the watertight bulkheads, and weather decks;

(2) Inspection and operation of all watertight closures in the hull, decks, and bulkheads including through hull fittings and sea valves;

(3) Inspection of the condition of the superstructure, masts, and similar arrangements constructed on the hull, and on a sailing vessel all spars, standing rigging, running rigging, blocks, fittings, and sails;

(4) Inspection of all railings and bulwarks and their attachment to the hull structure;

(5) Inspection to ensure that guards or rails are provided in dangerous places;

(6) Inspection and operation of all weathertight closures above the weather deck and the provisions for drainage of sea water from the exposed decks; and

(7) Inspection of all interior spaces to ensure that they are adequately ventilated and drained, and that means of escape are adequate and properly maintained.

(b) The vessel must be afloat for at least a portion of the inspection as required by the marine inspector.

(c) When required by the marine inspector, a portion of the inspection must be conducted while the vessel is underway so that the working of the hull; can be observed.

§ 176.804 Machinery.

At each initial and subsequent inspection for certification of a vessel, the owner or managing operator shall be prepared to conduct tests and have the vessel ready for inspections of machinery, fuel, and piping systems, including the following:

(a) Operation of the main propulsion machinery both ahead and astern;

(b) Operational test and inspection of engine control mechanisms including primary and alternate means of starting machinery;

(c) Inspection of all machinery essential to the routine operation of the vessel including generators and cooling systems;

(d) External inspection of fuel tanks and inspection of tank vents, piping, and pipe fittings;

(e) Inspection of all fuel system;

(f) Operational test of all valves in fuel lines by operating locally and at remote operating positions;

(g) Operational test of all overboard discharge and intake valves and watertight bulkhead pipe penetration valves;

(h) Operational test of the means provided for pumping bilges; and

(i) Test of machinery alarms including bilge high level alarms.

§ 176.806 Electrical.

At each initial and subsequent inspection for certification of a vessel, the owner or managing operator shall be prepared to conduct tests and have the vessel ready for inspection of electrical equipment and systems, including the following:

(a) Inspection of all cable as far as practicable without undue disturbance of the cable or electrical apparatus;

(b) Test of circuit breakers by manual operation;

(c) Inspection of fuses including ensuring the ratings of fuses are suitable for the service intended;

(d) Inspection of rotating electrical machinery essential to the routine operation of the vessel;

(e) Inspection of all generators, motors, lighting fixtures and circuit interrupting devices located in spaces or areas that may contain flammable vapors;

(f) Inspection of batteries for condition and security of stowage;

(g) Operational test of electrical apparatus, which operates as part of or in conjunction with a fire detection or alarms system installed on board the vessel, by simulating, as closely as practicable, the actual operation in case of fire; and

(h) Operational test of all emergency electrical systems.

§ 176.808 Lifesaving

(a) At each initial and subsequent inspection for certification of a vessel, the owner or managing operator shall be prepared to conduct tests and have the vessel ready for inspection of lifesaving equipment and systems, including the following:

(1) Tests of each rescue boat and each rescue boat launching appliance and survival craft launching appliance in accordance with § 71.25–15 in subchapter H of this chapter;

(2) Inspection of each lifejacket, work vest, and marine buoyant device;

(3) If used, inspection of the passenger safety orientation cards or pamphlets allowed by § 185.506(b)(2) of this chapter;

(4) Inspection of each inflatable liferaft and inflatable lifejacket to determine that it has been serviced as required by § 185.730 of this chapter; and

(5) Inspection of each hydrostatic release unit to determine that it is in compliance with the servicing and usage requirements of § 185.740 of this chapter.

(b) Each item of lifesaving equipment determined by the marine inspector to not be in serviceable condition must be repaired or replaced.

(c) Each item of lifesaving equipment with an expiration date on it must be replaced if the expiration date has passed.

(d) The owner or managing operator shall destroy, in the presence of the marine inspector, each lifejacket, other personal floatation device, and other lifesaving device found to be defective and incapable of repair.

(e) At each initial and subsequent inspection for certification of a vessel, the vessel must be equipped with an adult size lifejacket for each person authorized. The vessel must also be equipped with child size lifejackets equal to at least:

(1) 10 percent of the maximum number of passengers permitted to be carried unless children are prohibited from being carried aboard the vessel; or

(2) 5 percent of the maximum number of passengers permitted to be carried if all extended size lifejackets are provided.

(f) Lifejackets, work vests, and marine buoyant devices may be marked with the date and marine inspection zone to indicate that they have been inspected and found to be in serviceable condition by a marine inspector.

(g) At each initial and subsequent inspection for certification, the marine inspector may require that an abandon ship or man overboard drill be held under simulated emergency conditions specified by the inspector.

§ 176.810 Fire protection.

(a) At each initial and subsequent inspection for certification, the owner or managing operator shall be prepared to conduct tests and have the vessel ready for inspection of its fire protection equipment, including the following:

(1) Inspection of each hand portable fire extinguisher, semiportable fire extinguisher, and fixed gas fire extinguishing system to check for excessive corrosion and general condition;

(2) Inspection of piping, controls, and valves, and the inspection and testing of alarms and ventilation shutdowns, for each fixed gas fire extinguishing system and detecting system to determine that the system is in operating condition;

(3) Operation of the fire main system and checking of the pressure at the most remote and highest outlets;

(4) Testing of each fire hose to a test pressure equivalent to its maximum service pressure;

(5) Checking of each cylinder containing compressed gas to ensure it has been tested and marked in accordance with § 147.60 in subchapter N of this chapter;

(6) Testing or renewal of flexible connections and discharge hoses on semiportable extinguishers and fixed gas extinguishing systems in accordance with § 147.65 in subchapter N of this chapter; and

(7) Inspection and testing of all smoke and fire detection systems, including sensors and alarms.

(b) The owner, managing operator, or a qualified servicing facility as applicable shall conduct the following inspections and tests:

(1) For portable fire extinguishers, the inspections, maintenance procedures, and hydrostatic pressure tests required by Chapter 4 of NFPA 10, ''Portable Fire Extinguishers,'' with the frequency specified by NFPA 10. In addition, carbon dioxide and Halon portable fire extinguishers must be refilled when the net content weight loss exceeds that specified for fixed systems by Table 176.810(b). The owner or managing operator shall provide satisfactory evidence of the required servicing to the marine inspector. If any of the equipment or records have not been properly maintained, a qualified servicing facility must be required to perform the required inspections, maintenance procedures, and hydrostatic pressure tests. A tag issued by a qualified servicing organization, and attached to each extinguisher, may be accepted as evidence that the necessary maintenance procedures have been conducted.

(2) For semiportable and fixed gas fire extinguishing systems, the inspections and tests required by Table 176.810(b), in addition to the tests required by §§ 147.60 and 147.65 in subchapter N of this chapter. The owner or managing operator shall provide satisfactory evidence of the required servicing to the marine inspector. If any of the equipment or records have not been properly maintained, a qualified servicing facility may be required to perform the required inspections, maintenance procedures, and hydrostatic pressure tests.

TABLE 1786.810(b).—SEMIPORTABLE AND FIXED FIRE EXTINGUISHING SYSTEMS

Type System	Test
Carbon dioxide	Weigh cylinders. Recharge if weight loss exceeds 10% of weight of 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. Inspection hoses and nozzles to be sure they are clean.
Halon	Weigh cylinders. Recharge if weight loss exceeds 5% of weight of charge. If the system has a pressure gauge, also recharge if pressure loss (adjusted for temperature) exceeds 10%. 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 and nozzles to be sure they are clean.
Dry Chemical (cartridge operated)	Examine pressure cartridge and replace if end is punctured or if determined to have leaked or to be in unsuitable condition. Inspect hose and nozzle to see if they are clear. Insert charged cartridge. Ensure dry chemical is free flowing (not caked) and extinguisher contains full charge.
Dry chemical (stored pressure)	See that pressure gauge is in operating range. If not, or if the seal is broken, weigh or otherwise determined that extinguisher is fully charged with dry chemical. Recharge if pressure is low or if dry chemical is needed.
Foam (stored pressure)	See that pressure gauge, if so equipped, is in the operating range. If not, or if the seal is broken, weigh or otherwise determine that extinguisher is fully charged with foam. Recharge if pressure is low or if foam is needed. Replace premixed agent every 3 years.
Clean Agents (Halon replacements)	(To be developed)

(c) The owner, managing operator, or master shall destroy, in the presence of the marine inspector, each fire hose found to be defective and incapable of repair.

(d) At each initial and subsequent inspection for certification, the marine inspector may require that a fire drill be held under simulated emergency conditions to be specified by the inspector.

§ 176.812 Pressure vessels and boilers.

(a) Periodic inspection and testing requirements for pressure vessels are contained in § 61.10 in subchapter F of this chapter.

(b) Periodic inspection and testing requirements for boilers are contained in § 61.10 in subchapter F of this chapter.

§ 176.814 Steering systems.

At each initial and subsequent inspection for certification the owner or managing operator shall be prepared to test the steering systems of the vessel and make them available for inspection to the extent necessary to determine that they are in suitable condition and fit for the service intended. Servo-type power systems, such as orbital systems, must be tested and capable of smooth operation by a single person in the manual mode, with hydraulic pumps secured.

§ 176.816 MIscellaneous systems and equipment.

At each initial and subsequent inspection for certification the owner or managing operator shall be prepared to test and make available for inspection all items in the ship's outfit, such as ground tackle, navigation lights and equipment, markings, and placards, which are required to be carried by the regulations in this subchapter, as necessary to determine that they are fit for the service intended.

§ 176.818 Sanitary inspection.

At each inspection for certification and at every other vessel inspection, quarters, toilet and washing spaces, galleys, serving pantries, lockers, and similar spaces may be examined to determine that they are serviceable and in a sanitary condition.

§ 176.830 Unsafe practices.

(a) At each inspection for certification and at every other vessel inspection all observed unsafe practices, fire hazards, and other hazardous situations must be corrected an all required guards and protective devices must be in satisfactory condition.

(b) At each inspection for certification and at every other vessel inspection the bilges and other spaces may be examined to see that there is no excessive accumulation of oil, trash, debris, or other matter that might create a fire hazard, clog bilge pumping systems, or block emergency escapes.

§ 176.840 Additional tests and inspections.

The cognizant OCMI may require that a vessel and its equipment undergo any additional test or inspection deemed

reasonable and necessary to determine that the vessel and its equipment are suitable for the service in which they are to be employed.

Subpart I—International Convention for Safety of Life at Sea, 1974, as Amended (SOLAS)

§ 176.900 Applicability.

(a) Except as otherwise provided in this subpart, a mechanically propelled vessel of the United States, which carries more than 12 passengers on an international voyage must be in compliance with the applicable requirements of the International Convention for Safety of Life at Sea, 1974, as Amended (SOLAS), to which the United States Government is currently a party.

(b) SOLAS does not apply to a vessel solely navigating 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.

§ 176.910 Passenger Ship Safety Certificate.

(a) A vessel, which carries more than 12 passengers on an international voyage must have a valid SOLAS Passenger Ship Safety Certificate. The Commandant issues the original SOLAS Passenger Ship Safety Certificate after receiving notification from the cognizant OCMI that the vessel complies with the applicable SOLAS regulations. Subsequent SOLAS Passenger Ship Safety Certificates are issued by the cognizant OCMI unless any changes to the vessel or its operations have occurred which changes the information on the certificate, in which case the Commandant will reissue the certificate.

(b) The route specified on the Certificate of Inspection and the SOLAS Passenger Ship Safety Certificate must agree.

(c) A SOLAS Passenger Ship Safety Certificate is issued for a period of not more than 12 months.

(d) The SOLAS Passenger Ship Safety Certificate may be withdrawn, revoked, or suspended at any time when the vessel is not in compliance with applicable SOLAS requirements.

§ 176.970 Exemptions.

(a) In accordance with Chapter I (General Provisions) Regulation 4, of SOLAS, the Commandant may exempt a vessel, which is not normally engaged on an international voyage but that in exceptional circumstances is required to undertake a single international voyage from any of the requirements of the regulations of SOLAS provided that the vessel complies with safety requirements that are adequate, in the Commandant's opinion, for the voyage that is to be undertaken.

(b) In accordance with Chapter II–1 (Construction—Subdivision and Stability, Machinery and Electrical Installations) Regulation 1, Chapter II–2 (Construction—Fire Protection, Fire Detection and Fire Extinction) Regulation 1, and Chapter III (Life Saving Appliances and Arrangements) Regulation 2 of SOLAS, the Commandant may exempt a vessel that does not proceed more than 20 miles from the nearest land from any of the specific requirements of Chapters II–1, II–2, and III of SOLAS if the Commandant determines that the sheltered nature and conditions of the voyage are such as to render the application of such requirements unreasonable or unnecessary.

(c) The Commandant may exempt a vessel from requirements of the regulations of SOLAS in accordance with paragraphs (a) and (b) of this section upon a written request from the owner or managing operator submitted to the Commandant via the cognizant OCMI.

(d) When the Commandant grants an exemption to a vessel in accordance with this section, the Commandant will issue the original SOLAS Exemption Certificate describing the exemption. Subsequent SOLAS Exemption Certificates are issued by the cognizant OCMI unless any changes to the vessel or its operations have occurred that changes the information on the SOLAS Exemption or Passenger Ship Safety Certificates, in which case the Commandant will reissue the certificate. A SOLAS Exemption Certificate is not valid for longer than the period of the SOLAS Passenger Ship Safety Certificate to which it refers.

§ 176.930 Equivalents.

In accordance with Chapter I (General Provisions) Regulation 5, of SOLAS, the Commandant may accept an equivalent to a particular fitting, material, appliance, apparatus, or any particular provision required by SOLAS regulations if satisfied that such equivalent is at least as effective as that required by the regulations. An owner or managing operator of a vessel may submit a request for the acceptance of an equivalent following the procedures in § 175.540 of this chapter. The Commandant will indicate the acceptance of an equivalent on the vessel's SOLAS Passenger Ship Safety Certificate.

PART 177—CONSTRUCTION AND ARRANGEMENT

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Authority: 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 177.100 General requirement.

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

§ 177.115 Applicability to existing vessels.

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

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

Subpart B—Plans

§ 177.202 Plans and information required.

(a) Except as provided in paragraph (c) of this section and § 177.210 of this part, the owner of a vessel requesting initial inspection for certification shall, prior to the start of construction unless otherwise allowed by the cognizant Officer in Charge, Marine Inspection (OCMI), submit for approval to the cognizant OCMI, at least two copies of the following plans:

(1) Outboard profile;

(2) Inboard profile; and

(3) Arrangement of decks.

(b) In addition, the owner shall, prior to receiving a Certificate of Inspection, submit for approval to the cognizant OCMI, at least two copies of the following plans, manuals, analyses, and calculations that are applicable to the vessel as determined by the OCMI:

(1) Midship section;

(2) Survival craft embarkation stations;

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

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

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

(iii) Ventilation diagrams; and

(iv) Engine exhaust diagram;

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

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

(ii) Cable lists;

(iii) Bills of materials;

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

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

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

(vii) Type of capacity of storage batteries;

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

(ix) Electrical plant load analysis.

(5) Lifesaving equipment locations and installation;

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

(i) Fire main system plans and calculations;

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

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

(iv) Sprinkler system diagram and calculations; and

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

(7) Fuel tanks;

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

(9) Hull penetrations and shell connections;

(10) Marine sanitation device model number, approval number, connecting wiring and piping; and

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

(12) On sailing vessels:

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

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

(c) For a vessel of not more than 19.8 meters (65 feet) in length, the owner may submit specifications, sketches, photographs, line drawings or written descriptions instead of any of the required drawings, provided the required information is adequately detailed and acceptable to the cognizant OCMI.

(d) An owner may submit any plans, manuals, or calculations, required to be submitted to the OCMI under this part, to the Commanding Officer, U.S. Coast Guard Marine Safety Center (Marine Safety Center), 400 Seventh Street, SW., Washington, DC 20590–0001. Three copies of all documents are required to be submitted for Marine Safety Center plan approval.

(e) For a vessel, the construction of which was begun prior to approval of the plans and information required by paragraphs (a) and (b) of this section, the cognizant OCMI may require any additional plans and information, manufacturers' certifications of construction, testing including reasonable destructive testing, and inspections, which the OCMI determines are necessary to verify that the vessel complies with the requirements of this subchapter.

§ 177.210 Plans for sister vessels.

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

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

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

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

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

(b) If approved plans for the original vessel are not on file at the MSC or with the cognizant OCMI, the vessel owner shall submit plans as described in § 177.202 of this part.

Subpart C—Hull Structure

§ 177.300 Structural design.

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

(a) Wooden hull vessels—Rules and Regulations for the Classification of Yachts and Small Craft, Lloyd's Register of Shipping (Lloyd's);

(b) Steel hull vessels:

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

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

(c) Fiber reinforced plastic vessels:

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

(2) Rules for Building and Classing Reinforced Plastic Vessels, ABS;

(d) Aluminum hull vessels:

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

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

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

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

§ 177.310 Satisfactory service as a design basis.

When scantlings for the hull, deckhouse, and frames of the vessel differ from those specified by the standards listed in § 177.300 of this part, and the owner can demonstrate that the vessel, or another vessel approximating the same size, power, and displacement, has been built to such scantlings and has been in satisfactory service insofar as structural adequacy is concerned for a period of at least 5 years, such scantlings may be approved by the cognizant OCMI instead of the scantlings required by the applicable standards specified in § 177.300 of this part.

§ 177.315 Vessels of not more than 19.8 meters (65 feet) in length carrying not more than 12 passengers.

The scantlings for a vessel of not more than 19.8 meters (65 feet) in length carrying not more than 12 passengers that do not meet the standards in §§ 177.300 or 177.310 may be approved by the cognizant OCMI if the builder of the vessel establishes to the satisfaction of the OCMI that the design and construction of the vessel is adequate for the intended service.

§ 177.330 Sailing vessels.

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

§ 177.340 Alternate design considerations.

When the structure of vessel is of novel design, unusual form, or special materials, which cannot be reviewed or approved in accordance with §§ 177.300, 177.310 or 177.315, the structure may be approved by the Commanding Officer, Marine Safety Center, when it can be shown by systematic analysis based on engineering principles that the structure provides adequate safety and strength. The owner shall submit detailed plans, material component specifications, and design criteria, including the expected operating environment, resulting loads on the vessel, and design limitations for such vessel, to the Marine Safety Center.

Subpart D—Fire Protection

§ 177.405 General arrangement and outfitting.

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

(b) *Combustibles insulated from heated surfaces.* Internal combustion engine exhausts, boiler and galley uptakes, and similar sources of ignition must be kept clear of and suitably insulated from combustible material. Dry exhaust systems for internal combustion engines on wooden or fiber reinforced plastic vessels must be installed in accordance with American Boat and Yacht Council (ABYC) Standard P–1 ''Installation of Exhaust Systems for Propulsion and Auxiliary Engines.''

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

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

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

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

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

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

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

§ 177.410 Structural fire protection.

(a) *Cooking areas.* Vertical or horizontal surfaces within 910 millimeters (3 feet) of cooking appliances must have an American Society for Testing and Materials (ASTM) E–84 ''Surface Burning Characteristics of Building Materials'' flame spread rating of not more than 75. Curtains, draperies, or free hanging fabrics must not be fitted within 910 millimeters (3 feet) of cooking or heating appliances.

(b) *Fiber reinforced plastic.* When the hull, decks, deckhouse, or superstructure of a vessel is partially or completely constructed of fiber reinforced plastic, including composite construction, the resin used must have an ASTM E–84 flame spread rating of not more than 100.

(c) *Use of general purpose resin.* General purpose resins may be used in lieu of those having an ASTM E–84 flame spread rating of not more than 100 provided that the following additional requirements are met:

(1) *Cooking and Heating Appliances*—Galleys must be surrounded by B–15 Class fire boundaries. This may not apply to concession stands that are not considered high fire hazards areas (galleys) as long as they do not contain medium to high heat appliances such as deep fat fryers, flat plate type grilles, and open ranges with heating surfaces exceeding 121 °C(250 °F). Open flame systems for cooking and heating are not allowed.

(2) *Sources of Ignition*—Electrical equipment and switch boards must be protected from fuel or water sources. Fuel lines and hoses must be located as far as practical from heat sources. Internal combustion engine exhausts, boiler and galley uptakes, and similar sources of ignition must be kept clear of and suitability insulated from any woodwork or other combustible matter. Internal combustion engine dry exhaust systems must be installed in accordance with ABYC Standard P–1.

(3) *Fire Detection and Extinguishing Systems*—Fire detection and extinguishing systems must be installed in compliance with §§ 181.400 through 181.420 of this chapter. Additionally, all fiber reinforced plastic (FRP) vessels constructed with general purpose resins must be fitted with a smoke activated fire detection system of an approved type, installed in accordance with § 76.27 of in subchapter H of this chapter, in all accommodation spaces, all service spaces, and in isolated spaces such as voids and storage lockers that contain an ignition source such as electric equipment or piping for a dry exhaust system.

(4) *Machinery Space Boundaries*—Boundaries that separate machinery spaces from accommodation spaces, service spaces, and control spaces must be lined with noncombustible panels or insulation approved in accordance with § 164.009 in subchapter Q of this chapter, or other standard specified by the Commandant.

(5) *Furnishings*—Furniture and furnishings must comply with § 116.423 in subchapter K of this chapter.

(d) *Limitations on the use of general purpose resin.*

(1) *Overnight Accommodations*—Vessels with overnight passenger accommodations must not be constructed with general purpose resin.

(2) *Gasoline Fuel Systems*—Vessels with engines powered by gasoline or other fuels having a flash point of 43.3° C (110° F) or lower must not be constructed with general purpose resin, except for vessels powered by outboard engines with portable fuel tanks stored in an open area aft, if, as determined by the cognizant OCMI, the arrangement does not produce an unreasonable hazard.

(3) *Cargo*—Vessels carrying or intended to carry hazardous combustible or flammable cargo must not be constructed with general purpose resin.

Subpart E—Escape Requirements

§ 177.500 Means of escape.

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

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

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

(d) The number and dimensions of the means of escape from each space must be sufficient for rapid evacuation in an emergency for the number of persons served. In determining the number of persons served, a space must be considered to contain at least the number of persons as follows:

(1) Passenger overnight accommodation spaces: Designed capacity;

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

(3) Public spaces, including spaces such as casinos, restaurants, club rooms, and cinemas, and public accommodation spaces as defined in § 175.400 of this subchapter, except overnight accommodation spaces: One person may be permitted for each 0.9 square meters (10 square) feet of deck area. In computing such deck area, the following areas must be excluded:

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

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

(iii) Toilets and washrooms;

(iv) Interior passageways less than 860 millimeters (34 inches) wide and passageways on open deck less than 710 millimeters (28 inches) wide;

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

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

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

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

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

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

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

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

(i) A means of escape which is not readily apparent to a person from both inside and outside the space must be adequately marked in accordance with § 185.606 of this chapter.

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

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

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

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

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

(2) Not more than 305 millimeters (12 inches) apart, and uniformly spaced for the length of the ladder with at least 114 millimeters (4.5 inches) clearance above each rung.

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

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

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

(1) Does not lead directly overboard;

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

(3) Is suitably marked.

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

(1) The maximum dimension (length, breadth, or depth) of a space is less than 3.7 meters (12 feet);

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

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

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

(p) Alternative means of escape from spaces may be provided if acceptable to the cognizant OCMI.

Subpart F—Ventilation

§ 177.600 Ventilation of enclosed and partially enclosed spaces.

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

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

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

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

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

§ 177.620 Ventilation of machinery and fuel tank spaces.

In addition to the requirements of this subpart, ventilation systems for spaces containing machinery or fuel tanks must comply with the requirements of Part 182 of this chapter.

Subpart G—Crew Spaces

§ 177.700 General requirements.

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

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

§ 177.710 Overnight accommodations.

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

Subpart H—Passenger Accommodations

§ 177.800 General requirements.

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

(b) The height of ceilings in a passenger accommodation space, including aisles and passageways, must be at least 1,880 millimeters (74 inches), but may be reduced at the sides of a space to allow the camber, wiring, ventilation ducts, and piping.

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

(d) A passenger accommodation space must not contain:

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

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

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

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

§ 177.810 Overnight accommodations.

(a) A berth must be provided for each passenger authorized to be carried in overnight accommodation spaces. Each berth must measure at least 1,880 millimeters (74 inches) by 610 millimeters (24 inches) and have at least 610 millimeters (24 inches) of clear space above.

(b) Berths must not be located more than three high and must be constructed of wood, fiber reinforced plastic, or metal. A berth located more than 1520 millimeters (60 inches) above the deck must be fitted with a suitable aid for access.

(c) The Construction and arrangement of berths and other furniture must allow free and unobstructed access to each berth. Each berth must be immediately adjacent to an aisle leading to a means of escape from the accommodation space. An aisle alongside a berth must be at least 610 millimeters (24 inches) wide. An aisle joining two or more aisles in an overnight accommodation space must be at least 1,060 millimeters (42 inches) wide.

§ 177.820 Seating.

(a) A seat must be provided for each passenger permitted in a space for which the fixed seating criterion in § 176.113(b)(3) of this subchapter has been used to determine the number of passengers permitted.

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

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

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

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

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

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

(4) Seats used to determine the number of passengers permitted, in accordance with § 176.113(b)(3) of this chapter, must be secured to the deck, bulkhead, or bulwark.

Subpart I—Rails and Guards

§ 177.900 Deck rails.

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

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

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

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

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

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

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

(4) While engaged in big game angling, the minimum rail height may be reduced to not less than 760 millimeters (30 inches) in way of a person using specialized angling techniques or equipment, such as when using a pedestal mounted fixed fighting chair on a low freeboard vessel, if it can be shown that a higher rail would interfere with the fishing operation and the lower rail would not significantly reduce safety. A rail complying with the requirements of paragraphs (d)(1), (2), or (3) of this section as applicable must be installed when big game angling is not being conducted.

(e) Where the principal business of the vessel requires the discharge of persons or cargo in a seaway, such as on pilot boats and dive boats, the cognizant OCMI may accept alternatives to the rails required in paragraphs (d)(1), (2), and (3) of this section for those areas of a deck where passengers or cargo are discharged and for which removable rails, lifelines, or chains would hinder discharge operations.

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

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

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

(i) Bulwarks;

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

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

(2) On a vessel subject to the 1966 International Convention on Load Lines, rail courses, or an equivalent, must be installed so that there is not an open space higher than 230 millimeters (9 inches) from the deck to the first rail course or equivalent.

(h) Rails must be permanently installed except that the following rails may be removable;

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

(2) Rails over 760 millimeters (30 inches) high in way of fishing seats addressed by paragraph (d)(4) of this section; and

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

§ 177.920 Storm rails.

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

§ 177.940 Guards in vehicle spaces.

On a vessel authorized to carry one or more vehicles, suitable chains, cables, or other barriers must be installed at the end of each vehicle runway. In addition, temporary rails or equivalent protection must be installed in way of each vehicle ramp, in compliance with § 177.900, when the vessel is underway.

§ 177.960 Guards for exposed hazards.

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

§ 177.970 Protection against hot piping.

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

Subpart J—Window Construction and Visibility

§ 177.1010 Safety glazing materials.

Class and other glazing material used in windows accessible to passengers and crew must be of material that will not break into dangerous fragments if fractured.

§ 177.1020 Strength.

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

§ 177.1030 Operating station visibility.

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

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

PART 178—INTACT STABILITY AND SEAWORTHINESS

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178.510 Ballast.

Authority: 43 U.S.C. 1333; 46 U.S. 2103, 3306, 3703; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 178.115 Applicability to existing vessels.

An existing vessel must comply with the intact stability and seaworthiness regulations which were applicable to the vessel on March 10, 1996, or, as an alternative, the vessel may comply with the regulations in this part.

Subpart B—Stability Instructions for Operating Personnel

§ 178.210 Stability Information.

(a) Stability information (stability details indicated on the Certificate of Inspection, a stability letter, or a stability booklet) is required on certain vessels by paragraphs (b) or (c) of this section. Enough stability information, including stability calculations and

assumptions made to use them, must be provided to allow the master to be able to determine operating guidelines, loading restrictions, and ensure compliance with the applicable intact and damage stability regulations of this chapter.

(b) A vessel which, under § 178.310, must comply with requirements in subchapter S of this chapter, must have stability details on the vessel's Certificate of Inspection, a stability letter issued by the cognizant Officer in Charge, Marine Inspection (OCMI) or the Commanding Officer, Marine Safety Center, or an approved stability booklet. The form in which the stability information must be contained (i.e., stability details on the Certificate of Inspection, a stability letter, or a stability booklet) will be determined by the Commanding Officer, Marine Safety Center.

(c) When necessary for safe operation, the cognizant OCMI may place specific stability restrictions in a stability letter or on the Certificate of Inspection of a vessel of not more than 19.8 meters (65 feet) in length, which, under § 178.310 of this part, must comply with the requirements of § 178.320 of this part.

§ 178.220 Stability booklet.

When the Commanding Officer, Marine Safety Center determines, in accordance with § 178.210(b), that a vessel must have a stability booklet, the owner or operator must prepare the booklet in accordance with subchapter S of this chapter, and submit it to the Commanding Officer, Marine Safety Center.

§ 178.230 Stability letter or Certificate of Inspection stability details.

(a) When the cognizant OCMI or the Commanding Officer, Marine Safety Center determines, in accordance with § 178.210, that a vessel must have stability details indicated on its Certificate of Inspection or a stability letter, the owner or operator must submit the information listed in paragraph (b) of this section:

(1) If § 178.210(c) is applicable, to the OCMI for approval; or

(2) If § 178.210(b) is applicable, to the Commanding Officer, Marine Safety Center for approval.

(b) The following applicable information, and the necessary calculations used to determine that information, must be submitted as required by paragraph (a) of this section:

(1) Allowable number of passengers and crew on each deck;

(2) Deepest waterline drafts or freeboard;

(3) Location of watertight bulkheads and openings in watertight bulkheads;

(4) Explanation of the vessel's subdivision and specific identification of the vessel's subdivision bulkheads;

(5) Location of openings through watertight bulkheads, such as watertight doors, which must be closed to limit flooding in an emergency;

(6) Location, type and amount of fixed ballast;

(7) Location and details of foam flotation material; and

(8) Maximum weight of portable equipment permitted on the vessel including diving equipment.

Subpart C—Intact Stability Standards

§ 178.310 Applicability based on length and passenger capacity.

(a) A vessel of not more than 19.8 meters (65 feet) in length must meet the applicable requirements of §§ 178.320 or 178.325, or of § § 170.170, 170.173, and 171.050 in subchapter S of this chapter, if:

(1) Carrying not more than 150 passengers on a domestic voyage;

(2) Carrying not more than 12 passengers on an international voyage; or

(3) It has not more than one deck above the bulkhead deck, exclusive of a pilot house.

(b) The following vessels must meet the appropriate requirements of §§ 170.170, 170.173, 171.050, 171.055, ad 171.057 in subchapter S of this chapter;

(1) A vessel of more than 19.8 meters (65 feet) in length;

(2) A vessel carrying more than 12 passengers on an international voyage; and

(3) A vessel with more than 1 deck above the bulkhead deck exclusive of a pilot house.

§ 178.320 Intact stability requirements.

(a) A vessel, except a pontoon vessel operating on protected waters, must undergo a simplified stability proof test in accordance with § 178.330 of this part in the presence of a Coast Guard marine inspector.

(b) A pontoon vessel operating on protected waters must undergo a simplified stability proof test in accordance with § 178.340 of this part in the presence of a Coast Guard marine inspector.

(c) The cognizant OCMI may dispense with the simplified stability proof test in § 178.330 for a vessel carrying not more than 49 passengers where it can be established that, due to the form, arrangement, construction, number of decks, route, and operating restrictions of the vessel, the vessel's stability can be safely determined without such a test. Vessels which carry deck cargo must undergo a simplified stability proof test.

(d) A vessel whose stability is questioned by the cognizant OCMI must be shown by design calculations to meet the applicable stability criteria of §§ 170.170, 170.173, and 171.050 in subchapter S of this chapter in each condition of leading and operation.

(e) A simplified stability proof test in accordance with § 178.330 is conducted to determine if a vessel, as built and operated, has a minimum level of initial stability. Failure of the simplified test does not necessarily mean that the vessel lacks stability for the intended route, service, and operating condition, but that calculations or other methods must be used to evaluate the stability of the vessel.

§ 178.325 Intact stability requirements for a sailing vessel.

(a) Except as provided in paragraphs (b), (c) and (e) of this section, each sailing vessel must undergo a simplified stability proof test in accordance with § 178.330 of this part in the presence of a Coast Guard marine inspector.

(b) Each of the following sailing vessels must meet the intact stability standards of §§ 170.170 and 171.055 in subchapter S of this chapter:

(1) A vessel to be operated on exposed waters;

(2) A vessel to be operated during non-daylight hours;

(3) A vessel of unusual type, rig, or hull form, including vessels without a weathertight deck, such as open boats;

(4) A vessel that carries more than 49 passengers;

(5) A sailing school vessel that carries a combined total of six or more sailing school students or instructors;

(6) A vessel on which downflooding occurs at angles of 60° or less; and

(7) A vessel which has a cockpit longer than Length Over Deck (LOD)/5.

(c) A catamaran must meet the intact stability requirements of § 171.057 in subchapter S of this chapter while under sail as well as the intact stability requirements of § 170.170 in subchapter S of this chapter or § 178.320 under barepoles (if an auxiliary sailing vessel) and with storm sails set and trimmed flat (if a sailing vessel).

(d) A sailing vessel that is not listed in paragraph (b) or (c) of this section and operates on partially protected waters must be equipped with a self-bailing cockpit.

(e) The cognizant OCMI may perform operational tests to determine whether the vessel has adequate stability and satisfactory handling characteristics under sail for protected waters or partially protected waters, in lieu of

conducting a simplified stability proof test.

(f) Commanding Officer, Marine Safety Center, may prescribe additional or different stability requirements for a broad, shallow draft vessel with little or no ballast outside the hull.

§ 178.330 Simplified stability proof test.

(a) A vessel must be in the condition specified in this paragraph when a simplified stability proof test is performed.

(1) The construction of the vessel must be complete in all respects.

(2) Ballast, if necessary, must be in compliance with § 178.510 and must be on board and in place.

(3) Each fuel and water tank must be approximately three-quarters full.

(4) A weight equal to the total weight of all passengers, crew, and other loads permitted on the vessel must be on board and distributed so as to provide normal operating trim and to simulate the vertical center of gravity causing the least stable condition that is likely to occur in service. Unless otherwise specified, weight and vertical center of gravity is assumed to be as follows:

(i) The weight of primary lifesaving equipment should be simulated at its normal location, if not on board at the time of the test;

(ii) The weight of one person is considered to be 72.6 kilograms (160 pounds) except the weight of one person is considered to be 63.5 kilograms (140 pounds) if the vessel operates exclusively on protected waters and the passenger load consists of men, women, and children;

(iii) The vertical center for the simulated weight of passengers, crew, and other loads must be at least 760 millimeters (2.5 feet) above the deck; and

(iv) If the vessel carries passengers on diving excursions, the total weight of diving gear must be included in the loaded condition as follows:

(A) The total weight of individual diving gear for each passenger carried is assumed to be 36 kilograms (80 pounds), which includes the weight of scuba tanks, harness, regulator, weight belt, wet suit, mask, and other personal diving equipment; and

(B) The weight of any air compressors carried.

(5) All non-return closures on cockpit scuppers or on weather deck drains must be kept open during the test.

(b) A vessel must not exceed the limitations in paragraph (f) of this section, when subjected to the greater of the following heeling moments:

$M_p = (W)(B_p)/6$; or

$M_w = (P)(A)(H)$

where:

M_p = passenger heeling moment in kilogram-meters (foot-pounds);

W = the total passenger weight using 72.6 kilograms (160 pounds) per passenger, or, if the vessel operates exclusively on protected waters and the passenger load consists of men, women, and children, 63.5 kilograms (140 pounds) per passenger may be used;

B_p = the maximum transverse distance in meters (feet) of a deck that is accessible to passengers;

M_w = wind heeling moment in kilogram-meters (foot-pounds);

P = wind pressure of:

(1) 36.6 kilograms/square meter (7.5 pounds/square foot) for operation on protected waters;

(2) 48.8 kilogram/square meter (10.0 pounds/square foot) for operation on partially protected waters; or

(3) 73.3 kilograms/square meter (15.0 pounds/square foot) for operation on exposed waters;

A = area, in square meters (square feet), of the projected lateral surface of the vessel above the waterline (including each projected area of the hull, superstructure and area bounded by railings and structural canopies). For sailing vessels this is the bare poles area, or, if the vessel has no auxiliary power, with storm sails set; and

H = height, in meters (feet), of the center of area (A) above the waterline, measured up from the waterline.

(c) For sailing vessels the heeling moment used for this test must be the greater of the following:

(1) Passenger heeling moment from paragraph (b) of this section.

(2) Wind heeling moment from paragraph (b) of this section.

(3) Wind heeling moment calculated from the wind heeling moment equation in paragraph (b) of this section, where:

M_w = wind heeling moment in kilogram-meters (foot-pounds);

P=4.9 kilograms/square meter (1.0 pounds/square foot) for both protected and partially protected waters.

A=the windage area of the vessel in square meters (square feet) with all sails set and trimmed flat;

H=height, in meters (feet), of the center of effort of area (A) above the waterline, measured up from the waterline; and

(d) A vessel must not exceed the following limits of heel:

(1) On a flush deck vessel, not more than one-half of the freeboard may be immersed.

(2) On a well deck vessel, not more than one-half of the freeboard may be immersed, except that, on a well deck vessel that operates on protected waters and has non-return scuppers or freeing ports, the full freeboard may be immersed if the full freebound is not more than one-quarter of the distance from the waterline to the gunwale.

(3) On a cockpit vessel, the maximum allowable immersion is calculated from the following equation:

(i) On exposed waters—

$i=f(2L-1.5L)/4L$

(ii) On protected or partially protected waters—

$i=f(2L-L)/4L$

where:

i=maximum allowable immersion in meters (feet);

f=freeboard in meters (feet);

L=length of the weather deck, in meters (feet); and

L^1=length of cockpit in meters (feet).

(4) On an open boat, not more than one quarter of the freeboard may be immersed.

(5) On a flush deck sailing vessel, the full freeboard may be immersed.

(6) In no case may the angle of heel exceed 14 degrees.

(e) The limits of heel must be measured at:

(1) The point of minimum freeboard; or

(2) At a point three-quarters of the vessel's length from the bow if the point of minimum freeboard is aft of this point.

(f) When demonstrating compliance with paragraph (d) of this section, the freeboard must be measured as follows:

(1) For a flush deck or well deck vessel, the freeboard must be measured to the top of the weatherdeck at the side of the vessel; and

(2) For a cockpit vessel or for an open boat, the freeboard must be measured to the top of the gunwale.

(g) A ferry must also be tested in a manner acceptable to the cognizant OCMI to determine whether the trim or heel during loading or unloading will submerge the deck edge. A ferry passes this test if, with the total number of passengers and the maximum vehicle weight permitted on board, the deck edge is not submerged during loading or unloading of the vessel.

§ 178.340 Stability standards for pontoon vessels on protected waters.

(a) The portion of the deck accessible to passengers on a pontoon vessel must not extend beyond the outboard edge of either pontoon, nor beyond the forward or aft ends of the pontoons.

(b) A pontoon vessel that has more than 2 pontoons or has decks higher than 150 milimeters (6 inches) above the

pontoons must meet a stability standard acceptable to the Commanding Officer, Marine Safety Center.

(c) A pontoon vessel must be in the condition described in § 178.330(c) of this part when the simplified stability proof test is performed, except that the simulated load of passengers, crew, and other weights is initially centered on the vessel so that trim and heel are minimized.

(d) A pontoon vessel has the minimum acceptable level of initial stability if it meets the following:

(1) With the simulated load located at the extreme outboard position of the deck on the side with the least initial freeboard, the remaining exposed cross sectional area of the pontoon on that side must be equal to or greater than the cross sectional area submerged due to the load shift, as indicated in Figure 178.340(d)(1); and

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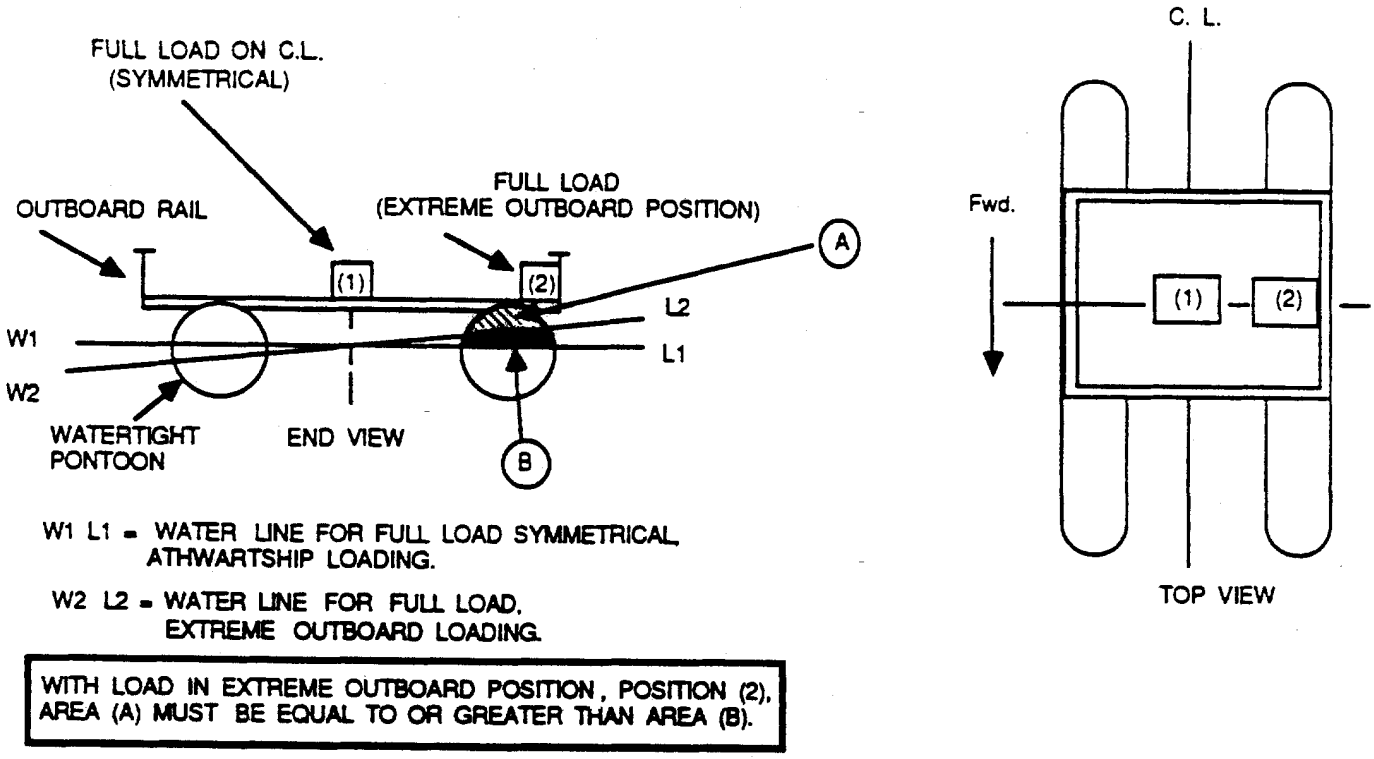
FIGURE 178.340(d)(1)

TRANSVERSE STABILITY STANDARD



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(2) With the simulated load located on the centerline at the extreme fore or aft end of the deck, whichever position is further from the initial position of the load, the top of the pontoon must not be submerged at any location, as indicated in Figure 178.340(d)(2).

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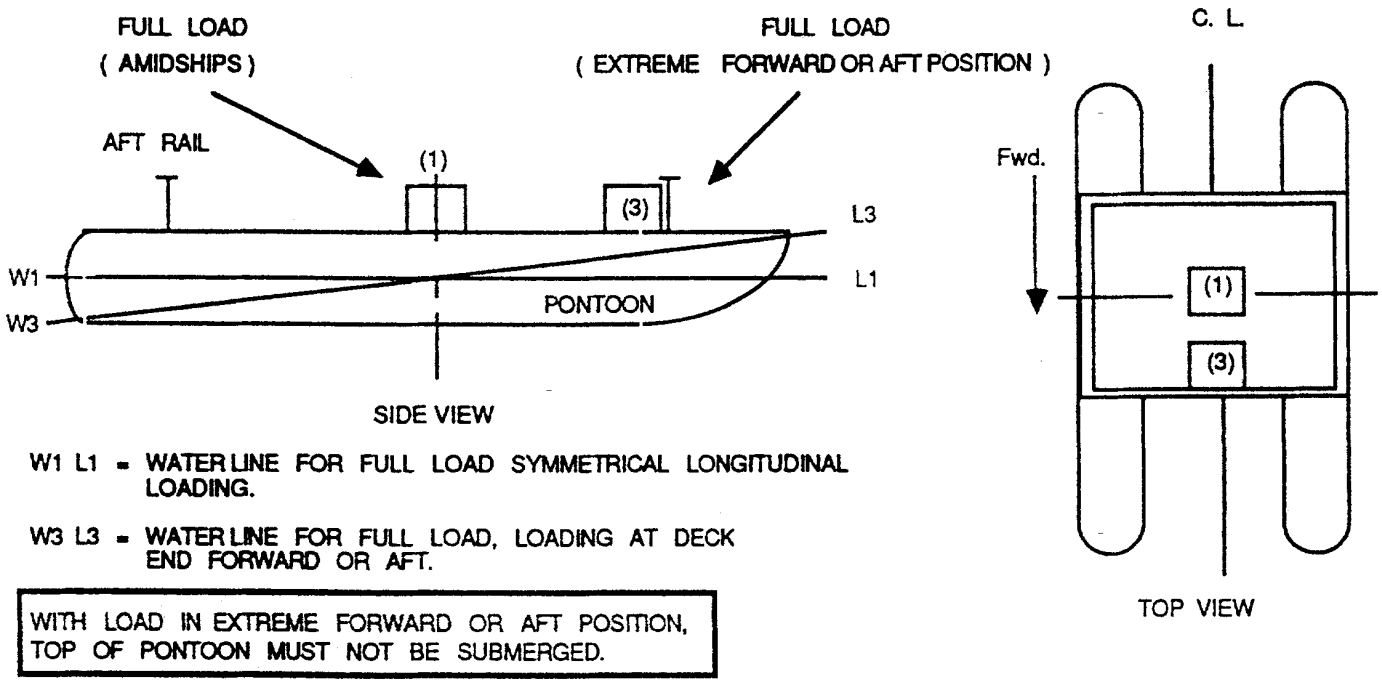
FIGURE 178.340(d)(2)

LONGITUDINAL STABILITY STANDARD



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Subpart D—Drainage of Weather Decks

§ 178.410 Drainage of flush deck vessels.

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

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

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

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

§ 178.420 Drainage of cockpit vessels.

(a) Except as follows, the cockpit on a cockpit vessel may be watertight:

(1) A cockpit may have companionways if the companionway openings have watertight doors, or weathertight doors and coamings which meet § 179.360 of this subchapter.

(2) A cockpit may have ventilation openings along its inner periphery if the vessel operates only on protected or partially protected waters.

(b) The cockpit deck of a cockpit vessel that operates on exposed or partially protected waters must be at least 255 millimeters (10 inches) above the deepest load waterline unless the vessel complies with:

(1) The intact stability requirements of §§ 170.170, 170.173, 171.050, 171.055, and 171.057 in subchapter S of this chapter;

(2) The Type II subdivision requirements in §§ 171.070, 171.072, and 171.073 in subchapter S of this chapter; and

(3) The damage stability requirements in § 171.080 in subchapter S of this chapter.

(c) The cockpit deck of a cockpit vessel that does not operate on exposed or partially protected waters must be located as high above the deepest load waterline as practicable.

(d) The cockpit must be self-bailing. Scuppers or freeing ports for the cockpit deck of a cockpit vessel must:

(1) Be located to allow rapid clearing of water in all probable conditions of list and trim;

(2) Have a combined drainage area of at least the area required by § 178.450 of this part; and

(3) If the deck is less than 255 millimeters (10 inches) above the deepest load waterline of the vessel, be fitted with non-return devices.

§ 178.430 Drainage of well deck vessels.

(a) The weather deck on a well deck vessel must be watertight.

(b) The area required on a well deck vessel for drainage of well formed by the bulwarks shall be determined by § 178.450.

(c) The freeing ports or scuppers on a well deck vessel must be located to allow rapid clearing of water in all probable conditions of list and trim.

(d) The deck of well deck vessel that operates on exposed or partially protected waters must be at least 255 millimeters (10 inches) above the deepest load waterline unless the vessel complies with:

(1) The intact stability requirements of §§ 170.170, 170.173, 171.050, 171.055, and 171.057 in subchapter S of this chapter;

(2) The Type II subdivision requirements in §§ 171.070, 171.072, and 171.073 in subchapter S of this chapter; and

(3) The damage stability requirements in § 171.080 in subchapter S of this chapter.

§ 178.440 Drainage of open boats.

The deck within the hull of an open boat must drain to the bilge. Overboard drainage of the deck is not permitted.

§ 178.450 Calculation of drainage area for cockpit and well deck vessels.

(a) The drainage area required on a vessel must be computed using the following formula:

For protected waters required drainage=.1×Basic Drainage

For partially protected waters required drainage=.5×Basis Drainage

For exposed waters required drainage=Basic Drainage

where:

Basic Drainage area in centimeters ^{2}=4389.12×[(Recess Volume×Recess Ratio)+(Weather Deck Volume×Weather Deck Ratio)]; or

Basic Drainage area in inch ^{2}=(Recess Volume×Recess Ratio)+(Weather Deck Volume×Weather Deck Ratio)

Recess Volume=$(B_R \times D_R) - V_R$

B_R=average height in centimeters (feet) of the bulwark above the well deck or cockpit deck;

D_R=total deck area of the cockpit or well deck in the after ⅔ of the vessel length (LOD) measured in centimeters ^{2} (feet ^{2}).

V_R=volume of any weather tight structure below the bulwark of the well deck or cockpit deck.

Recess Ratio=L_R/L_C

L_R=the length of the recess in the after ⅔ vessel length (LOD).

Weather Deck Volume=$(B_D \times D_D) - V_S$

B_D=average height in centimeters (feet) of the bulwark above the weather deck;

D_D=total deck area of the weather deck adjacent to bulwarks but not in way of the cockpit or well deck in the after ⅔ of the vessel length (LOD) measured in centimenters ^{2} (feet ^{2}).

V_S=volume of any weather tight superstructure below the bulwark on the weather deck located within D_D.

Weather Deck Ratio=L_D/L_C

L_D=the length of the weather deck bulwark in the after ⅔ of the vessel length (LOD).

L_C=⅔ vessel length (LOD).

(b) Vessels with bulwarks in the forward part of the vessel shall not form a well with the deckhouse which retains water.

Subpart E—Special Installations

§ 178.510 Ballast.

(a) Any solid fixed ballast used to comply with the requirements of Parts 170, 171, 178, and 179 of this chapter must be:

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

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

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

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

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

PART 179—SUBDIVISION, DAMAGE STABILITY AND WATERTIGHT INTEGRITY REQUIREMENTS

Subpart A—General Provision

Sec.
179.115 Applicability to existing vessels.

Subpart B—Subdivision and Damage Stability Requirements

179.210 Collision bulkhead.
179.212 Watertight bulkheads for subdivision.
179.220 Location of watertight bulkheads for subdivision.
179.230 Damage stability requirements.
179.240 Foam flotation material.

Subpart C—Watertight Integrity Requirements

179.310 Collision bulkheads.
179.320 Watertight bulkheads.
179.330 Watertight doors.
179.340 Trunks.
179.350 Openings in the side of a vessel below the bulkhead or weather deck.
179.360 Watertight integrity.

Authority: 43 U.S.C. 1333; 46 U.S.C. 2103, 3306, 3703; E.O. 12234, 45 FR 58801, 3 CFR 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 179.115 Applicability to existing vessels.

An existing vessel must comply with the subdivision, damage stability, and watertight integrity regulations which were applicable to the vessel on March 10, 1996, or, as an alternative, the vessel may comply with the regulations in this part.

Subpart B—Subdivision and Damage Stability Requirements

§ 179.210 Collision bulkhead.

(a) A vessel of more than 19.8 meters (65 feet) in length must have a collision bulkhead.

(b) A vessel of not more than 19.8 meters (65 feet) in length must have a collision bulkhead if it:

(1) Carries more than 49 passengers;

(2) Operates on exposed waters;

(3) Is of more than 12.2 meters (40 feet) in length and operates on partially protected waters; or

(4) Is constructed of wood on or after March 11, 2001, and operates in cold water.

(c) A double-ended ferry required to have a collision bulkhead must have a collision bulkhead at each end of the vessel.

§ 179.212 Watertight bulkheads for subdivision.

(a) A vessel of not more than 19.8 meters (65 feet) in length must comply with § 179.220 of this part if it:

(1) Carries more than 49 passengers; or

(2) Is constructed of wood on or after March 11, 2001, and operates in cold water.

As an alternative, the above vessels may comply with the intact stability requirements of §§ 170.170, 170.173, 171.050 and 171.055 of this chapter, and comply with the Type II subdivision requirements of §§ 171.070 through 171.073 in subchapter S of this chapter.

(b) A vessel of more than 19.8 meters (65 feet) in length must comply with the Type II subdivision requirements of §§ 171.070 through 171.073 in subchapter S of this chapter.

(c) A vessel that carries more than 12 passengers on an international voyage must meet the Type II subdivision requirements of §§ 171.070 through 171.073 in subchapter S of this chapter.

§ 179.220 Location of watertight bulkheads for subdivision.

(a) The maximum distance between adjacent main transverse watertight bulkheads on a vessel, required by § 179.212(a) of this part to comply with this section, must not be more than the smaller of the following:

(1) One third of the length of the bulkhead deck; or

(2) The distance given by the following equation:

$$d = \frac{(F)(f)(L)}{D}$$

where:

d=the maximum length of the bulkhead deck in meters (feet) between adjacent main transverse watertight bulkheads;

F=the floodable length factor from Table 179.220(a);

f=the effective freeboard in meters (feet) calculated for each pair of adjacent bulkheads in accordance with paragraph (b) of this section;

L=Length Over Deck in meters (feet) measured over the bulkhead deck; and

D=the depth in meters (feet), measured amidships at a point one-quarter of the maximum beam out from the centerline, from the inside of the bottom planking or plating to the level of the top of the bulkhead deck at side as shown in Figure 179.220(a).

TABLE 179.220(a).—TABLE OF FLOODABLE LENGTH FACTORS

(d/L)×100	F
0–15	0.33
20	0.34
25	0.36
30	0.38
35	0.43
40	0.48
45	0.54
50	0.61
55	0.63
60	0.58
65	0.53
70	0.48
75	0.44
80	0.40
85	0.37
90–100	0.34

NOTE 1: Where: d=distance in meters (feet) from the mid0point of the compartment to the forward-most point on the bulkhead deck excluding sheer; and L=length over deck in meters (feet) measured over the bulkhead deck.

NOTE 2: Intermediate values of floodable length factor may be obtained by interpolation.

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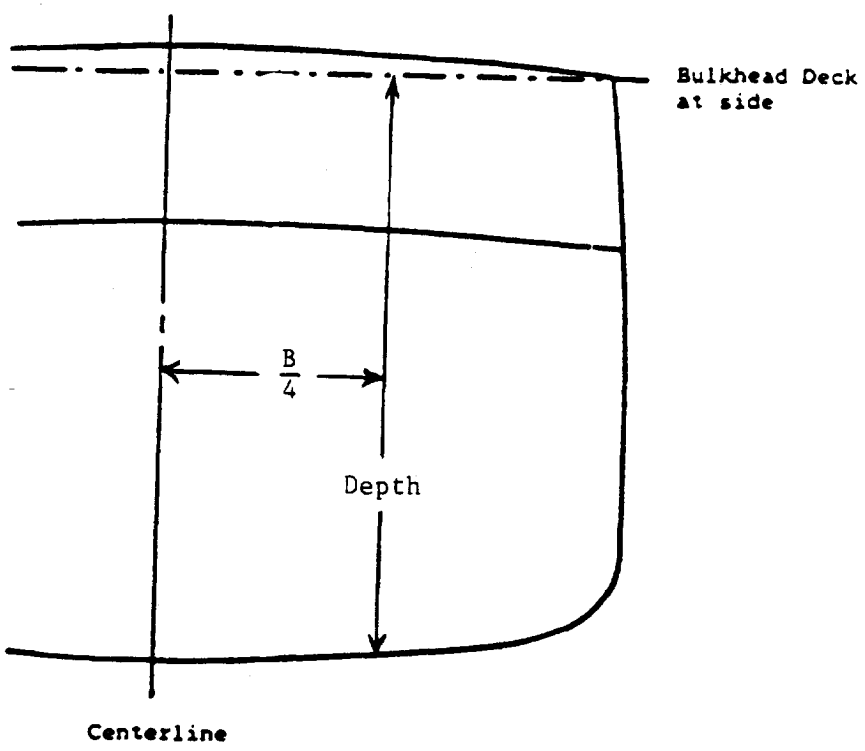
Figure 179.220(a)

Transverse Location for Measuring Depth (D)



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(b) The effective freeboard for each compartment is calculated by the following equation:

f=(a+b)/2

where:

f=the effective freeboard in meters (feet).

a=the freeboard in meters (feet) measured:

(1) At the forward main transverse watertight bulkhead; and
(2) From the deepest waterline to:
(i) The top of the bulkhead deck on a flush deck vessel; or
(ii) If a vessel has a stepped bulkhead deck, the line shown in Figure 179.220(b); or
(iii) If a vessel has an opening port light below the bulkhead deck, the line shown in Figure 179.220(c).

b=the freeboard in meters (feet) measured:

(1) At the aft main transverse watertight bulkhead; and
(2) From the deepest waterline to:
(i) The top of the bulkhead deck on a flush deck vessel; or
(ii) If a vessel has a stepped bulkhead deck, the line shown in Figure 1 to § 179.220(b); or

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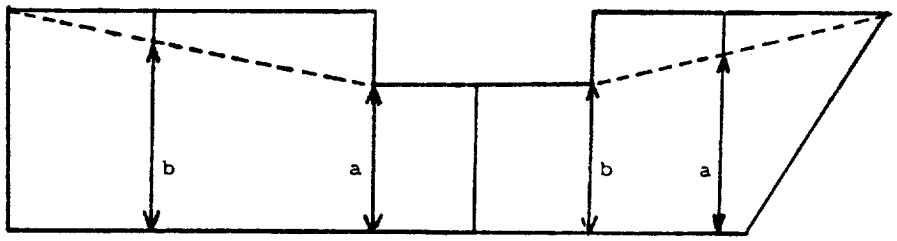
Figure 1 to § 179.220(b)

Freeboard Measurement -

Vessel with Stepped Bulkhead Deck



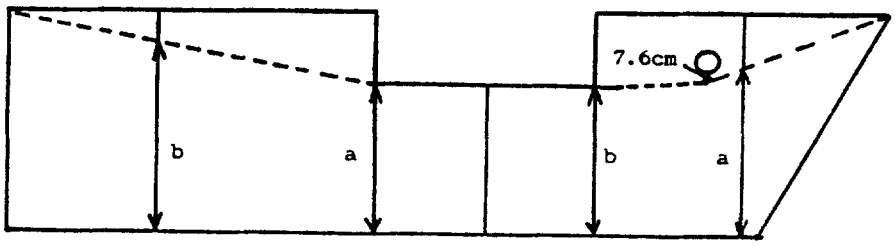
(a and b shown for two sample compartments)

Figure 2 to § 179.220(b)

Freeboard Measurement -

Vessel with Stepped Bulkhead Deck and

a Port Light Below the Bulkhead Deck



(a and b shown for two sample compartments)

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(iii) if a vessel has an opening port light below the bulkhead deck, the line shown in Figure 2 to § 179.220(b).

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§ 179.230 Damage stability requirements.

A vessel which, in accordance with § 179.212(b), must meet the requirements of §§ 171.070 through 171.073 in subchapter S of this chapter for Type II subdivision, shall also meet the damage stability requirements of § 171.080 in subchapter S of this chapter.

§ 179.240 Foam flotation material.

(a) Foam may only be installed as flotation material on a vessel of not more than 19.8 meters (65 feet) in length, when approved by the cognizant Officer in Charge, Marine Inspection (OCMI).

(b) If foam is installed as flotation material on a vessel, the owner shall ensure that the following tests are conducted and requirements are met, to the satisfaction of the cognizant OCMI:

(1) All foam must comply with MIL–P–21929B ''Plastic Material, Cellular Polyurethane, Foam-in-Place, Rigid (2 and 4 pounds per cubic foot),'' including the requirements for fire resistance;

(2) Foam may be installed only in void spaces that are free of ignition sources, unless the foam complies with the requirements of 33 CFR 183.114;

(3) Foam may be installed adjacent to fuel tanks only if the boundary between the tank and the space has double continuous fillet welds;

(4) The structure enclosing the foam must be strong enough to accommodate the buoyancy of the foam;

(5) Piping and cables must not pass through foamed spaces unless they are within piping and cable ways accessible from both ends;

(6) Blocked foam must:

(i) Be used in each area that may be exposed to water; and

(ii) Have a protective cover, approved by the cognizant OCMI, to protect it from damage;

(7) A water submergence test must be conducted on the foam for a period of at least 7 days to demonstrate to the satisfaction of the cognizant OCMI that the foam has adequate strength to withstand a hydrostatic head equivalent to that which would be imposed if the vessel were submerged to its bulkhead deck;

(8) The effective buoyancy of the foam must be determined at the end of the submergence test required by paragraph (b)(7) of this section. The effective buoyancy or 881 kilograms per cubic meter (55 pounds per cubic foot), whichever is less, must be used in determining the location of watertight bulkheads for subdivision required by § 179.212; and

(9) The owner or operator must obtain sample foam specimens during installation of the foam and determine the density of the installed foam.

Subpart C—Watertight Integrity Requirements

§ 179.310 Collision bulkheads.

(a) Each collision bulkhead required by § 179.210, must be constructed in accordance with § 179.320, except that a collision bulkhead:

(1) Must extend to the weather deck or to one deck above the bulkhead deck,

whichever is lower, for service on oceans or coastwise routes; and

(2) Must not be fitted with any type of penetration or opening except penetrations may be made if they are located as high and as far inboard as practicable and they have a means to make them watertight.

(b) The forward collision bulkhead required to be on a vessel by § 179.210 must be:

(1) Located at least 5 percent but not more than 15 percent of the length between perpendiculars (LBP) aft of the forward perpendicular, or for vessels with bulbous bows extending forward of the forward perpendicular and contributing more than 2 percent of the underwater volume of the vessel, located at least 5 percent but not more than 15 percent of the LBP aft of the mid-length of such extension; and

(2) Installed in a single plane, with no recess or step, up to the bulkhead deck;

(c) The after collision bulkhead on a double-ended ferry of more than 19.8 meters (65 feet) in length must be:

(1) At least 5 percent but not more than 15 percent of the LBP forward of the after perpendicular; and

(2) Installed in a single plane, with no recess or step, at least up to the bulkhead deck.

§ 179.320 Watertight bulkheads.

(a) Each watertight bulkhead must be of sufficient strength to be capable of remaining watertight with a head of water to the top of the bulkhead.

(b) Each watertight bulkhead must extend to the bulkhead deck and be installed in one plane without steps or recesses insofar as is reasonable and practicable. Any steps or recesses permitted must comply with the applicable subdivision requirements in this subchapter.

(c) The number of penetrations in a watertight bulkhead must be minimized. A penetration in a watertight bulkhead must be as high and as far inboard in the bulkhead as practicable, and made watertight.

(d) Sluice valves are not permitted in watertight bulkheads.

§ 179.330 Watertight doors.

(a) Hinged watertight doors are not permitted in bulkheads required by §§ 179.210 or 179.212 unless the vessel will not proceed more than 20 nautical miles from shore and:

(1) The door separates a machinery space from an accommodation space and, in the judgment of the cognizant OCMI, the door will be kept closed except when a person is passing through the door; or

(2) The Commandant determines that, due to the arrangements of the vessel, the door will be kept closed except when a person is passing through the door.

(b) A hinged watertight bulkhead door must be fitted with a quick action closing devise operable from both sides of the door and indicator lights at the operating station showing whether the door is open or closed.

(c) Sliding watertight doors must meet the requirements of Part 170, Subpart H in subchapter S of this chapter.

(d) No more than one watertight door may be fitted in a watertight bulkhead, and it must be located as high and as far inboard as practicable.

§ 179.340 Trunks.

Where a trunk (i.e., an enclosed passageway through a deck or bulkhead) is installed, it must comply with the requirements of § 179.360(a)(1) and with the requirements of § 171.113 in subchapter S of this chapter.

§ 179.350 Openings in the side of a vessel below the bulkhead or weather deck.

(a) On a vessel operating on exposed or partially protected waters, an opening port light is not permitted below the weather deck unless the sill of the port light is at least 760 millimeters (30 inches) above the deepest load waterline.

(b) A port light must have an inside, hinged dead cover regardless of whether the port light is or is not capable of being opened.

(c) Except for engine exhausts, each inlet or discharge pipe that penetrates the hull below a line drawn parallel to and at least 150 millimeters (6 inches) above the deepest load waterline must have means to prevent water from entering the vessel if the pipe fractures or otherwise fails.

(d) A positive action valve or cock that is located as close as possible to the hull is an acceptable means for complying with paragraph (c) of this section.

(e) If an inlet or discharge pipe is inaccessible, the means for complying with paragraph (c) of this section must be a shut-off valve that is:

(1) Operable from the weather deck or any other accessible location above the bulkhead deck; and

(2) Labeled at the operating point for identity and direction of closing.

(f) Any connecting device or valve in a hull penetration must not be cast iron.

(g) Each plug cock in an inlet or discharge pipe must have a means, other than a cotter pin, to prevent its loosening or removal from the body.

§ 179.360 Watertight integrity.

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

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

(2) A hatch in a cabin top; and

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

(b) A hatch cover must:

(1) Have securing devices; and

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

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

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

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

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

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

PART 180—LIFESAVING EQUIPMENT AND ARRANGEMENTS

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180.200 Survival craft—general.
180.202 Survival craft—vessels operating on oceans routes.
180.204 Survival craft—vessels operating on coastwise routes.
180.205 Survival craft—vessels operating on limited coastwise routes.
180.206 Survival craft—vessels operating on Great Lakes routes.
180.207 Survival craft—vessels operating on lakes, bays, and sounds routes.
180.208 Survival craft—vessels operating on rivers routes.
180.210 Rescue boats.

Authority: 46 U.S.C. 2104, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 180.10 Applicability to vessels on an international voyage.

A vessel on an international voyage must meet the requirements in subchapter W of this chapter for passenger vessels in the same service, instead of the requirements of this part.

§ 180.15 Applicability to existing vessels.

An existing vessel must comply with the requirements of this part except as otherwise specified by this section.

(a) Before March 11, 2001, or 10 years after the vessel's keel was laid or the vessel was at a similar stage of construction, whichever is later, an existing vessel may comply with the requirements in effect for the vessel prior to March 11, 1996, for the number and type of survival craft, stowage arrangements, and launching appliances for survival craft.

(b) On or before March 11, 2001, or 10 years after the vessel's keel was laid or the vessel was at a similar stage of construction, whichever is later, an existing vessel must:

(1) Be equipped with the number of survival craft required for its route under §§ 180.202, 180.204, 180.205, 180.206, 180.207, or 180.208, as applicable; and

(2) Comply with the stowage and launching appliance requirements for survival craft in §§ 180.130 through 180.150, inclusive.

(c) A vessel that meets the following requirements shall be considered in compliance with the subdivision requirements contained in §§ 180.202, 180.204, 180.205, 180.206, 180.207 and 180.208:

(1) The vessel was constructed before March 11, 2001.

(2) The vessel is of not more than 19.8 meters (65 feet) in length and carries not more than 49 passengers;

(3) The vessel meets the standards for collision bulkheads in § 179.310 of this chapter; and

(4) The vessel meets the standards for one-compartment subdivision in §§ 179.220 and 179.320 of this chapter, at least in way of the engine room and lazarette.

(d) Each inflatable liferaft, inflatable buoyant apparatus, life float, and buoyant apparatus on the vessel on March 11, 1996, may be used to meet the requirements of this part for these survival craft as long as the survival craft is continued in use on the vessel, and is in good and serviceable condition.

(e) When any lifesaving equipment on a vessel is replaced or a vessel undergoes repairs, alterations, or modifications of a major character involving replacement of, or any addition to, the existing lifesaving equipment, each new piece of lifesaving equipment must meet this part.

(f) A combination flare and smoke distress signal approved in accordance with § 160.023 in subchapter Q of this chapter may be used on an existing vessel until the expiration date of the distress signal but no later than March 11, 1999, as one of the distress signals required by § 180.68.

(g) Until February 1, 1999, a Coast Guard approved 121.5/243 MHz Class A Emergency Position Indicating Radiobeacon (EPIRB) may be used to meet the requirement for an EPIRB under § 180.64, if the EPIRB:

(1) Is operable;

(2) Is installed to automatically float-free and activate;

(3) Was manufactured on or after October 1, 1988; and

(4) Was installed on the vessel on or before March 11, 1996.

(h) Until February 1, 1999, a Federal Communications Commission (FCC) Type Accepted VHF–FM Class C EPIRB may be used to meet the requirement for an EPIRB on a vessel operating on a Great Lakes route under § 180.64, if the EPIRB:

(1) Is operable; and

(2) Was installed on the vessel on or before March 11, 1996.

(i) Until March 11, 1997, an existing vessel on a limited coastwise route, need not comply with § 180.64.

(j) An existing vessel need not comply with § 180.78(a)(4).

(k) An existing vessel must comply with § 180.210 or may comply with the regulations for rescue boats that were in effect for the vessel prior to March 11, 1996.

§ 180.25 Additional requirements.

(a) Each item of lifesaving equipment carried on board a vessel but not required under this part, must be approved by the Commandant.

(b) The cognizant Officer in Charge, Marine Inspection (OCMI) may require a vessel to carry specialized or additional lifesaving equipment if:

(1) The OCMI determines the conditions of the voyage render the requirements of this part inadequate; or

(2) The vessel is operated in Arctic, Antarctic, or other severe conditions not covered under this part.

Subpart B—Emergency Communications

§ 180.64 Emergency Position Indicating Radiobeacons (EPIRB).

Each vessel that operates on the high seas, or that operates beyond three miles from the coastline of the Great Lakes, must have on board a FCC Type Accepted Category 1, 406 MHz EPIRB, installed to automatically float free and activate.

§ 180.68 Distress flares and smoke signals.

(a) *Oceans, coastwise, and Great Lakes routes.* A vessel on an oceans, coastwise, or Great Lakes route must carry:

(1) Six hand red flare distress signals approved in accordance with § 160.021 in subchapter Q of this chapter, or other standard specified by the Commandant; and

(2) Six hand orange smoke distress signals approved in accordance with § 160.037 in subchapter Q of this chapter, or other standard specified by the Commandant.

(b) *Lakes, bays, and sounds, and rivers routes.* A vessel on a lakes, bays, and sounds, or rivers route must carry:

(1) Three hand red flare distress signals approved in accordance with § 160.021 in subchapter Q of this chapter, or other standard specified by the Commandant; and

(2) Three hand orange smoke distress signals approved in accordance with § 160.037 in subchapter Q of this chapter, or other standard specified by the Commandant.

(c) *Substitutions.* (1) A rocket parachute flare approved in accordance with § 160.036 in subchapter Q of this chapter, or other standard specified by the Commandant may be substituted for any of the hand red flare distress signals required under paragraph (a) of this section.

(2) One of the following may be substituted for any of the hand orange smoke distress signals required under paragraph (a) or (b) of this section:

(i) A rocket parachute flare approved in accordance with § 160.036 in

subchapter Q of this chapter, or other standard specified by the Commandant.

(ii) A hand red flare distress signal approved in accordance with § 160.021 in subchapter Q of this chapter, or other standard specified by the Commandant.

(iii) A floating orange smoke distress signal approved in accordance with § 160.022 in subchapter Q of this chapter, or other standard specified by the Commandant.

(d) *Exemption for vessels on short runs.* A vessel operating on short runs limited to approximately 30 minutes away from the dock is not required to carry distress flares and smoke signals under this section.

(e) *Stowage.* Each flare carried to meet this section must be stowed in one of the following:

(1) A portable watertight container marked as required by § 185.614 of this chapter, carried at the operating station; or

(2) A pyrotechnic locker secured above the freeboard deck, away from heat, in the vicinity of the operating station.

Subpart C—Life Buoys and Life jackets

§ 180.70 Ring life buoys.

(a) A vessel must have one or more ring life buoys as follows:

(1) A vessel of not more than 7.9 meters (26 feet) in length must carry a minimum of one life buoy of not less than 510 millimeters (20 inches) in diameter;

(2) A vessel of more than 7.9 meters (26 feet) in length, but not more than 19.8 meters (65 feet), must carry a minimum of one life buoys of not less than 610 millimeters (24 inches) in diameter; and

(3) A vessel of more than 19.8 meters (65 feet) in length must carry a minimum of three life buoys of not less than 610 millimeters (24 inches) in diameter.

(b) Each ring life buoy on a vessel must:

(1) Be approved in accordance with § 160.050 in subchapter Q of this chapter, or other standard specified by the Commandant;

(2) Be readily accessible;

(3) Be stowed in a way that it can be rapidly cast loose;

(4) Not be permanently secured in any way; and

(5) If on a vessel on an oceans or coastwise route, be orange in color.

(c) At least one ring life buoy must be fitted with a lifeline. If more than one ring life buoy is carried, at least one must not have a lifeline attached. Each lifeline on a ring life buoy must:

(1) Be buoyant;

(2) Be of at least 18.3 meters (60 feet) in length;

(3) Be non-kinking;

(4) Have a diameter of at least 7.9 millimeters (5/16 inch);

(5) Have a breaking strength of at least 510 kilograms (1,124 pounds); and

(6) Be of a dark color if synthetic, or of a type certified to be resistant to deterioration from ultraviolet light.

(d) A vessel must carry one floating waterlight, unless it is limited to daytime operation, in which case no floating waterlight is required.

(1) Each floating waterlight must be approved in accordance with § 160.010 in subchapter Q of this chapter, or other standard specified by the Commandant.

(2) Each ring life buoy with a floating waterlight must have a lanyard of at least 910 millimeters (3 feet) in length, but not more than 1,830 millimeters (6 feet), securing the waterlight around the body of the ring life buoy.

(3) Each floating waterlight installed after March 11, 1997, on a vessel carrying only one ring buoy, must be attached to the lanyard with a corrosion-resistant clip. The clip must have a strength of at least 22.7 kilograms (50 pounds), and allow the waterlight to be quickly disconnected from the ring life buoy.

§ 180.71 LIfe jackets.

(a) An adult life jacket must be provided for each person carried on board a vessel.

(b) In addition, a number of child size life jackets equal to at least 10% of the number of the person permitted on board must be provided, or such greater number as necessary to provide a life jacket for each person being carried that is smaller than the lower size limit of the adult life jackets provided to meet this section, except that:

(1) Child-size life jackets are not required if the vessel's Certificate of Inspection is endorsed for the carriage of adults only; or

(2) When all ''extended size'' life preservers (those with a lower size limit for persons of 1,195 millimeters (47 inches) in height or weighing 20.4 kilograms (45 pounds)) are carried on board, a minimum of only 5% additional child size devices need be carried.

(c) Except as allowed by paragraph (d) of this section, each life jacket must be approved in accordance with either §§ 160.002, 160.005, or 160.055 in subchapter Q of this chapter, or other standard specified by the Commandant.

(d) Cork and balsa wood lifejackets previously approved in accordance with §§ 106.003, or 160.004 in subchapter Q of this section, on board an existing vessel prior to March 11, 1996, may continue to be used to meet the requirements of this section until March 11, 1999, of the interim rules provided the lifejackets are maintained in good and serviceable condition.

§ 180.72 Personal flotation devices carried in addition to life jackets.

(a) Equipment carried under this section is not acceptable in lieu of any portion of the required number of approved life jackets and must not be substituted for the approved life jackets required to be worn during drills and emergencies.

(b) Wearable marine buoyant devices that include ''ski vests,'' ''boating vests,'' and ''fishing vests,'' approved in accordance with § 160.064 in subchapter Q of this chapter, or other standard specified by the Commandant, may be carried as additional equipment.

(c) Buoyant work vests approved in accordance with § 160.053 in subchapter Q of this chapter, or other standard specified by the Commandant, may be carried as additional equipment for use of persons working near or over the water.

(d) Commercial hybrid personal flotation devices (PFD) approved in accordance with § 160.077 of this chapter, or other standard specified by the Commandant, may be carried as additional equipment for use of persons working near or over the water. Each commercial hybrid PFD must be:

(1) Used, stowed, and maintained in accordance with the procedures set out in the manual required for these devices under § 160.077–29 in subchapter Q 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.

§ 180.75 Life jacket lights.

(a) Each life jacket carried on a vessel on oceans, coastwise, or Great Lakes route, must have a life jacket light approved in accordance with § 161.012 in subchapter Q of this chapter, or other standard specified by the Commandant. Each life jacket light must be securely attached to the front shoulder area of the life jacket.

(b) Notwithstanding the requirements of paragraph (a) of this section, life jacket lights are not required for life jackets on:

(1) Ferries; and

(2) Vessels with Certificates of Inspection endorsed only for routes that do not extend more than 20 miles from a harbor of safe refuge.

§ 180.78 Stowage of life jackets.

(a) *General.* Unless otherwise stated in this section, life jackets must be stored in convenient places distributed throughout accommodation spaces.

(1) Each stowage container for life jackets must not be capable of being locked. If practicable, the container must be designed to allow the life jackets to float free.

(2) Each life jacket kept in a stowage container must be readily available.

(3) Each life jacket stowed overhead must be supported in a manner that allows quick release for distribution.

(4) If life jackets are stowed more than 2,130 millimeters (7 feet) above the deck, a means for quick release must be provided and must be capable of operation by a person standing on the deck.

(5) Each child size life jacket must be stowed in a location that is appropriately marked and separated from adult life jackets so the child size life jackets are not mistaken for adult life jackets.

(b) *Additional personal flotation devices.* The stowage locations of the personal flotation devices carried in addition to life jackets under § 180.72, must be separate from the life jackets, and such as not to be easily confused with that of the life jackets.

Subpart D–Survival Craft Arrangements and Equipment

§ 180.130 Stowage of survival craft.

(a) Each survival craft must be:

(1) Secured to the vessel by a painter with a float-free link permanently attached to the vessel except that a float-free link is not required if the vessel operates only on waters not as deep as the length of the painter;

(2) Stowed so that when the vessel sinks the survival craft floats free and, if inflatable, inflates automatically;

(3) Stowed in a position that is readily accessible to crew members for launching, or else provided with a remotely operated device that releases the survival craft into launching position or into the water;

(4) Stowed in a way that permits manual release from its securing arrangements;

(5) Ready for immediate use so that crew members can carry out preparations for embarkation and launching in less than 5 minutes;

(6) Provided with means to prevent shifting;

(7) Stowed in a way that neither the survival craft nor its stowage arrangements will interfere with the embarkation and operation of any other survival craft at any other launching station;

(8) Stowed in a way that any protective covers will not interfere with launching and embarkation;

(9) Fully equipped as required under this part; and

(10) Stowed, as far as practicable, in a position sheltered from breaking seas and protected from damage by fire.

(b) A hydrostatic release unit when used in a float-free arrangement must be approved in accordance with § 160.062 in subchapter Q of this chapter, or other standard specified by the Commandant.

(c) A mechanical, manually operated device to assist in launching a survival craft must be provided if:

(1) The survival craft weights more than 90.7 kilograms (200 pounds); and

(2) The survival craft requires lifting more than 300 vertical millimeters (one vertical foot) to be launched.

§ 180.137 Stowage of life floats and buoyant apparatus.

(a) In addition to meeting § 180.130, each life float and buoyant apparatus must be stowed as required under this section,

(b) The float-free link required by § 180.130(a)(1) must be:

(1) Certified to meet § 160.073 in subchapter Q of this chapter, or other standard specified by the Commandant;

(2) Of proper strength for the size of the life float or buoyant apparatus as indicated on its identification tag; and

(3) Secured to the painter at one end and to the vessel on the other end.

(c) The means used to attach the float-free link to the vessel must:

(1) Have a breaking strength of at least the breaking strength of the painter;

(2) If synthetic, be of a dark color or of a type certified to be resistant to deterioration from ultraviolet light; and

(3) If metal, be corrosion resistant.

(d) If the life float or buoyant apparatus does not have a painter attachment fitting, a means for attaching the painter must be provided by a wire or line that:

(1) Encircles the body of the device;

(2) Will not slip off;

(3) Has a breaking strength that is at least the strength of the painter; and

(4) If synthetic, is of a dark color or is of a type certified to be resistant to deterioration from ultraviolet light.

(e) If the vessel carried more than one life float or buoyant apparatus in a group with each group secured by a single painter:

(1) The combined weight of each group of life floats and buoyant apparatus must not exceed 181 kilograms (400 pounds);

(2) Each group of life floats and buoyant apparatus is considered a single survival craft for the purposes of § 180.130(c);

(3) Each life float and buoyant apparatus must be individually attached to the painter by a line meeting §§ 180.175(e)(3) (ii), (iii), and (iv) and long enough that each life float or buoyant apparatus can float without contacting any other life float or buoyant apparatus in the group; and

(4) The strength of the float-free link under paragraph (b)(2) of this section and the strength of the painter under § 180.175(e)(3)(ii) must be determined by the combined capacity of the group of life floats and buoyant apparatus.

(f) Life floats and buoyant apparatus must not be stowed in tiers more than 1,220 millimeters (4 feet) high. When stowed in tiers, the separate units must be kept apart by spacers.

§ 180.150 Survival craft embarkation arrangements.

(a) A launching appliance that complies with the installation and arrangement requirements for launching appliances in subchapter W of this chapter must be provided for each inflatable liferaft and inflatable buoyant apparatus when either:

(1) The embarkation station for the survival craft is on a deck more than 4.5 meters (15 feet) above the waterline; or

(2) The inflatable liferaft and inflatable buoyant apparatus is boarded prior to being placed in the water.

(b) A embarkation ladder, approved in accordance with § 160.017 in subchapter Q of this chapter, or other standard specified by the Commandant, must be at each embarkation station if the distance from the deck on which an embarkation station is located to the vessel's lightest operating waterline is more than 3,050 millimeters (10 feet).

§ 180.175 Survival craft equipment.

(a) *General.* Each item of survival craft equipment must be of good quality, and efficient for the purpose it is intended to serve. Unless otherwise stated in this section, each item of equipment carried, whether required under this section or not, must be secured by lashings, stored in lockers, compartments, brackets, or have equivalent mounting or storage arrangements that do not:

(1) Reduce survival craft capacity;

(2) Reduce space available to the occupants;

(3) Interfere with launching, recovery, or rescue operations; or

(4) Adversely affect seaworthiness of the survival craft.

(b) *Inflatable liferafts.* Each inflatable liferaft must have one of the following equipment packs as shown by the markings on its container:

(1) Safety of Life at Sea (SOLAS) B Pack; or

(2) SOLAS A Pack.

(c) *Life floats.* Each life float must be fitted with a lifeline, pendants, two paddles, a painter, and a light.

(d) *Buoyant apparatus.* Each buoyant apparatus must be fitted with a lifeline, pendants, a painter, and a light.

(e) *Equipment specifications for life floats and buoyant apparatus.* The equipment required for lifefloats and buoyant apparatus must meet the following specifications:

(1) *Lifeline and pendants.* The lifeline and pendants must be as furnished by the manufacturer with the approved life float or buoyant apparatus. Replacement lifelines and pendants must meet the requirements in Subpart 160.010 of this chapter.

(2) *Paddle.* Each paddle must be of at least 1,220 millimeters (4 feet) in length, lashed to the life float to which it belongs and buoyant.

(3) *Painter.* The painter must:

(i) Be of at least 30.5 meters (100 feet) in length, but not less than 3 times the distance between the deck where the life float or buoyant apparatus it serves is stowed and the lowest load waterline of the vessel;

(ii) Have a breaking strength of at least 680 kilograms (1,500 pounds), except that if the capacity of the life float or buoyant apparatus is 50 persons or more, the breaking strength must be at least 1,360 kilograms (3,000 pounds);

(iii) Be of a dark color if synthetic, or of a type certified to be resistant to deterioration from ultraviolet light; and

(iv) Be stowed in such a way that it runs out freely when the life float or buoyant apparatus floats away from a sinking vessel.

(4) *Light.* The light must be a floating waterlight approved in accordance with § 161.010 in subchapter Q of this chapter, or other standard specified by the Commandant. The floating waterlight must be attached around the body of the life float or buoyant apparatus by a 12-thread manila, or equivalent, lanyard of at least 5.5 meters (18 feet) in length.

(f) *Other survival craft.* If survival craft other than inflatable liferafts, life floats, inflatable buoyant apparatus, and buoyant apparatus are carried on the vessel, such as lifeboats or rigid liferafts, they must be installed, arranged, and equipped as required under subchapter H (Passenger Vessels) of this chapter for passenger vessels on the same route.

Subpart E—Number and Type of Survival Craft

§ 180.200 Survival craft—general.

(a) Each survival craft required on a vessel by this part must meet one of the following:

(1) For an inflatable liferaft—Subpart 160.151 in subchapter Q of this chapter, or other standard specified by the Commandant, with the applicable equipment pack, as determined by the cognizant OCMI. Each inflatable liferaft required on a vessel by this part must have a capacity of 6 persons or more. Inflatable liferafts may be substituted for inflatable buoyant apparatus or life floats required under this section;

(2) For a life float—Subpart 160.027 in subchapter Q of this chapter, or other standard specified by the Commandant. Buoyant apparatus may be used to meet requirements for life floats if the buoyant apparatus was installed on board the vessel on or before March 11, 1996, and if the buoyant apparatus remains in good and serviceable condition;

(3) For an inflatable buoyant apparatus—Subpart 160.010 in subchapter Q of this chapter, or other standard specified by the Commandant. Inflatable buoyant apparatus may be substituted for life floats required under this section.

(4) For a buoyant apparatus—Subpart 160.010 in subchapter Q of this chapter, or other standard specified by the Commandant. An existing buoyant apparatus may not be used to satisfy the requirements for life floats on existing vessels wishing to upgrade the total number of passengers carried on an oceans route.

(b) If the vessel carries a small boat or boats, the capacity of these boats may be counted toward the buoyant apparatus or life float capacity required by this part. Such boats must meet the requirements for safe loading and flotation in 33 CFR Part 183, and must meet the stowage, launching, and equipment requirements in this part for the survival craft they replace.

(c) A summary of survival craft requirements is provided in Table 180.200(c). The citations in brackets identify the sections of this part that contain the specific requirements.

TABLE 180.200(c)

Route	Survival craft requirements
Oceans	(a) cold water [1]—100% IBA—$180.202(a)(1). (i) w/subdivision [2]—100% LF—§ 180.202(a)(2). (c) warm water [3]—67% IBA [4]—$180.202(b).
Coastwise	(a) wood vsls in cold water. (i) 67% IBA—§ 180.204(a)(1). (ii) w/subdivision—100% LF—$180.204(a)(2). (b) nonwood and vsls operating in warm water. (i) 100% LF—§ 180.204 (b) and (c). (c) within three miles of shore. (i) w/o subdivision—100% LF—§ 180.204(d)(1). (ii) w/subdivision—50% LF—§ 180.204(d)(2). (iii) w/float free 406 MHz EPIRB—50% LF—§ 180.204(d)(3).
Limited Coastwise (Not more than 20 miles from a harbor of safe refuge).	(a) wood vsls in cold water. (i) 67% IBA—§ 180.205(a)(1). (ii) w/subdivision—100% LF—§ 180.205(a)(2). (b) nonwood vessels in cold water—100% LF—§ 180.205(b). (c) within three miles of shore—§ 180.205(d). (A) w/o subdivision—100% LF. (B) w/subdivision—50% LF. (C) w/float free 406 MHz EPIRB—50% LF. (d) vessels operating in warm water. (i) 50% LF—§ 180.205(c). (ii) within three miles of shore. (A) w/o subdivision—50% LF—§ 180.205(e)(1). (B) w/subdivision—NONE—§ 180.205(e)(2).

TABLE 180.200(c)—Continued

Route	Survival craft requirements
	(C) w/float free 406 MHz EPIRB—NONE— §180.205(e)(3).
Great Lakes	(a) same as Limited Coastwise (a) & (b)—§180.206(a).
	(b) within one mile of shore—NONE [5]—§180.206(b).
Lakes, Bays, & Sounds [6,7]	(a) wood vsls in cold water.
	(i) 100% LF—§180.207(a)(1).
	(ii) w/subdivision—50% LF—§180.207(a)(2).
	(b) nonwood—50% LF—§180.207(b).
	(c) within 1 mile of shore—NONE—§180.207(e).
	(d) warm water—NONE—§180.207(c).
RIVERS [7,8]	(a) cold water.
	(i) w/o subdivision—50% LF—§180.208(a)(1).
	(ii) w/subdivision—NONE—§180.208(a)(2).
	(iii) within one mile of shore—NONE—§180.208(d).
	(b) warm water—NONE—§180.208(b)

Abbreviations used:
ILR=Inflatable liferaft
IBA=Inflatable Buoyant Apparatus
LF=Life Float. As allowed by §180.15(d) any buoyant apparatus in use on an existing vessel on March 11, 1996, may be used to meet the requirements for LF as long as the buoyant apparatus is in good and serviceable condition.
Footnotes:
[1] Cold water means the cognizant OCMI has determined the monthly mean low temperature of the water is ≤ 15° C (59° F).
[2] Vessels ≤ 65 ft carrying ≤ 49 passengers built before March 11, 2001, may meet the collision bulkhead standards in §179.310 and one-compartment subdivision subdivision standards in §§179.220 and 179.320 at least in way of the engine room and lazarette in lieu of the subdivision requirements contained in this Part.
[3] Warm water means the cognizant OCMI has determined the monthly mean low temperature of the water is > 15° C (59° F).
[4] Vessels operating in warm water may substitute 100% LF in lieu of 67% IBA—§180.202(d).
[5] OCMI may reduce primary lifesaving for seasonal or ferry type operations on the Great Lakes—§180.206(b).
[6] Shallow water exception—§180.207(e).
[7] OCMI may reduce survival craft requirements based upon the route, communications schedule and participation in VTS—§180.207(f) and §180.208(e)
[8] Shallow water exception—§180.208(e)C.

§180.202 Survival craft—vessels operating an oceans routes.

(a) Each vessel certificated to operate on an oceans route in cold water must either:

(1) Be provided with inflatable buoyant apparatus of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board; or

(2) Meet either the standards for collision bulkheads in §§179.310 in this chapter or 171.085 in subchapter S of this chapter, and the standards for subdivision in §§179.220 and 179.320 of this chapter, or the standards for subdivision and damaged stability in §§171.070 through 171.073 and 171.080 in subchapter S of this chapter, as appropriate, and be provided with life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board.

(b) Each vessel certificated to operate on an oceans route in warm water must either:

(1) Be provided with inflatable buoyant apparatus of an aggregate capacity that will accommodate at least 67% of the total number of persons permitted on board; or

(2) Be provided with life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board.

§180.304 Survival craft—vessels operating on coastwise routes.

(a) Except as allowed by paragraph (c) of this section, each vessel constructed of wood certificated to operate on a coastwise route in cold water must either:

(1) Be provided with inflatable buoyant apparatus of an aggregate capacity that will accommodate at least 67% of the total number of persons permitted on board; or

(2) Meet either the standards for collision bulkheads in §§179.310 of this chapter or 171.085 in subchapter S of this chapter and the standards for subdivision in §§179.220 and 179.320 of this chapter, or the standards for subdivision and damaged stability in §§171.070 through 171.073 and 171.080 in subchapter S of this chapter, as appropriate, and be provided with life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board.

(b) Each vessel constructed of a material other than wood certificated to operate on a coastwise route in cold water must be provided with life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board.

(c) Except as allowed by paragraph (d) of this section, each vessel certificated to operate on a coastwise route in warm water must be provided with life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board.

(d) Each vessel certificated to operate on a coastwise route within three miles of land must either:

(1) Be provided with life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board; or

(2) Meet either the standards for collision bulkheads in §§179.310 of this subchapter or 171.085 in subchapter S of this chapter, and the standards for subdivision in §§179.220 and 179.320 of this chapter, or the standards for subdivision and damaged stability in §§171.070 through 171.073 and 171.080 in subchapter S of this chapter, as appropriate, and be provided with life floats of an aggregate capacity that will accommodate at least 50% of the total number of persons permitted on board.

(3) Have on board a FCC Type Accepted Category 1 406 MHz EPIRB, installed to automatically float free and activate, and be provided with life floats of an aggregate capacity that will accommodate at least 50% of the total number of persons permitted on board.

§180.205 Survival craft—vessels operating on limited coastwise routes.

(a) Except as allowed by paragraph (d) of this section, each vessel constructed

of wood certificated to operate on a limited coastwise route in cold water must either:

(1) Be provided with inflatable buoyant apparatus of an aggregate capacity that will accommodate at least 67% of the total number of persons permitted on board; or

(2) Meet either the standards for collision bulkheads in §§ 179.310 of this chapter or 171.085 in subchapter S of this chapter, and the standards for subdivision in §§ 179.220 and 179.320 of this chapter, or the standards for subdivision and damaged stability in §§ 171.070 through 171.073 and 171.080 in subchapter S of this chapter, as appropriate, and be provided with life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board.

(b) Except as allowed by paragraph (d) of this section, each vessel constructed of a material other than wood certificated to operate on a limited coastwise route in cold water must be provided with life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board.

(c) Except as allowed by paragraph (e) of this section, each vessel certificated to operate on a limited coastwise route in warm water must be provided with life floats of an aggregate capacity that will accommodate at least 50% of the total number of persons permitted on board.

(d) Each vessel certificated to operate on a limited coastwise route within three miles of land in cold water must be provided with the survival craft required by § 180.204(d).

(e) Each vessel certificated to operate on a limited coastwise route within three miles of land in warm water must either:

(1) Be provided with life floats of an aggregate capacity that will accommodate at least 50% of the total number of persons permitted on board; or

(2) Meet either the standards for collision bulkheads in §§ 179.310 of this chapter or 171.085 in subchapter S of this chapter, and the standards for subdivision in §§ 179.220 and 179.320 of this chapter, or the standards for subdivision and damaged stability in §§ 171.070 through 171.073 and 171.080 in subchapter S of this chapter, as appropriate, and not be required to carry survival craft; or

(3) Have on board a FCC Type Accepted Category 1 406 MHz EPIRB, installed to automatically float free and activate, and not be required to carry survival craft.

§ 180.206 Survival craft—vessels operating on Great Lakes routes.

(1) Except as allowed by paragraph (b) of this section, each vessel certificated to operate on a Great Lakes route must be provided with the survival craft required by §§ 180.204 (a) through (e), as appropriate.

(b) Each vessel certificated to operate on a Great Lakes route within one mile of land is not required to carry survival craft is the OCMI determines that it is safe to do so, taking into consideration the vessel's scope of operation, hazards of the route, and availability of assistance.

§ 180.207 Survival craft—vessels operating on lakes, bays, and sounds routes.

(a) Except as allowed by paragraphs (d), (e) and (f) of this section, each vessel constructed of wood certificated to operate on a lakes, bays, and sounds route in cold water must either:

(1) Be provided with life floats of an aggregate capacity that will accommodate at least 100% of the total number of persons permitted on board; or

(2) Meet either the standards for collision bulkheads in §§ 179.310 of this chapter or 171.085 in subchapter S of this chapter, and the standards for subdivision in §§ 179.220 and 179.320 of this chapter, or the standards for subdivision and damaged stability in §§ 171.070 through 171.073 and 171.080 in subchapter S of this chapter, as appropriate, and be provided with life floats of an aggregate capacity that will accommodate at least 50% of the total number of persons permitted on board.

(b) Except as allowed by paragraphs (e) and (f) of this section, each vessel constructed of a material other than wood certificated to operate on a lakes, bays, and sounds route in cold water must be provided with buoyant apparatus of an aggregate capacity that will accommodate at least 50% of the total number of persons permitted on board.

(c) A vessel certificated to operate on a lakes, bays, and sounds route in warm water is not required to carry survival craft.

(d) A vessel certificated to operate on a lake, bays, and sounds route within one mile of land is not required to carry survival craft.

(e) For a vessel certificated to operate on a lakes, bays, and sounds route in shallow water where the vessel can not sink deep enough to submerge the topmost passenger deck or where survivors can wade ashore, the cognizant OCMI may waive a requirement for life floats, if the OCMI determines that it is safe to do so, taking into consideration the vessel's scope of operation, hazards of the route, and availability of assistance.

(f) Each vessel operating with a set schedule on a specific route that does not take it more than 20 nautical miles from a harbor of safe refuge, and that maintains a 15 minute radio communications schedule with an operations base, or participates in a Vessel Traffic Service (VTS), may be granted a reduction in the survival craft requirements of this section if the cognizant OCMI is satisfied that a sufficient level of safety exists.

§ 180.208 Survival Craft—vessels operating on rivers routes.

(a) Except as allowed by paragraphs (c), (d) and (e) of this section, each vessel certificated to operate on a rivers route in cold water must either:

(1) Be provided with life floats of an aggregate capacity that will accommodate at least 50% of the total number of persons permitted on board; or

(2) Meet either the standards for collision bulkheads in §§ 179.310 of this chapter or 171.085 in subchapter S of this chapter, and the standards for subdivision in §§ 179.220 and 179.320 of this chapter, or the standards for subdivision and damaged stability in §§ 171.070 through 171.073 and 171.080 in subchapter S of this chapter, as appropriate, and not be required to carry survival craft.

(b) A vessel certificate to operate on a rivers route in warm water is not required to carry survival craft.

(c) A vessel certificated to operate on a rivers route within one mile of land is not required to carry survival craft.

(d) For a vessel certificated to operate on a rivers route in shallow water where the vessel can not sink deep enough to submerge the topmost passenger deck or where survivors can wade ashore, the cognizant OCMI may waive a requirement for life floats, if the OCMI determines that it is safe to do so, taking into consideration the vessel's scope of operation, hazards of the route, and availability of assistance.

(e) Each vessel operating with a set schedule on a specific route that maintains a 15 minute radio communications schedule with an operations base, or participates in a Vessel Traffic Service (VTS), may be granted a reduction in the survival craft requirement of this section if the cognizant OCMI is satisfied that a sufficient level of safety exists.

§ 180.210 Rescue boats.

(a) A vessel of more than 19.8 meters (65 feet) in length must carry at least

one rescue boat unless the cognizant OCMI determines that:

(1) The vessel is sufficiently maneuverable, arranged, and equipped to allow the crew to recover a helpless person from the water;

(2) Recovery of a helpless person can be observed from the operating station; and

(3) The vessel does not regularly engage in operations that restrict its maneuverability.

(b) A vessel of not more than 19.8 meters (65 feet) in length is not required to carry a rescue boat unless:

(1) The vessel carries passengers on an open or partially enclosed deck; and

(2) The cognizant OCMI determines that the vessel is designed, arranged, or involved in operations so that the vessel itself cannot serve as an adequate rescue craft.

(c) On a vessel of more than 19.8 meters (65 feet) in length, a required rescue boat and its installation must meet the requirements in subchapter H (Passenger Vessels) of this chapter for a rescue boat on a passenger vessel having the same route. On a vessel of not more than 19.8 meters (65 feet) in length, a required rescue boat must be acceptable to the cognizant OCMI.

PART 181—FIRE PROTECTION EQUIPMENT

Subpart A—General Provisions

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Authority: 46 U.S.C. 3306; E.O. 12234, 45FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 181.115 Applicability to existing vessels.

(a) Except as otherwise required by paragraphs (b) and (c) of this section, an existing vessel must comply with the fire protection equipment regulations applicable to the vessel on March 10, 1996, or, as an alternative, the vessel may comply with the regulations in this part.

(b) An existing vessel with a hull, or a machinery space boundary bulkhead or deck, composed of wood or fiber reinforced plastic, or sheathed on the interior in fiber reinforced plastic, must comply with the requirements of § 181.400 of this part on or before March 11, 1999.

(c) New installations of fire protection equipment on an existing vessel, which are completed to the satisfaction of the cognizant Officer in Charge, Marine Inspection (OCMI) on or after March 11, 1996, must comply with the regulations of this part. Replacement of existing equipment installed on the vessel prior to March 11, 1996, need not comply with the regulations in this part.

§ 181.120 Equipment installed but not required.

Fire extinguishing and detecting equipment installed on a vessel in excess of the requirements of §§ 181.400 and 181.500 must be designed, constructed, installed and maintained in accordance with a recognized industry standard acceptable to the Commandant.

Subpart B—Reserved

Subpart C—Fire Main System

§ 181.300 Fire pumps.

(a) A self priming, power driven fire pump must be installed on each vessel:

(i) Of not more than 19.8 meters (65 feet) in length which is a ferry vessel;

(ii) Of not more than 19.8 meters (65 feet) in length that carries more than 49 passengers; or

(iii) Of more than 19.8 meters (65 feet) in length.

(b) On a vessel of not more than 19.8 meters (65 feet) in length carrying more than 49 passengers, and on a vessel of more than 19.8 meters (65 feet) in length, the minimum capacity of the fire pump must be 189 liters (50 gallons) per minute at a pressure of not less than 414 kPa (60 psi) at the pump outlet. The pump outlet must be fitted with a pressure gauge.

(c) On a ferry vessel of not more than 19.8 meters (65 feet) in length carrying not more than 49 passengers, the minimum capacity of the fire pump must be 38 liters (10 gallons) per minute. The fire pump must be capable of projecting a hose stream from the highest hydrant, through the hose and nozzle required by § 181.320 of this part, a distance of 7.6 meters (25 feet).

(d) A fire pump may be driven by a propulsion engine. A fire pump must be permanently connected to the fire main and may be connected to the bilge system to meet the requirements of § 182.520 of this chapter.

(e) A fire pump must be capable of both remote operation from the operating station and local, manual operations at the pump.

§ 181.310 Fire main and hydrants.

(a) A vessel that has a power driven fire pump must have a sufficient number of fire hydrants to reach any part of the vessel using a single length of fire hose.

(b) Piping, valves, and fittings in a fire main system must comply with Subpart G, Part 182, of this chapter.

§ 181.320 Fire hoses and nozzles.

(a) A fire hose with a nozzle must be attached to each fire hydrant at all times. For fire stations located on open decks or cargo decks, where no protection is provided, hoses may be temporarily removed during heavy weather or cargo handling operations, respectively. Hoses so removed must be stored in nearby accessible locations.

(b) On a vessel of not more than 19.8 meters (65 feet) in length carrying more than 49 passengers, and on a vessel of more than 19.8 meters (65 feet) in length, each hose must:

(1) Be lined commercial fire hose that conforms to Underwriters Laboratory (UL) 19 ''Lined Fire Hose and Hose Assemblies,'' or hose that is listed and labeled by an independent laboratory recognized by the Commandant as being equivalent in performance;.

(2) Be 15.25 meters (50 feet) in length and 40 millimeters (1.5 inches) in diameter; and

(3) Have fittings of brass or other suitable corrosion-resistant material that comply with National Fire Protection Association (NFPA) 1963 ''Standard for Fire Hose Connections,'' or other standard specified by the Commandant.

(c) Each fire hose on a vessel of not more than 19.8 meters (65 feet) in length carrying not more than 49 passengers must:

(1) Comply with paragraphs (b)(1) and (b)(3) of this section or be garden type hose of not less than 16 millimeters (0.625 inches) nominal inside diameter;

(2) Be of one piece not less than 7.6 meters (25 feet) and not more than 15.25 meters (50 feet) in length; and

(3) If of the garden type, be of a good commercial grade constructed of an inner rubber tube, plies of braided fabric reinforcement, and an outer cover of rubber tube, plies of braided fabric reinforcement, and an outer cover of rubber or equivalent material, and of sufficient strength to withstand the maximum pressure that can be produced by the fire pump. All fittings on the hose must be of suitable corrosion-resistant material.

(d) Each nozzle must be of corrosion-resistant material and be capable of being changed between a solid stream and a spray pattern. A nozzle on a vessel of not more than 19.8 meters (65 feet) in length carrying more than 49 passengers, and on a vessel of more than 19.8 meters (65 feet) in length, must:

(1) Be of a type approved in accordance with § 160.027 in subchapter Q of this chapter; or

(2) Be of a type recognized by the Commandant as being equivalent in performance.

Subpart D—Fixed Fire Extinguishing and Detecting Systems

§ 181.400 Where required.

(a) The following spaces must be equipped with a fixed gas fire extinguishing system, in compliance with § 181.410, or other fixed fire extinguishing system specifically approved by the Commandant, except as otherwise allowed by paragraph (b) of this section:

(1) A space containing propulsion machinery;

(2) A space containing an internal combustion engine of more than 37.3 kW (50 hp);

(3) A space containing an oil fired boiler;

(4) A space containing machinery powered by gasoline or other fuels having a flash point of 43.3° C (110° F) or lower;

(5) A space containing a fuel tank for gasoline or any other fuel having a flash point of 43.3° C (110° F) or lower;

(6) A space containing combustible cargo or ship's stores inaccessible during the voyage (in these types of spaces only carbon dioxide, and not Halon, systems will be allowed);

(7) A paint locker; and

(8) A storeroom containing flammable liquids (including liquors of 80 proof or higher where liquor is packaged in individual containers of 9.5 liters (2.5 gallons) capacity or greater).

(b) Alternative system types and exceptions to the requirements of paragraph (a) of this section are:

(1) A fixed gas fire extinguishing system, which is capable of automatic discharge upon heat detection, may only be installed in a normally unoccupied space with a gross volume of not more than 170 cubic meters (6,000 cubic feet);

(2) A pre-engineered fixed gas fire extinguishing system must be in compliance with § 181.420 of this part and may only be installed in a normally unoccupied machinery space, a paint locker, or a storeroom containing flammable liquids (including liquors of 80 proof or higher where liquor is packaged in individual containers of 9.5 liters (2.5 gallons) capacity or greater), with a gross volume of not more than 57 cubic meters (2,000 cubic feet);

(3) A B–II portable fire extinguisher installed outside the space may be substituted for a fixed gas fire extinguishing system in a storeroom containing flammable liquids (including liquors of 80 proof or higher where liquor is packaged in individual containers of 9.5 liters (2.5 gallons) capacity or greater) or a paint locker, with a volume of not more that 5.7 cubic meters (200 cubic feet);

(4) A space which is so open to the atmosphere that a fixed gas fire extinguishing system would be ineffective, as determined by the cognizant OCMI, is not required to have a fixed gas fire extinguishing system; and

(5) Where the amount of carbon dioxide gas required in a fixed fire extinguishing system can be supplied by one portable extinguisher or a semiportable extinguisher, such an extinguisher may be used subject to the following:

(i) Cylinders shall be installed in a fixed position outside the space protected;

(ii) The applicator shall be installed in a fixed position so as to discharge into the space protected; and

(iii) Controls shall be installed in an accessible location outside the space protected.

(c) The following spaces must be equipped with a fire detecting system of an approved type that is installed in accordance with § 76.27 in subchapter H of this chapter, except when a fixed gas fire extinguishing system that is capable of automatic discharge upon heat detection is installed or when the space is manned:

(1) A space containing propulsion machinery;

(2) A space containing an internal combustion engine of more than 50 hp;

(3) A space containing an oil fired boiler;

(4) A space containing machinery powered by gasoline or any other fuels having a flash point of 43.3° C (110° F) or lower; and

(5) A space containing a fuel tank for gasoline or any other fuel having a flash point of 43.3° C (110° F) or lower.

(d) All grills, broilers, and deep fat fryers must be fitted with a grease extraction hood in compliance with § 181.425.

(e) Each overnight accommodation space on a vessel with overnight accommodations for passengers must be fitted with an independent modular smoke detecting and alarm unit in compliance with § 181.450.

(f) An enclosed vehicle space must be fitted with an automatic sprinkler system that meets the requirements of § 76.25 in subchapter H of this chapter; and

(1) A fire detecting system of an approved type that is installed in accordance with § 76.27 in subchapter H of this chapter; or

(2) A smoke detecting system of an approved type that is installed in accordance with § 76.33 in subchapter H of this chapter.

(g) A partially enclosed vehicle space must be fitted with a manual sprinkler system that meets the requirements of § 76.23 in subchapter H of this chapter.

§ 181.410 Fixed gas fire extinguishing systems.

(a) *General.* (1) A fixed gas fire extinguishing system aboard a vessel must be approved by the Commandant, and be custom engineered to meet the requirements of this section unless the system meets the requirements of § 181.420.

(2) System components must be listed and labeled by an independent laboratory. A component from a different system, even if from the same manufacturer, must not be used unless included in the approval of the installed system.

(3) System design and installation must be in accordance with the Marine Design, Installation, Operation, and Maintenance Manual approved for the system by the Commandant.

(4) A fixed gas fire extinguishing system may protect more than one space. The quantity of extinguishing agent must be at least sufficient for the space requiring the greatest quantity as determined by the requirements of paragraphs (f)(4) and (g)(2) of this section.

(b) *Controls.* (1) Controls and valves for operation of fixed gas fire extinguishing system must be:

(i) Located outside the space protected by the system; and

(ii) Not located in a space that might be inaccessible in the event of fire in the space protected by the system.

(2) Except as provided in paragraph (c)(2) of this section, release of an

extinguishing agent into a space must require tow distinct operations.

(3) A system must have local manual controls at the storage cylinders capable of releasing the extinguishing agent. In addition, a normally manned space must have remote controls for releasing the extinguishing agent at the primary exit from the space.

(4) Remote controls must be located in a breakglass enclosure to preclude accidental discharge.

(5) Valves and controls must be of an approved type and protected from damage or accidental activation. A pull cable used to activate the system controls must be enclosed in conduit.

(6) A system protecting more than one space must have a manifold with a normally closed stop valve for each space protected.

(7) A gas actuated valve or device must be capable of manual override at the valve or device.

(8) A system, that has more than one storage cylinder for the extinguishing agent and that relies on pilot cylinders to activate the primary storage cylinders, must have at least two pilot cylinders. Local manual controls, in compliance with paragraph (b)(3) of this section, must be provided to operate the pilot cylinders but are not required for the primary storage cylinders.

(9) A system protecting a manned space must be fitted with an approved time delay and alarm arranged to require the alarm to sound for at least 20 seconds or the time necessary to escape from the space, whichever is greater, before the agent is released into the space. Alarms must be conspicuously and centrally located. The alarm must be powered by the extinguishing agent.

(10) A device must be provided to automatically shut down power ventilation serving the protected space and engines that draw intake air from the protected space prior to release of the extinguishing agency into the space.

(11) Controls and storage cylinders must not be in a locked space unless the key is in a breakglass type box conspicuously located adjacent to the space.

(c) *Storage space.* (1) Except as provided in paragraph (c)(2) of this section, a storage cylinder for a fixed gas extinguishing system must be:

(i) Located outside the space protected by the system; and

(ii) Not located in a space that might be inaccessible in the event of a fire in the space protected by the system.

(2) A normally unoccupied space of less than 170 cubic meters (6,000 cubic feet) may have the storage cylinders located within the space protected. When the storage cylinders are located in the space:

(i) The system must be capable of automatic operation by a heat actuator within the space; and

(ii) Have manual controls in compliance with paragraph (b) of this section except for paragraphs (b)(2) and (b)(3).

(3) A space containing a storage cylinder must be maintained at a temperature within the range from −30° C (−20° F) to 55° C (130° F) or at another temperature as listed by the independent laboratory and stated in the manufacturer's approved manual.

(4) A storage cylinder must be securely fastened, supported, and protected against damage.

(5) A storage cylinder must be accessible and capable of easy removal for recharging and inspection. Provisions must be available for weighing each storage cylinder in place.

(6) Where subject to moisture, a storage cylinder must be installed to provide a space of at least 51 millimeters (2 inches) between the deck and the bottom of the storage cylinder.

(7) A Halon 1301 storage cylinder must be stowed in an upright position unless otherwise listed by the independent laboratory. A carbon dioxide cylinder may be inclined not more than 30° from the vertical, unless fitted with flexible or bent siphon tubes, in which case they may be inclined not more than 80° from the vertical.

(8) Where a check valve is not fitted on an independent storage cylinder discharge, a plug or cap must be provided for closing the outlet resulting from storage cylinder removal.

(9) Each storage cylinder must meet the requirements of § 147.60 in subchapter N of this chapter, or other standard specified by the Commandant.

(10) A storage cylinder space must have doors that open outwards or be fitted with kickout panels installed in each door.

(d) *Piping.* (1) A pipe, valve, or fitting of ferrous material must be protected inside and outside against corrosion unless otherwise approved by the Commandant. Aluminum or other low melting material must not be used for a component of a fixed gas fire extinguishing system except as specifically approved by the Commandant.

(2) A distribution line must extend at least 51 millimeters (2 inches) beyond the last orifice and be closed with a cap or plug.

(3) Piping, valves, and fittings must be securely supported, and where necessary, protected against damage.

(4) Drains and dirt traps must be fitted where necessary to prevent the accumulation of dirt or moisture and located in accessible locations.

(5) Piping must be used for no other purpose except that it may be incorporated with the fire detecting system.

(6) Piping passing through accommodation spaces must not be fitted with drains or other openings within such spaces.

(7) Installation test requirements for carbon dioxide systems. The distribution piping of a carbon dioxide fixed gas extinguishing systems must be tested as required by this paragraph, upon completion of the piping installation, using only carbon dioxide, compressed air, or nitrogen gas.

(i) Piping between a storage cylinder and a stop valve in the manifold must be subjected to a pressure of 6,894 kPa (1,000 psi), except as permitted in paragraph (d)(7)(iii) of this section. Without additional gas being introduced to the system, the pressure drop must not exceed 2,068 kPa (300 psi) after two minutes.

(ii) A distribution line to a space protected by the system must be subjected to a test similar to that described in paragraph (d)(7)(i) of this section except the pressure used must be 4,136 kPa (600 psi). For the purpose of this test, the distribution piping must be capped within the space protected at the first joint between the nozzles and the storage cylinders.

(iii) A small independent system protecting a space such as a paint locker may be tested by blowing out the piping with air at a pressure of not less than 689 kPa (100 psi) instead of the tests prescribed in the paragraphs (d)(7)(i) and (d)(7)(ii) of this section.

(8) Installation test requirements for Halon 1301 systems. The distribution piping of a Halon 1301 fixed gas extinguishing system must be tested, as required by this paragraph, upon completion of the piping installation, using only carbon dioxide, compressed air, or nitrogen.

(i) When pressurizing the piping, pressure must be increased in small increments. Each joint must be subjected to a soap bubble leak test, and all joints must be leak free.

(ii) Piping between the storage cylinders and the manifold stop valve must be subjected to a leak test conducted at a pressure of 4,136 kPa (600 psi). Without additional gas being added to the system, there must be no loss of pressure over a two minute period after thermal equilibrium is reached.

(iii) Distribution piping between the manifold stop valve and the first nozzle in the system must be capped and pneumatically tested for a period of 10 minutes at 1,034 kPa (150 psi). At the end of 10 minutes, the pressure drop must not exceed 10% of the test pressure.

(e) *Pressure relief.* When required by the cognizant OCMI, spaces that are protected by a fixed gas fire extinguishing system and that are relatively air tight, such as refrigeration spaces, paint lockers, etc., must be provided with suitable means for relieving excessive pressure within the space when the agent is released.

(f) *Specific requirements for carbon dioxide systems.* A custom engineered fixed gas fire extinguishing system, which uses carbon dioxide as the extinguishing agent, must meet the requirements of this paragraph.

(1) Piping, valves, and fittings must have a bursting pressure of not less than 41,360 kPa (6,000 psi). Piping, in nominal sizes of not more than 19 millimeters (0.75 inches), must be at least Schedule 40 (standard weight), and in nominal sizes of over 19 millimeters (0.75 inches), must be at least Schedule 80 (extra heavy).

(2) A pressure relief valve or equivalent set to relieve at between 16,550 and 19,300 kPa (2,400 and 2,800 psi) must be installed in the distribution manifold to protect the piping from over-pressurization.

(3) Nozzles must be approved by the Commandant.

(4) When installed in a machinery space, paint locker, a space containing flammable liquid stores, or a space with a fuel tank, a fixed carbon dioxide system must meet the following requirements.

(i) The quantity of carbon dioxide in kilograms (pounds) that the system must be capable of providing to a space must not be less than the gross volume of the space divided by the appropriate factor given in Table 181.410(f)(4)(i). If fuel can drain from a space being protected to an adjacent space or if the spaces are not entirely separate, the volume of both spaces must be used to determine the quantity of carbon dioxide to be provided. The carbon dioxide must be arranged to discharge into both such spaces simultaneously.

TABLE 181.410(f)(4)(i)

Factor	Gross volume of space in cubic meters (feet)	
	Over	Not Over
0.94 (15)	.....	14 (500)
1.0 (16)	14 (500)	45 (1,600)

TABLE 181.410(f)(4)(i)—Continued

Factor	Gross volume of space in cubic meters (feet)	
	Over	Not Over
1.1 (18)	45 (1,600)	125 (4,500)
1.2 (20)	125 (4,500)	1400 (50,000)
1.4 (22)	1400 (50,000)	.....

(ii) The minimum size of a branch line to a space must be as noted in Table 181.410(f)(4)(ii).

TABLE 181.410(f)(4)(ii)

Maximum quantity of carbon dioxide required kg (lbs)	Minimum nominal pipe size mm (inches)
45.4 (100)	12.7 (0.5)
102 (225)	19 (0.75)
136 (300)	25 (1.0)
272 (600)	30 (1.25)
454 (1000)	40 (1.5)
1111 (2450)	50 (2.0)
1134 (2,500)	65 (2.5)
2018 (4,450)	75 (3.0)
3220 (7,100)	90 (3.5)
4739 (10,450)	100 (4.0)
6802 (15,000)	113 (4.5)

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

(iv) The number, type, and location of discharge outlets must provide uniform distribution of carbon dioxide throughout a space.

(v) The area of each discharge outlet must 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 millimeters is determined by multiplying the factor 0.015 (0.0022 if using square inches) by the total capacity in kilograms of all carbon dioxide cylinders in the system, except in no case must the outlet area be of less than 71 square millimeters (0.110 square inches if using pounds).

(vi) The discharge of at least 85 percent of the required amount of carbon dioxide must be completed within two minutes.

(5) When installed in an enclosed ventilation system for rotating electrical propulsion equipment a fixed carbon dioxide extinguishing system must meet the following requirements.

(i) The quantity of carbon dioxide in kilograms must be sufficient for initial and delayed discharges as required by this paragraph. The initial discharge must be equal to the gross volume of the system divided by 160 (10 if using pounds) for ventilation systems having a volume of less than 57 cubic meters (2,000 cubic feet), or divided by 192 (12 if using pounds) for ventilation systems having a volume of at least 57 cubic meters (2,000 cubic feet). In addition, there must be sufficient carbon dioxide available to permit delayed discharges to maintain at least a 25 percent concentration until the equipment can be stopped. If the initial discharge achieves this concentration, a delayed discharge is not required.

(ii) The piping sizes for the initial discharge must be in accordance with Table 181.410(f)(4)(ii) and the discharge of the required amount must be completed within two minutes.

(iii) Piping for the delayed discharge must not be less than 12.7 millimeters (0.5 inches) nominal pipe size, and need not meet specific requirement for discharge rate.

(iv) Piping for the delayed discharge may be incorporated with the initial discharge piping.

(6) When installed in a cargo space a fixed carbon dioxide extinguishing system must meet the following requirements.

(i) The number of kilograms (pounds) of carbon dioxide required for each space in cubic meters (feet) must be equal to the gross volume of the space in cubic meters (feet) divided by 480 (30 if using pounds).

(ii) System piping must be of at least 19 millimeters (0.75 inches).

(iii) No specific discharge rate is required.

(g) *Specific requirements for Halon 1301 systems.* (1) A custom engineering fixed gas fire extinguishing system, which uses Halon 1301, must comply with the applicable sections of UL Standard 1058 ''Halogenated Agent Extinguishing System Units,'' and the requirements of this paragraph.

(2) The Halon 1301 quantity and discharge requirements of UL 1058 apply, with the exception that the Halon 1301 design concentration must be 6 percent at the lowest ambient temperature expected in the space. If the lowest temperature is not known, a temperature of −18° C (0° F) must be assumed.

(3) Each storage cylinder in a system must have the same pressure and volume.

(4) Computer programs used in designing systems must have been approved by an independent laboratory.

Note to § 181.410(g): As of Jan. 1, 1994, the United States banned the production of Halon. The Environmental Protection Agency placed significant restrictions on the servicing and maintenance of systems containing Halon. Vessels operating on an international voyage, subject to SOLAS requirements, are prohibited from installing

fixed gas fire extinguishing systems containing Halon.

§ 181.420 Pre-engineered fixed gas fire extinguishing systems.

(a) A pre-engineered fixed gas fire extinguishing system must:

(1) Be approved by the Commandant;

(2) Be capable of manual actuation from outside the space in addition to automatic actuation by a heat detector;

(3) Automatically shut down all power ventilation systems and all engines that draw intake air from within the protected space; and

(4) Be installed in accordance with the manufacturer's instructions.

(b) A vessel on which a pre-engineered fixed gas fire extinguishing system is installed must have the following equipment at the operating station:

(1) A light to indicate discharge;

(2) An audible alarm that sounds upon discharge; and

(3) A means to reset devices used to automatically shut down ventilation systems and engines as required by paragraph (a)(3) of this section.

(c) Only one pre-engineered fixed gas fire extinguishing system is allowed to be installed in each space protected by such a system.

§ 181.425 Galley hood fire extinguishing systems.

(a) A grease extraction hood required by § 181.400 must meet UL 710 ''Exhaust Hoods for Commercial Cooking Equipment,'' or other standard specified by the Commandant.

(b) A grease extraction hood must be equipped with a dry or wet chemical fire extinguishing system meeting the applicable sections of NFPA 17 ''Dry Chemical Extinguishing Systems,'' 17A ''Wet Chemical Extinguishing Systems,'' or other standard specified by the Commandant, and must be listed by an independent laboratory recognized by the Commandant.

§ 181.450 Independent modular smoke detecting units.

(a) An independent modular smoke detecting unit must:

(1) Meet UL Standard 217 and be listed as a ''Single Station Smoke detector—Also suitable for use in Recreational Vehicles,'' or other standard specified by the Commandant;

(2) Contain an independent power source; and

(3) Alarm on low power.

Subpart E—Portable Fire Extinguishers

§ 181.500 Required number, type, and location.

(a) Each portable fire extinguisher on a vessel must be of an approved type. The minimum number of portable fire extinguishers required on a vessel must be acceptable to the cognizant OCMI, but must be not less than the minimum number required by Table 181.500(a) and other provisions of this section.

TABLE 181.500(a)

Space protected	Minimum No. required	Type extinguisher permitted		
		CG class	Medium	Min size
Operating Station	1	B–I, C–I	Halon	1.1 kg (2.5 lb).
			C02	1.8kg (4 lb).
			Dry Chemical	0.9 kg (2 lb).
Machinery Space	1	B–II, C–II located just outside exit.	C02	6.8 kg (15 lb).
			Dry chemical	4.5 kg (10 lb).
Open Vehicle Deck	1 for every 10 vehicles	B–II	Foam	9.5 L (2.5 gal).
			Halon	4.5 kg (10 lb).
			C02	6.8 kg (15 lb).
			Dry Chemical	4.5 kg (10 lb).
Accomodation Space	1 for each 232.3 square meters (2.500 square feet) or fraction thereof.	A–II	Foam	9.5 L (2.5 gal).
			Dry Chemical	2.3 kg (5 lb).
Galley, Pantry, Concession Stand.	1	A–II, B–II	Foam	9.5 L (2.5 gal).
			Dry Chemical	4.5 kg (10 lb).

(b) A vehicle deck without a fixed sprinkler system and exposed to weather must have one B–II portable fire extinguisher for every five vehicles, located near an entrance to the space.

(c) The cognizant OCMI may permit the use of a larger portable fire extinguisher, or a semiportable fire extinguisher, in lieu of those required by this section.

(d) The frame or support of each B–V fire extinguisher permitted by paragraph (d) of this section must be welded or otherwise permanently attached to a bulkhead or deck.

§ 181.520 Installation and location.

Portable fire extinguishers must be located so that they are clearly visible and readily accessible from the space being protected. The installation and location must be to the satisfaction of the Officer in Charge, Marine Inspection.

Subpart F—Additional Equipment

§ 181.600 Fire axe.

A vessel of more than 19.8 meters (65 feet) in length must have at least one fire axe located in or adjacent to the primary operating station.

§ 181.610 Fire bucket.

A vessel not required to have a power driven fire pump by § 181.610 must have at least three 9.5 liter (2½ gallon) buckets, with an attached lanyard satisfactory to the cognizant OCMI, placed so as to be easily available during an emergency. The words ''FIRE BUCKET'' must be stenciled in a contrasting color on each bucket.

PART 182—MACHINERY INSTALLATION

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Authority: 46 U.S.C. 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 182.100 Intent.

This part contains requirements for the design, construction, installation, and operation of propulsion and auxiliary machinery, piping and pressure systems, steering apparatus, and associated safety systems. Machinery and equipment installed on each vessel must be suitable for the vessel and its operation and for the purpose intended. All machinery and equipment must be installed and maintained in such a manner as to afford adequate protection from causing fire, explosion, machinery failure, and personnel injury.

§ 182.115 Applicability to existing vessels.

(a) Except as otherwise required by paragraphs (b), (c) and (d) of this section, an existing vessel must comply with the regulations on machinery, bilge and ballast system equipment, steering apparatus, and piping systems or components that were applicable to the vessel on March 10, 1996 or, as an alternative, the vessel may comply with the regulations in this part.

(b) New installations of machinery, bilge and ballast system equipment, steering equipment, and piping systems or components on an existing vessel, which are completed to the satisfaction of the cognizant Officer in Charge, Marine Inspection (OCMI) on or after March 11, 1996, must comply with the regulations of this part. Replacement of existing equipment installed on the vessel prior to March 11, 1996, need not comply with the regulations in this part.

(c) An existing vessel equipped with machinery powered by gasoline or other fuels having a flash point of 43.3° C (110° F) or lower must comply with the requirements of § 182.410(c) on or before March 11, 1999.

(d) On or before March 11, 1999, an existing vessel must comply with the bilge high level alarm requirements in § 182.530.

§ 182.130 Alternative standards.

A vessel of not more than 19.8 meters (65 feet) in length carrying not more than 12 passengers propelled by gasoline or diesel internal combustion engines, other than a High Speed Craft, may comply with the following American Boat and Yacht Council (ABYC) Projects or 33 CFR subchapter S (Boating Safety), where indicated in this part, in lieu of complying with those requirements:

(a) H–2—''Ventilation of Boats Using Gasoline'', or 33 CFR 183, Subpart K, ''Ventilation'';

(b) H–22—''DC Electric Bilge Pumps Operating Under 50 Volts'';

(c) H–24—''Gasoline Fuel Systems'', or 33 CFR 183, Subpart J—''Fuel System'';

(d) H–25—''Portable Gasoline Fuel Systems for Flammable Liquids'';

(e) H–32—''Ventilation of Boats Using Diesel Fuel'';

(f) H–33—''Diesel Fuel Systems'';

(g) P–1—''Installation of Exhaust Systems for Propulsion and Auxiliary Engines''; and

(h) P–4—''Marine Inboard Engines''.

Subpart B—Propulsion Machinery

§ 182.200 General.

(a) Propulsion machinery must be suitable in type and design for propulsion requirements of the hull in which it is installed and capable of operating at constant marine load under such requirements without exceeding its designed limitations.

(b) All engines must have at least two means for stopping the engine(s) under any operating conditions. The fuel oil shutoff required at the engine by § 182.455(b)(4) will satisfy one means of stopping the engine.

§ 182.220 Installations.

(a) Except as otherwise provided in this section, propulsion machinery installations must comply with the provisions of this part.

(b) The requirements for machinery and boilers for steam and electrically propelled vessels are contained in applicable regulations in subchapter F (Marine Engineering) and subchapter J (Electrical Engineering) of this chapter.

(c) Propulsion machinery of an unusual type for small passenger vessels must be given separate consideration and is subject to such requirements as determined necessary by the cognizant OCMI. These unusual types of propulsion machinery include:

(1) Gas turbine machinery installations;

(2) Air screws;

(3) Hydraulic jets; and

(4) Machinery installations using lift devices.

Subpart C—Auxiliary Machinery

§ 182.310 Installations.

(a) Auxiliary machinery of the internal combustion piston type must comply with the provisions of this part.

(b) Auxiliary machinery of the steam or gas turbine type will be given separate consideration and must meet the applicable requirements of subchapter F (Marine Engineering) of this chapter as determined necessary by the cognizant OCMI.

(c) Auxiliary boilers and heating boilers and their associated piping and fittings will be given separate consideration and must meet the applicable requirements of subchapter F (Marine Engineering) of this chapter as determined necessary by the cognizant OCMI, except that heating boilers must be tested or examined every three years.

§ 182.320 Water heaters.

(a) A water heater must meet the requirements of Parts 53 and 63 of this chapter if rated at more than 689 kPa (100 psig) or 121° C (250° F).

(b) A water heater must meet the requirements of Parts 53 and 63 of this chapter if rated at not more than 689 kPa (100 psig) and 121° C (250° F), except that an electric water heater is also acceptable if it:

(1) Has a capacity of not more than 454 liters (120 gallons);

(2) Has a heat input of not more than 58.6 kilowatts (200,000 Btu per hour);

(3) Is listed by Underwriters Laboratories (UL) under UL 174, ''Household Electric Storage Tank Water Heaters,'' UL 1453, ''Electric Booster and Commercial Storage Tank Water Heaters,'' or other standard specified by the Commandant; and

(4) Is protected by a pressure-temperature relief device.

(c) A water heater must be installed and secured from rolling by straps or other devices to the satisfaction of the cognizant OCMI.

§ 182.330 Pressure vessels.

All unfired pressure vessels must be installed to the satisfaction of the cognizant OCMI. The design, construction, and original testing of such unfired pressure vessels must meet the applicable requirements of subchapter F (Marine Engineering) of this chapter.

Subpart D—Specific Machinery Requirements

§ 182.400 Applicability.

(a) This subpart applies to all propulsion and auxiliary machinery installations of the internal combustion piston type.

(b) Requirements of this subpart that are only applicable to engines that use gasoline or other fuels having a flashpoint of 43.3° C (110° F) or lower are specifically designated in each section.

(c) Requirements of this subpart that are only applicable to engines that use diesel fuel or other fuels having a flashpoint of more than 43.3° C (110° F) are specifically designated in each section.

(d) Where no specific gasoline, diesel, or other fuel designation exists, the requirements of this subpart are applicable to all types of fuels and machinery.

§ 182.405 Fuel restrictions.

The use of alternative fuels, other than diesel fuel or gasoline, as fuel for an internal combustion engine will be reviewed on a case by case basis by Commandant.

§ 182.410 General requirements.

(a) Starting motors, generators, and any spark producing device must be mounted as high above the bilges as practicable. Electrical equipment in spaces, compartments, or enclosures that contain machinery powered by, or fuel tanks for, gasoline or other fuels having a flashpoint of 43.3° C (110° F) or lower must be explosion-proof, intrinsically safe, or ignition protected for use in a gasoline atmosphere as required by § 183.530 of this chapter.

(b) Gauges to indicate engine revolutions per minute (RPM), jacket water discharge temperature, and lubricating oil pressure must be provided for all propulsion engines installed in the vessel. The gauges must be readily visible at the operating station.

(c) An enclosed space containing machinery powered by gasoline or other fuels having a flash point of 43.3° C (110° F) or lower must be equipped with a flammable vapor detection device in compliance with § 182.480.

(d) In systems and applications where flexible hoses are permitted to be clamped:

(1) Double hose clamping is required where practicable;

(2) The clamps must be of a corrosion resistant metallic material;

(3) The clamps must not depend on spring tension for their holding power; and

(4) Two clamps must be used on each end of the hose, or one hose clamp can be used if the pipe ends are expanded or beaded to provide a positive stop against hose slippage.

§ 182.415 Carburetors.

(a) All carburetors except the downdraft type must be equipped with integral or externally fitted drip collectors of adequate capacity and arranged so as to permit ready removal of fuel leakage. Externally fitted drip collectors, must be covered with flame screens. Drip collectors, where practicable, should automatically drain back to engine air intakes.

(b) All gasoline engines installed in a vessel, except outboard engines, must be equipped with an acceptable means of backfire flame control. Installation of backfire flame arresters bearing basic Approval Numbers 162.015 or 162.041 or engine air and fuel induction systems bearing basic Approval Numbers 162.042 or 162.043 may be continued in use as long as they are serviceable and in good condition. New installations or replacements must meet the applicable requirements of this section.

(c) The following are acceptable means of backfire flame control for gasoline engines:

(1) A backfire flame arrester complying with Society of Automotive Engineers (SAE) J–1928, ''Devices Providing Backfire Flame Control for Gasoline Engines in Marine Applications,'' or UL 1111, ''Marine Carburetor Flame Arrestors,'' and marked accordingly. The flame arrester must be suitably secured to the air intake with a flametight connection.

(2) An engine air and fuel induction system that provides adequate protection from propagation of backfire flame to the atmosphere equivalent to that provided by an acceptable backfire flame arrester. A gasoline engine utilizing an air and fuel induction system, and operated without an approved backfire flame arrester, must either include a reed valve assembly or be installed in accordance with SAE J–1928, or other standard specified by the Commandant.

(3) An arrangement of the carburetor or engine air induction system that will disperse any flames caused by engine backfire. The flames must be dispersed to the atmosphere outside the vessel in such a manner that the flames will not endanger the vessel, persons on board, or nearby vessels and structures. Flame dispersion may be achieved by attachments to the carburetor or location of the engine air induction system. All attachments must be of metallic construction with flametight connections and firmly secured to withstand vibration, shock, and engine backfire. Such installations do not require formal approval and labeling but must comply with this subpart.

(4) An engine air induction system on a vessel with an integrated engine-vessel design must be approved, marked, and tested under § 162.043 in subchapter Q of this chapter, or other standard specified by the Commandant.

§ 182.420 Engine cooling.

(a) Except as otherwise provided in paragraphs (b), (c), (d), and (e) of this section, all engines must be water cooled and meet the requirements of this paragraph.

(1) The engine head, block, and exhaust manifold must be water-jacketed and cooled by water from a pump that operates whenever the engine is operating.

(2) A suitable hull strainer must be installed in the circulating raw water intake line of an engine cooling water system.

(3) A closed fresh water system may be used to cool the engine.

(b) An engine water cooling system on a vessel of not more than 19.8 meters (65 feet) in length carrying not more than 12 passengers, may comply with the requirements of ABYC Project P–4, ''Marine Inboard Engines,'' instead of the requirements of paragraph (a) of this section.

(c) On a vessel of not more than 19.8 meters (65 feet) in length carrying not more than 12 passengers, a propulsion gasoline engine may be air cooled when in compliance with the requirements of ABYC Project P–4.

(d) An auxiliary gasoline engine may be air cooled when:

(1) It has a self-contained fuel system and it is installed on an open deck; or

(2) On a vessel of not more than 19.8 meters (65 feet) in length carrying not more than 12 passengers, it is in compliance with the requirements of ABYC P–4.

(e) A propulsion or auxiliary diesel engine may be air cooled or employ an air cooled jacket water radiator when:

(1) Installed on an open deck and sufficient ventilation for machinery cooling is available;

(2) Installed in an enclosed or partially enclosed space for which ventilation for machinery cooling is provided, which complies with the requirement of § 182.465(b), and other necessary safeguards are taken so as not to endanger the vessel; or

(3) Installed on a vessel of not more than 19.8 meters (65 feet) in length carrying not more than 12 passengers, in compliance with the requirements of ABYC Project P–4.

§ 182.422 Keel and grid cooler installations.

(a) A keel or grid cooler installation used for engine cooling must be designed to prevent flooding.

(b) Except as provided in paragraph (e), a shutoff valve must be located where the cooler piping penetrates the shell, as near the shell as practicable, except where the penetration is forward of the collision bulkhead.

(c) The thickness of the inlet and discharge connections, outboard of the shutoff valves required by paragraph (b) of this section, must be at least Schedule 80.

(d) Short lengths of approved nonmetallic flexible hose, fixed by two hose clamps at each end of the hose, may be used at machinery connections for a keel cooler installation.

(e) Shutoff valves are not required for keel or grid coolers that are integral to the hull. A keel cooler is considered integral to the hull if the following conditions are satisfied:

(1) The cooler structure is fabricated from material of the same thickness and quality as the hull;

(2) The flexible connections are located well above the deepest subdivision draft;

(3) The end of the structure is faired to the hull with a slope no greater than 4 to 1; and

(4) Full penetration welds are employed in the fabrication of the structure and its attachment to the hull.

§ 182.425 Engine exhaust cooling.

(a) Except as otherwise provided in this paragraph, all engine exhaust pipes must be water cooled.

(1) Vertical dry exhaust pipes are permissible if installed in compliance with §§ 177.405(b) and 177.970 of this chapter.

(2) Horizontal dry exhaust pipes are permitted only if:

(i) They do not pass through living or berthing spaces;

(ii) They terminate above the deepest load waterline;

(iii) They are so arranged as to prevent entry of cold water from rough or boarding seas;

(iv) They are constructed of corrosion resisting material at the hull penetration; and

(v) They are installed in compliance with §§ 177.405(b) and 177.970 of this chapter.

(b) The exhaust pipe cooling water system must comply with the requirements of this paragraph.

(1) Water for cooling the exhaust pipe must be obtained from the engine cooling water system or a separate engine driven pump.

(2) Water for cooling the exhaust pipe, other than a vertical exhaust, must be injected into the exhaust system as near to the engine manifold as practicable. The water must pass through the entire length of the exhaust pipe.

(3) The part of the exhaust system between the point of cooling water injection and the engine manifold must be water-jacketed or effectively insulated and protected in compliance with §§ 177.405(b) and 177.970 of this chapter.

(4) Vertical exhaust pipes must be water-jacketed or suitably insulated as required by § 182.430(g).

(5) When the exhaust cooling water system is separate from the engine cooling water system, a suitable warning device, visual or audible, must be installed at the operating station to indicate any reduction in normal water flow in the exhaust cooling system.

(6) A suitable hull strainer must be installed in the circulating new water intake line for the exhaust cooling system.

(c) Engine exhaust cooling system built in accordance with the requirements of ABYC Project P–1, ''Installation of Exhaust Systems for Propulsion and Auxiliary Machinery,'' will be considered as meeting the requirements of this section.

§ 182.430 Engine exhaust pipe installation.

(a) The design of all exhaust systems must ensure minimum risk of injury to personnel. Protection must be provided in compliance with § 177.970 of this chapter at such locations where persons or equipment might come in contact with an exhaust pipe.

(b) Exhaust gas must not leak from the piping or any connections. The piping must be properly supported by noncombustible hangers or blocks.

(c) The exhaust piping must be so arranged as to prevent backflow of water from reaching engine exhaust ports under normal conditions.

(d) An exhaust pipe discharge located less than 75 millimeters (3 inches) above the deepest load waterline must be installed with a means to prevent the entrance of water.

(e) Pipes used for wet exhaust lines must be Schedule 80 or corrosion-resistant material and adequately protected from mechanical damage.

(f) Where flexibility is necessary, a section of flexible metallic hose may be used. Nonmetallic hose may be used for wet exhaust systems provided it is especially adapted to resist the action of oil, acid, and heat, has a wall thickness sufficient to prevent collapsing or panting, and is double clamped where practicable.

(g) Where an exhaust pipe passes through a watertight bulkhead, the watertight integrity of the bulkhead must be maintained. Noncombustible packing must be used in bulkhead penetration glands for dry exhaust systems. A wet exhaust pipe may be welded to a steel or equivalent bulkhead in way of a penetration and a fiberglass wet exhaust pipe may be fiberglassed to a fiberglass reinforced plastic bulkhead if suitable arrangements are provided to relieve the stresses resulting from the expansion of the exhaust piping.

(h) A dry exhaust pipe must:

(1) If it passes through a combustible bulkhead or partition, be kept clear of, and suitably insulated or shielded from, combustible material.

(2) Be provided with noncombustible hangers and blocks for support.

(i) An exhaust pipe discharge terminating in a transom must be located as far outboard as practicable so that exhaust gases cannot reenter the vessel.

(j) Arrangements must be made to provide access to allow complete inspection of the exhaust piping throughout its length.

(k) An exhaust installation subject to pressures in excess of 135 kPa (5 psig) gauge or having exhaust pipes passing through living or working spaces must meet the material requirements of Part 56 of subchapter F (Marine Engineering) of this chapter.

(1) Engine exhaust installations built in accordance with the requirements of ABYC Project P–1, will be considered as meeting the requirements of this section.

§ 182.435 Integral fuel tanks.

(a) Gasoline fuel tanks must be independent of the hull.

(b) Diesel fuel tanks may not be built integral with the hull of a vessel unless the hull is made of:

(1) Steel;

(2) Aluminum; or

(3) Fiber reinforced plastic when:

(i) Sandwich construction is not used; or

(ii) Sandwich construction is used with only a core material of closed cell polyvinyl chloride.

(c) During the initial inspection for certification of a vessel, integral fuel tanks must withstand a hydrostatic pressure test of 35 kPa (5 psig), or the maximum pressure head to that they may be subjected in service, whichever is greater. A standpipe of 3.5 meters (11.5 feet) in height attached to the tank may be filled with water to accomplish the 35 kPa (5 psig) test.

§ 182.440 Independent fuel tanks.

(a) *Materials and construction.* Independent fuel tanks must be designed and constructed of materials in compliance with the requirements of this paragraph.

(1) The material used and the minimum thickness allowed must be as indicated in Table 182.440(a)(1), except that other materials that provide equivalent safety may be approved for use under paragraph (a)(3) of this section. Tanks having a capacity of more than 570 liters (150 gallons) must be designed to withstand the maximum head to which they may be subjected in service, but in no case may the thickness be less than that specified in Table 182.440(a)(1).

TABLE 182.440(a)(1)

Material	ASTM specification (latest edition)	Thickness in millimeters (inches) and [gage number] [1] vs. tank capacities for:		
		4 to 300 liter (1 to 80 gal) tanks	More than 300 liter (80 gal) and not more than 570 liter (150 gal) tanks	Over 570 liter (150 gal) [2] tanks
Nickel-cooper	B127, hot rolled sheet or plate.	0.94 (0.037) [USSG 20] [3]	1.27 (0.050) [USSG 18]	2.72 (0.107) [USSG 12]
Copper-nickel [4]	B122, UNS alloy C71500	1.14 (0.045) [AWG 17]	1.45 (0.057) [AWG 15]	3.25 (0.128) [AWG 8]
Copper [4]	B152, UNS alloy C11000	1.45 (0.057) [AWG 15]	2.06 (0.081) [AWG 12]	4.62 (0.182) [AWG 5]
Copper-silicon [4]	B97,alloys A, B, and C	1.29 (0.051) [AWG 16]	1.63 (0.064) [AWG 14]	3.66 (0.144) [AWG 7]
Steel or iron [5,6]	* * * * *	1.90 (0.0747) [MSG 14]	2.66 (0.1046) [MSG 12]	4.55 (0.1793) [MSG 7]
Aluminum [7]	B209, alloy 5052, 5083, 5086.	6.35 (0.250) [USSG 3]	6.35 (0.250) [USSG 3]	6.35 (0.250) [USSG 3]
Fiber reinforced plastic	* * * * *	As required [8]	As required [8]	As required [8]

[1] The gage numbers used in this table may be found in many standard engineering reference books. The letters ''USSG'' stand for ''U.S. Standard Gage,'' which was established by the act of March 3, 1892 (15 U.S.C. 206), for sheet and plate iron and steel. The letters ''AWG'' stand for ''American Wire Gage'' (or Brown and Sharpe Gage) for nonferrous sheet thicknesses. The letters ''MSG'' stand for ''Manufacturers' Standard Gage'' for sheet steel thickness.

[2] Tanks over 1514 liters (400 gallons) shall be designed with a factor of safety of four on the ultimate strength of the material used with a design head of not less than 1220 millimeters (4 feet) of liquid above the top of the tank.

[3] Nickel-copper not less than 0.79 millimeter (0.031 inch) [USSG 22] may be used for tanks up to 114-liter (30-gallon) capacity.

[4] Acceptable only for gasoline service.

[5] Gasoline fuel tanks constructed of iron or steel, which are less than 5 millimeter (0.1875) inch) thick, shall be galvanized inside and outside by the hot dip process. Tanks intended for use with diesel oil shall not be internally galvanized.

[6] Stainless steel tanks are not included in this category.

[7] Anodic to most common metals. Avoid dissimilar metal contact with tank body.

[8] The requirements of § 182.440(a)(2) apply.

(2) Fiber reinforced plastic may be used for diesel fuel tanks under the following provisions:

(i) The materials must be fire retardant. Flammability of the material must be determined by the standard test methods in America Society for Testing and Materials (ASTM) D635, ''Rate of Burning and/or Extent and Time of Burning of Self-supporting Plastics in a Horizontal Position,'' and ASTM D2863, ''Measuring the Minimum Oxygen Concentration to Support Candle-like Combustion of Plastics (Oxygen Index),'' or other standard specified by the Commandant. The results of these tests must show that the average extent of burning is less than 10 millimeters (0.394 inches), the average time of burning is less than 50 seconds, and the limiting oxygen index is greater than 21.

(ii) Tanks must meet UL 1102, ''Non integral Marine Fuel Tanks,'' or other standard specified by the Commandant. Testing may be accomplished by an independent laboratory or by the fabricator to the satisfaction of the OCMI.

(iii) Tanks must be designed to withstand the maximum head to which they may be subjected to in service.

(iv) Installation of nozzles, flanges or other fittings for pipe connections to the tanks must be acceptable to the cognizant OCMI.

(v) Baffle plates, if installed, must be of the same material and not less than the minimum thickness of the tank walls. Limber holes at the bottom and air holes at the top of all baffles must be provided. Baffle plates must be installed at the time the tests required by UL Standard 1102, or other standard specified by the Commandant, are conducted.

(3) Materials other than those listed in Table 182.440(a)(1) must be approved by the Commandant. An independent tank using material approved by the Commandant under this paragraph must meet the testing requirements of UL Standard 1102, or other standard specified by the Commandant. Testing may be accomplished by an independent laboratory or by the fabricator to the satisfaction of the OCMI.

(4) Tanks with flanged-up top edges that may trap and hold moisture are prohibited.

(5) Openings for fill pipes, vent pipes, and machinery fuel supply pipes, and openings for fuel level gauges, where used, must be on the topmost surfaces of tanks. Tanks may not have any openings in bottoms, sides, or ends, except for:

(i) An opening fitted with a threaded plug or cap installed for tank cleaning purposes; and

(ii) In a diesel fuel tank, openings for supply piping and tubular gauge glasses.

(6) All tank joints must be welded or brazed. Lap joints may not be used.

(7) Nozzles, flanges, or other fittings for pipe connections to a metal tank must be welded or brazed to the tank. Tank openings in way of pipe connections must be properly reinforced where necessary. Where fuel level gauges are used on a metal tank, the flanges to which gauge fittings are attached must be welded or brazed to the tank. No tubular gauge glasses may be fitted to gasoline fuel tanks. Tubular gauge glasses, if fitted to diesel fuel tanks, must be of heat resistant materials, adequately protected from mechanical damage, and provided at the tank connections with devices that will automatically close in the event of rupture of the gauge or gauge lines.

(8) A metal tank exceeding 760 millimeters (30 inches) in any horizontal dimension must:

(i) Be fitted with vertical baffle plates, which meet subparagraph (a)(9) of this section, at intervals not exceeding 760 millimeters (30 inches) to provide strength and to control the excessive surge of fuel; or

(ii) The owner shall submit calculations to the cognizant OCMI demonstrating the structural adequacy of the tank in a fully loaded static condition and in a worst case dynamic (sloshing) condition.

(9) Baffle plates, where required in metal tanks, must be of the same material and not less than the minimum thickness required in the tank walls and must be connected to the tank walls by welding or brazing. Limber holes at the bottom and air holes at the top of all baffles must be provided.

(10) Iron or steel diesel fuel tanks must not be galvanized on the interior. Galvanizing, paint, or other suitable coating must be used to protect the outside of iron and steel diesel fuel tanks and the inside and outside of iron and steel gasoline fuel tanks.

(b) *Location and installation.* Independent fuel tanks must be located and installed in compliance with the requirements of this paragraph.

(1) Fuel tanks must be located in, or as close as practicable to, machinery spaces.

(2) Fuel tanks and fittings must be so installed as to permit examination, testing, or removal for cleaning with minimum disturbance to the hull structure.

(3) Fuel tanks must be adequately supported and braced to prevent movement. The supports and braces must be insulated from contact with the tank surfaces with a nonabrasive and nonabsorbent material.

(4) All fuel tanks must be electrically bonded to a common ground.

(c) *Tests.* Independent fuel tanks must be tested in compliance with the requirements of this part prior to being used to carry fuel.

(1) Prior to installation, tanks vented to the atmosphere must be hydrostatically tested to, and must withstand, a pressure of 35 kPa (5 psig) or 1½ times the maximum pressure head to which they may be subjected in service, whichever is greater. A standpipe of 3.5 meters (11.5 feet) in height attached to the tank may be filled with water to accomplish the 35 kPa (5 psig) test. Permanent deformation of the tank will not be cause for rejection unless accompanied by leakage.

(2) After installation of the fuel tank on a vessel, the complete installation must be tested in the presence of a marine inspector, or individual specified by the cognizant OCMI, to a head not less than that to which the tank may be subjected in service. Fuel may be used as the testing medium.

(3) All tanks not vented to the atmosphere must be constructed and tested in accordance with § 182.330 of this part.

(d) *Alternative procedures.* A vessel of not more than 19.8 meters (65 feet) in length carrying not more than 12 passengers, with independent gasoline fuel tanks built in accordance with ABYC Project H–24, or 33 CFR 183, Subpart J, or with independent diesel fuel tanks built in accordance with ABYC Project H–33, will be considered as meeting the requirements of this section. However, tanks must not be fabricated from any material not listed in Table 182.440(a)(1) without approval by the Commandant under paragraph (a)(3) of this section.

§ 182.445 Fill and sounding pipes for fuel tanks.

(a) Fill pipes for fuel tanks must be not less than 40 millimeters (1.5 inches) nominal pipe size.

(b) There must be a means of accurately determining the amount of fuel in each fuel tank either by sounding, through a separate sounding pipe or a fill pipe, or by an installed marine type fuel gauge.

(c) Where sounding pipes are used, their openings must be at least as high as the opening of the fill pipe and they must be kept closed at all times except during sounding.

(d) Fill pipes and sounding pipes must be so arranged that overflow of liquid or vapor cannot escape to the inside of the vessel.

(e) Fill pipes and sounding pipes must run as directly as possible, preferably in a straight line, from the deck connection to the top of the tank. Such pipes must terminate on the weather deck and must be fitted with shutoff valves, watertight deck plates, or screw caps, suitably marked for identification. Gasoline fill pipes and sounding pipes must extend to within one-half of their diameter from the bottom of the tank. Diesel fill pipes and sounding pipes may terminate at the top of the tank.

(f) A vessel of not more than 19.8 meters (65 feet) carrying not more than 12 passengers, with a gasoline fuel system built in accordance with ABYC Project H–24, or 33 CFR 183, Subpart J, or with a diesel fuel system built in accordance with ABYC Project H–33, will be considered as meeting the requirements of this section.

(g) Where a flexible fill pipe section is necessary, suitable flexible tubing or hose having high resistance to salt water, petroleum oils, heat and vibration, may be used. Such hose must overlap metallic pipe ends at the least 1½ times the pipe diameter and must be secured at each end by clamps. The flexible section must be accessible and as near the upper end of the fill pipe as practicable. When the flexible section is a nonconductor of electricity, the metallic sections of the fill pipe separated thereby must be joined by a conductor for protection against generation of a static charge when filling with fuel.

§ 182.450 Vent pipes for fuel tanks.

(a) Each unpressurized fuel tank must be fitted with a vent pipe connected to the highest point of the tank.

(b) The net cross sectional area of the vent pipe for a gasoline fuel tank must not be less than that of 19 millimeters (0.75 inches) outer diameter (O.D.) tubing (0.9 millimeter (0.035 Inch) wall thickness, 20 gauge), except that, where the tank is filled under pressure, the net cross sectional area of the vent pipe must be not less than that of the fill pipe.

(c) The minimum net cross sectional area of the vent pipe for diesel fuel tanks must be as follows:

(1) Not less than the cross sectional area of 16 millimeters (0.625 inches) outer diameter (O.D.) tubing (0.9 millimeter (0.035-inch) wall thickness, 20 gauge), if the fill pipe terminates at the top of the tank;

(2) Not less than the cross sectional area of 19 millimeters (0.75 inches) O.D. tubing (0.9 millimeter (0.035-inch) wall thickness, 20 gauge), if the fill pipe extends into the tank; and

(3) Not less than the cross sectional area of the fill pipe if the tank is filled under pressure.

(d) The discharge ends of fuel tank vent pipes must terminate on the hull exterior as high above the waterline as practicable and remote from any hull openings, or they must terminate in U-bends as high above the weather deck as practicable and as far as practicable from openings into any enclosed spaces. Vent pipes terminating on the hull exterior must be installed or equipped to prevent the accidental contamination of the fuel by water under normal operating conditions.

(e) The discharge ends of fuel tank vent pipes must be fitted with removable flame screens or flame arresters. The flame screens must consist of a single screen of corrosion resistant wire of at least 30x30 mesh. The flame screens or flame arresters must be of such size and design as to prevent reduction in the net cross sectional area of the vent pipe and permit cleaning or renewal of the flame screens or arrester elements.

(f) A vessel of not more than 19.8 meters (65 feet) in length carrying not more than 12 passengers, with fuel gasoline tank vents built in accordance with ABYC Project H–24, or 33 CFR 183, Subpart J, or with diesel fuel tank vents built in accordance with ABYC Project H–33, will be considered as meeting the requirements of this section.

(g) Where a flexible vent pipe section is necessary, suitable flexible tubing or hose having high resistance to salt water, petroleum oils, heat and vibration, may be used. Such hose must overlap metallic pipe ends at least 1½ times the pipe diameter and must be secured at each end by clamps. The flexible section must be accessible and as near the upper end of the vent pipe as practicable.

(h) Fuel tank vent pipes shall be installed to gradient upward to prevent fuel from being trapped in the line.

§ 182.455 Fuel piping.

(a) *Materials and workmanship.* The materials and construction of fuel lines, including pipe, tube, and hose, must comply with the requirements of this paragraph.

(1) Fuel lines must be annealed tubing of copper, nickel-copper, or copper-nickel having a minimum wall thickness of 9 millimeters (0.035 inch) except that:

(i) Diesel fuel piping of other materials, such as seamless steel pipe or tubing, which provide equivalent safety may be used;

(ii) Diesel fuel piping of aluminum is acceptable on aluminum hull vessels provided it is a minimum of Schedule 80 wall thickness; and

(iii) when used, flexible hose must meet the requirements of § 182.720(e) of this part.

(2) Tubing connections and fittings must be of nonferrous drawn or forged metal of the flared type except that flareless fittings of the non-bite type may be used when the tubing system is of nickel-copper or copper-nickel. When making tube connections, the tubing must be cut square and flared by suitable tools. Tube ends must be annealed before flaring.

(3) Cocks are prohibited except for the solid bottom type with tapered plugs and union bonnets.

(4) Valves for gasoline fuel must be of a suitable nonferrous type.

(b) *Installation.* The installation of fuel lines, including pipe, tube, and hose, must comply with the requirements of this paragraph.

(1) Gasoline fuel lines must be connected at the top of the fuel tank and run at or above the level of the tank top to a point as close to the engine connection as practicable, except that lines below the level of the tank top are permitted if equipped with anti-siphon protection.

(2) Diesel fuel lines may be connected to the fuel tank at or near the bottom of the tank.

(3) Fuel lines must be accessible, protected from mechanical injury, and effectively secured against excessive movement and vibration by the use of soft nonferrous metal straps which have no sharp edges and are insulated to protect against corrosion. Where passing through bulkheads, fuel lines must be protected by close fitting ferrules or stuffing boxes. All fuel lines and fittings must be accessible for inspection.

(4) Shutoff valves, installed so as to close against the fuel flow, must be fitted in the fuel supply lines, one at the tank connection and one at the engine end of the fuel line to stop fuel flow when servicing accessories. The shutoff valve at the tank must be manually operable from outside the compartment in which the valve is located, preferably from an accessible position on the weather deck. If the handle to the shutoff valve at the tank is located inside the machinery space, it must be located so that the operator does not have to reach more than 300 millimeters (12 inches) into the machinery space and the valve handle must be shielded from flames by the same material the hull is constructed of, or some noncombustible material. Electric solenoid valves must not be used, unless used in addition to the manual valve.

(5) A loop of copper tubing or a short length of flexible hose must be installed in the fuel supply line at or near the engines. The flexible hose must meet the requirements of § 182.720(e).

(6) A suitable metal marine type strainer, meeting the requirements of the engine manufacturer, must be fitted in the fuel supply line in the engine compartment. Strainers must be leak free. Strainers must be the type of opening on top for cleaning screens. A drip pan fitted with flame screen must be installed under gasoline strainers. Fuel filter and strainer bowls must be highly resistant to shattering due to mechanical impact and resistant to failure due to thermal shock. Fuel filters fitted with bowls of other than steel construction must be approved by the Commandant and be protected from mechanical damage. Approval of bowls of other than steel construction will specify if a flame shield is required.

(7) All accessories installed in the fuel line must be independently supported.

(8) Outlets in gasoline fuel lines that would permit drawing fuel below deck, for any purpose, are prohibited.

(9) Valves for removing water or impurities from diesel fuel in water traps or stainers are permitted. These valves must be provided with caps or plugs to prevent fuel leakage.

(c) *Alterantive procedures.* A vessel of not more than 19.8 meters (65 feet) carrying no more than 12 passengers, with machinery powered by gasoline and a fuel system built in accordance with ABYC Project H–24, or 33 CFR 193, Subpart J, or with machinery powered by diesel fuel and a fuel system built in accordance with ABYC Project H–33, will be considered as meeting the requirements of this section.

§ 182.458 Portable fuel systems.

(a) Portable fuel systems, including portable tanks and related fuel lines and accessories, are prohibited except where used for outboard motor installations.

(b) The design, construction and stowage of portable tanks and related fuel lines and accessories must meet the requirements of ABYC Projected H–25, ''Portable Gasoline Fuel systems for Flammable Liquids,'' or other standard specified by the Commandant.

§ 182.460 Ventilation of spaces containing machinery powered by, or fuel tanks for, gasoline.

(a) A space containing machinery powered by, or fuel tanks for, gasoline must have a ventilation system that complies with this section and consists of:

(1) For an enclosed space:

(i) At least two natural ventilation supply ducts located at one end of the

space and that extend to the lowest part of the space or to the bilge on each side of the space; and

(ii) A mechanical exhaust system consisting of at least two ventilation exhaust ducts located at the end of the space opposite from where the supply ducts are fitted, which extend to the lowest part or the bilge of the space on each side of the space, and which are led to one or more powered exhaust blowers; and

(2) For a partially enclosed space, at least one ventilation duct installed in the forward part of the space and one ventilation duct installed in the after part of the space, or as otherwise required by the cognizant OCMI. Ducts for partially enclosed spaces must have cowls or scoops as required by paragraph (i) of this section.

(b) A mechanical exhaust system required by paragraph (a)(1)(ii) of this section must be such as to assure the air changes as noted in Table 182.460(b) depending upon the size of the space.

TABLE 182.460(b)

Size of space in cubic meters (feet)		Minutes per air change
Over	Not over	
0	14 (500)	2
14 (500)	28.50 (1000)	3
28.50 (1000)	43 (1500)	4
43 (1500)	.....	5

(c) An exhaust blower motor may not be installed in a duct, and if mounted in any space required to be ventilated by this section, must be located as high above the bilge as practicable. Blower blades must be nonsparking with reference to their housings.

(d) Where a fixed gas fire extinguishing system is installed in a space, all powered exhaust blowers for the space must automatically shut down upon release of the extinguishing agent.

(e) Exhaust blower switches must be located outside of any space required to be ventilated by this section, and must be of the type interlocked with the starting switch and the ignition switch so that the blowers are started before the engine starter motor circuit or the engine ignition is energized. A red warning sign at the switch must state that the blowers must be operated prior to starting the engines for the time sufficient to insure at least one complete change of air in the space served.

(f) The area of the ventilation ducts must be sufficient to limit the air velocity to a maximum of 10 meters per second (2,000 feet per minute). A duct may be of any shape, provided that in no case will one cross sectional dimension exceed twice the other.

(g) A duct must be so installed that ordinary collection of water in the bilge will not block vapor flow.

(h) A duct must be of rigid permanent construction, which does not allow any appreciable vapor flow except through normal openings, and made of the same material as the hull or of noncombustible material. The duct must lead as directly as possible from its intake opening to its terminus and be securely fastened and supported.

(i) A supply duct must be provided at its intake opening with a cowl or scoop having a free area not less than twice the required duct area. When the cowl or scoop is screened, the mouth area must be increased to compensate for the area of the screen wire. A cowl or scoop must be kept open at all times except when the weather is such as to endanger the vessel if the openings are not temporarily closed.

(j) Dampers may not be fitted in a supply duct.

(k) A duct opening may not be located where the natural flow of air is unduly obstructed, adjacent to possible sources of vapor ignition, or where exhaust air may be taken into a supply duct.

(l) Provision must be made for closing all supply duct cowls or scoops and exhaust duct discharge openings for a space protected by a fixed gas extinguishing system. All closure devices must be readily available and mounted in the vicinity of the vent.

(m) A vessel of not more than 19.8 meters (65 feet) in length carrying not more than 12 passengers, with ventilation installations in accordance with ABYC Project H–2, ''Ventilation of Boats Using Gasoline,'' or 33 CFR 183, Subpart K, ''Ventilation,'' will be considered as meeting the requirements of this section.

§ 182.465 Ventilation of spaces containing diesel machinery.

(a) A space containing diesel machinery must be fitted with adequate means such as dripproof ventilators, ducts, or louvers, to provide sufficient air for proper operation of main engines and auxiliary engines.

(b) Air-cooled propulsion and auxiliary diesel engines installed below deck, as permitted by § 182.420, must be fitted with air supply ducts or piping from the weather deck. The ducts or piping must be so arranged and supported to be capable of safely sustaining stresses induced by weight and engine vibration and to minimize transfer of vibration to the supporting structure. Prior to installation of ventilation system for such engines, plans or sketches showing machinery arrangement including air supplies, exhaust stack, method of attachment of ventilation ducts to the engine, location of spark arresting mufflers and capacity of ventilation blowers must be submitted to the cognizant OCMI for approval.

(c) A space containing diesel machinery must be fitted with at least two ducts to furnish natural or powered supply and exhaust ventilation. The total inlet area and the total outlet area of each ventilation duct may not be less than one square inch for each foot of beam of the vessel. These minimum areas must be increased as necessary when the ducts are considered as part of the air supply to the engines.

(d) A duct must be of rigid permanent construction, which does not allow any appreciable vapor flow except through normal openings, and made of the same material as the hull or of noncombustible material. The duct must lead as directly as possible from its intake opening to its terminus and be securely fastened and supported.

(e) A supply duct must be provided with a cowl or scoop having a free area not less than twice the required duct area. When the cowl or scoop is screened, the mouth area must be increased to compensate for the area of the screen wire. A cowl or scoop must be kept open at all times except when the weather is such as to endanger the vessel if the openings are not temporarily closed.

(f) Dampers may not be fitted in a supply duct.

(g) A duct opening may not be located where the natural flow of air is unduly obstructed, adjacent to possible sources of vapor ignition, or where exhaust air may be taken into a supply duct.

(h) provision must be made for closing all supply duct cowls or scoops and exhaust duct discharge openings for a space protected by a fixed gas extinguishing system. All closure devices must be readily available and mounted in the vicinity of the vent.

(i) A vessel of not more than 19.8 meters (65 feet) in length carrying not more than 12 passengers, with ventilation installations in accordance with ABYC Project H–32, ''Ventilation of Boats Using Diesel Fuel,'' will be considered as meeting the requirements of this section.

§ 182.470 Ventilation of spaces containing diesel fuel tanks.

(a) Unless provided with ventilation that complies with § 182.465, a space containing a diesel fuel tank and no machinery must meet the requirements of this section.

(1) A space of 14 cubic meters (500 cubic feet) or more in volume must have a gooseneck vent of not less than 65 millimeters (2.5 inches) in diameter.

(2) A space of less than 14 cubic meters (500 cubic feet) in volume must have a gooseneck vent of not less than 40 millimeters (1.5 inches) in diameter.

(b) Vent openings may not be located adjacent to possible sources of vapor ignition.

(c) A vessel of not more than 19.8 meters (65 feet) in length carrying not more than 12 passengers, with ventilation installations in accordance with ABYC Project H–32, ''Ventilation of Boats Using Diesel Fuel,'' will be considered as meeting the requirements of this section.

§ 182.480 Flammable vapor detection systems.

(a) A flammable vapor detection system required by § 182.410(c) must meet UL Standard 1110, ''Marine Combustible Gas Indicators,'' or be approved by an independent laboratory.

(b) Procedures for checking the proper operation of a flammable vapor detection system must be posted at the primary operating station. The system must be self-monitoring and include a ground fault indication alarm.

(c) A flammable vapor detection system must be operational for 30 seconds prior to engine startup and continue sensing the entire time the engine is running.

(d) A flammable vapor detection system must provide a visual and audible alarm at the operating station.

(e) A sensor must be located above the expected bilge water level in the following locations:

(1) The lowest part of a machinery space;

(2) The lowest part of a space containing a fuel tank when separate from the machinery space; and

(3) Any other location when required by the cognizant OCMI.

(f) A flammable vapor detection system must be installed so as to permit calibration in a vapor free atmosphere.

(g) Electrical connections, wiring, and components for a flammable vapor detection system must comply with Part 183 of this chapter.

(h) An operation and maintenance manual for the flammable vapor detection system must be kept onboard.

Subpart E—Bilge and Ballast Systems

§ 182.500 General.

(a) A vessel must be provided with a satisfactory arrangement for draining any watertight compartment, other than small buoyancy compartments, under all practicable conditions. Sluice valves are not permitted in watertight bulkheads.

(b) A vessel of not more than 19.8 meters (65 feet) in length carrying not more than 12 passengers may meet the requirements of ABYC Project H–22, ''DC Electric Bilge Pumps Operating Under 50 Volts,'' in lieu of the requirements of this subpart, provided that each watertight compartment, other than small buoyancy compartments and the compartment forward of the collision bulkhead, is provided with a means for dewatering.

(c) Special consideration may be given to vessels, such as high speed craft, which have a high degree of subdivision and utilize numerous small buoyancy compartments. Where the probability of flooding of the space is limited to external hull damage, compartment drainage may be omitted provided it can be shown by stability calculations, submitted to the cognizant OCMI, that the safety of the vessel will not be impaired.

§ 182.510 Bilge piping system.

(a) A vessel of at least 7.9 meters (26 feet) in length must be provided with individual bilge lines and bilge suctions for each watertight compartment, except that the space forward of the collision bulkhead need not be fitted with a bilge suction line when the arrangement of the vessel is such that ordinary leakage may be removed from this compartment by the use of a hand portable bilge pump or other equipment, and such equipment is provided.

(b) A bilge pipe in a vessel of not more than 19.8 meters (65 feet) in length must be not less than 25 millimeters (1 inch) nominal pipe size. A bilge pipe in a vessel of more than 19.8 meters (65 feet) in length must be not less than 40 millimeters (1.5 inches) nominal pipe size. A bilge suction must be fitted with a suitable strainer having an open area not less than three times the area of the bilge pipe.

(c) Except when individual pumps are provided for separate spaces, individual bilge suction lines must be led to a central control point or manifold and provided with a stop valve at the control point or manifold and a check valve at some accessible point in the bilge line. A stop-check valve located at a control point or manifold will meet the requirements for both a stop valve and a check valve.

(d) A bilge pipe piercing the collision bulkhead must be fitted with a screw-down valve located on the forward side of the collision bulkhead and operable from the weather deck, or, if it is readily accessible under service conditions, a screw-down valve without a reach rod may be fitted to the bilge line on the after side of the collision bulkhead.

§ 182.520 Bilge pumps.

(a) A vessel must be provided with bilge pumps in accordance with Table 182.520(a). A second power pump is an acceptable alternative to a hand pump if it is supplied by a source of power independent of the first power bilge pump. Individual power pumps used for separate spaces are to be controlled from a central control point and must have a light or other visual means at the control point to indicate operation.

TABLE 182.520(A)

Number of passengers	Length of vessel	Bilge pumps required	Min. capacity required per pump ltrs/min (gal/min)
Any number	More than 19.8 m (65 ft)	2 fixed power pumps	190 LPM (50 GPM).
More than 49 passengers and all ferry vessels	Not more than 19.8 m (65 ft)	1 fixed power pump and	95 LPM (25 GPM).
		1 portable hand pump	38 LPM (10 GPM).
Not more than 49 passengers (Other than ferry vessels)	7.9 m, 26 feet up to 19.8 m (65 ft).	1 fixed power pump and 1 portable hand pump or.	38 LPM (10 GPM).
		1 fixed hand pump and	38 LPM (10 GPM).
		1 portable hand pump	19 LPM (5 GPM).
	Less than 7.9 m (26 ft)	1 portable hand pump	19 LPM (5 GPM).

(b) A portable hand bilge pump must be:

(1) Capable of pumping water, but not necessarily simultaneously, from all watertight compartments; and

(2) Provided with suitable suction and discharge hoses capable of reaching the bilges fo each watertight compartment.

(c) Each fixed power bilge pump must be self priming. It may be driven off the main engine or other source of power. It must be permanently connected to the bilge manifold and may also be connected to the fire main. If of sufficient capacity, a power bilge pump may also serve as a fire pump.

(d) Where two fixed power bilge pumps are installed, they must be driven by different sources of power. If one pump is driven off the main engine in a single propulsion engine installation, the other must be independently driven. In a twin propulsion engine installation, each pump may be driven off a different propulsion engine.

(e) A submersible electric bilge pump may be used as a power bilge pump required by Table 182.520(a) only on a vessel of not more than 19.8 meters (65 feet) in length carrying not more than 49 passengers, other than a ferry, provided that:

(1) The pump is listed by Underwriters' Laboratories Inc. or another independent laboratory;

(2) The pump is used to dewater not more than one watertight compartment;

(3) The pump is permanently mounted;

(4) The pump is equipped with a strainer that can be readily inspected and cleaned without removal;

(5) The pump discharge line is suitably supported;

(6) The opening in the hull for the pump discharge is placed as high above the waterline as possible;

(7) A positive shutoff valve is installed at the hull penetration; and

(8) The capacity of the electrical system, including wiring, and size and number of batteries, is designed to allow all bilge pumps to be operated simultaneously.

(f) A flexible tube or hose may be used instead of fixed pipe for the discharge line of a submersible electric bilge pump provided the hose or tube does not penetrate any required watertight bulkheads and is:

(1) Of good quality and of substantial construction, suitable for the intended use; and

(2) Highly resistant to salt water, petroleum oil, heat, and vibration.

(g) If a fixed hand pump is used to comply with Table 182.520(a), it must be permanently connected to the bilge system.

(h) On a vessel of not more than 19.8 meters (65 feet) in length, a power driven fire pump required by § 181.300 of this chapter may serve as a fixed power bilge pump required by this subpart, provided it has the minimum flow rate required by Table 182.520(a).

(i) On a vessel of more than 19.8 meters (65 feet) in length, a power driven fire pump required by § 181.300 of this subchapter may serve as one of the two fixed power bilge pumps required by this subpart, provided:

(1) The bilge and fire pump systems are interconnected;

(2) The dedicated bilge pump is capable of pumping the bilges at the same time the fire/bilge pump charges the firemain; and

(3) Stop valves and check valves are installed in the piping to isolate the systems during simultaneous operation and prevent possible flooding through the bilge system.

(j) A catamaran vessel must be equipped with bilge pumps for each hull, as if each hull is a separate vessel, in accordance with Table 182.520(a), except where:

(1) On dedicated pump is located in each hull;

(2) Each dedicated pump is driven by an independent source of power; and

(3) The bilge system is permanently cross connected between hulls.

§ 182.530 Bilge high level alarms.

(a) On a vessel of at least 7.9 meters (26 feet) in length, a visual and audible alarm must be provided at the operating station to indicate a high water level in each of the following normally unmanned spaces:

(1) A space with a through-hull fitting below the deepest load waterline, such as a lazarette;

(2) A machinery space bilge, bilge well, shaft alley bilge, or other spaces subject to flooding from sea water piping within the space; and

(3) A space with a non-watertight closure, such as a space with a non-watertight hatch on the main deck.

(b) Vessels constructed of wood must, in addition to paragraph (a), provide bilge level alarms in all watertight compartments except small buoyancy chambers.

(c) A visual indicator must be provided at the operating station to indicate when any automatic bilge pump is operating.

§ 182.540 Ballast systems.

(a) Ballast piping must not be installed in any compartment integral with the hull of a wooden vessel. Where the carriage of liquid ballast in such a vessel is necessary, suitable ballast tanks, structurally independent of the hull, must be provided.

(b) Solid and water ballast must comply with the requirements of Part 178 of this subchapter.

Subpart F—Steering Systems

§ 182.600 General.

A self-propelled vessel must comply with the provisions of this subpart.

§ 182.610 Main steering gear.

(a) A vessel must be provided with a main steering gear that is:

(1) Of adequate strength and capable of steering the vessel at all service speeds;

(2) Designed to operate at maximum astern speed without being damaged or jammed; and

(3) Capable of moving the rudder from 35 degrees on one side to 30 degrees on the other side in not more than 28 seconds with the vessel moving ahead at maximum service speed.

(b) Control of the main steering gear, including control of any necessary associated devices (motor, pump, valve, etc.), must be provided from the operating station.

(c) The main steering gear must be designed so that transfer from the main steering gear or control to the auxiliary means of steering required by § 182.620 can be achieved rapidly. Any tools or equipment necessary to make the transfer must be readily available.

(d) The operating station must be arranged to permit the person steering to have the best possible all around vision.

(e) Strong and effective rudder stops must be provided to prevent jamming and damage to the rudder and its fittings. These stops may be structural or internal to the main steering gear.

(f) In addition to meeting the requirements of paragraphs (a) through (e) of this section, a vessel with a power driven main steering gear must be provided with the following:

(1) A disconnect switch located in the steering compartment, and instantaneous short circuit protection for electrical power and control circuits sized and located in accordance with §§ 111.93–11(d) and (e) in subchapter J of this chapter. Overload protection is prohibited;

(2) An independent rudder angle indicator at the operating station;

(3) An arrangement that automatically resumes operation, without reset, when power is restored after a power failure;

(4) A manual means to center and steady the rudder(s) in an emergency; and

(5) A limit switch to stop the steering gear before its reaches the rudder stops required by paragraph (e) of this section.

(g) In addition to meeting the requirements of paragraphs (a) through (f) of this section, a vessel more than 19.8 meters (65 Feet) in length with a power driven main steering gear must be provided with the following:

(1) A visual means, located at the operating station, to indicate operation of the power units; and

(2) Instructions for transfer procedures from the main steering gear or control to the auxiliary means of steering required by § 182.620, posted at the location where the transfer is carried out.

§ 182.620 Auxiliary means of steering.

(a) Except as provided in paragraph (c) of this section, a vessel must be provided with an auxiliary means of steering that is:

(1) Of adequate strength;

(2) Capable of moving the rudder from 15 degrees on one side to 15 degrees on the other side is not more than 60 seconds with the vessel at one-half its maximum service speed ahead, or 7 knots, whichever is greater; and

(3) Controlled from a location that permits safe maneuvering of the vessel and does not expose the person operating the auxiliary means of steering to personnel hazards during normal or heavy weather operation.

(b) A suitable hand tiller may be acceptable as the auxiliary means of steering where satisfactory to the cognizant OCMI.

(c) An auxiliary means of steering need not be provided if:

(1) The main steering gear and its controls are provided in duplicate;

(2) Multiple screw propulsion, with independent pilothouse control for each screw, is provided, and the vessel is capable of being steered using pilothouse control;

(3) No regular rudder is fitted and steering action is obtained by a change of setting of the propelling unit; or

(4) Where a rudder and hand tiller are the main steering gear.

Subpart G—Piping Systems

§ 182.700 General.

Materials used in piping systems must meet the requirements of this subpart and be otherwise acceptable to the cognizant OCMI.

§ 182.710 Piping for vital systems.

(a) Vital systems are those systems that are vital to a vessel's survivability and safety. For the purpose of this part the following are vital systems:

(1) Fuel system;

(2) Fire main;

(3) CO_2 and Halon systems;

(4) Bilge system;

(5) Steering system;

(6) Propulsion system and its necessary auxiliaries and controls;

(7) Ship's service and emergency electrical generation system and its necessary auxiliaries; and

(8) A marine engineering system identified by the cognizant OCMI as being crucial to the survival of the vessel or to the protection of the personnel on board.

(b) For the purpose of this part, a system not identified in paragraph (a) of this section is a non-vital system.

(c) Piping used in a vital system must:

(1) Be composed of ferrous materials except when:

(i) Nonmetallic piping materials are permitted by § 182.720; or

(ii) Nonferrous metallic piping materials are permitted by § 182.730; and

(2) If subject to a pressure of more than 1,034 kPa (150 psig), be designed, fabricated, and inspected in accordance with the principles of American National Standards Institute (ANSI) B 31.1, ''Code for Pressure Piping, Power Piping,'' or other standard specified by the Commandant.

§ 182.715 Piping subject to more than 1,034 kPa (150 psig) in non-vital systems.

Piping subject to more than 1,034 kPa (150 psig) in a non-vital system must be designed, fabricated, and inspected in accordance with the principles of ANSI B 31.1, or other industry standard acceptable to the Commandant.

§ 182.720 Nonmetallic piping materials.

(a) Rigid nonmetallic materials (plastic) may be used only in non-vital systems and in accordance with paragraphs (c) and (d) of this section.

(b) Flexible nonmetallic materials (hose) may be used in vital and non-vital systems where permitted by paragraph (e) of this section.

(c) Nonmetallic piping must not be used in gasoline or diesel fuel systems. Flexible nonmetallic materials (hose) may be used where permitted by paragraph (e) of this section.

(d) Where rigid nonmetallic material (plastic) is permitted for use in piping systems by this section, the following restrictions apply:

(1) Penetrations of required watertight decks and bulkheads by any rigid plastic pipe are prohibited unless the following requirements are met:

(i) Each penetration must be accomplished using an acceptable metallic through deck or through bulkhead fitting that is welded or otherwise attached to the bulkhead or deck by an accepted method; and

(ii) One or more metallic shutoff valves must be installed adjacent to the fitting in one of the following ways:

(A) Only one metallic shutoff valve must be installed if it is operable from above the bulkhead deck;

(B) If two metallic shutoff valves are installed, one on either side of the bulkhead, they need not be operable from above the bulkhead deck provided immediate access to both is possible; or

(C) Where both plastic and metallic materials are used in piping that penetrates a bulkhead, and the two materials exist entirely on opposite sides of the bulkhead, a metallic shutoff valve must be installed at the bulkhead in the metallic part of the system, with the valve being capable of operation from above the bulkhead deck, or locally if immediate access is possible;

(2) Protection from mechanical damage must be specifically considered and all protective covering or shields must be installed to the satisfaction of the cognizant OCMI;

(3) Through hull fittings and shutoff valves must be metallic. In the case of nonmetallic hulls, materials that will afford an equal degree of safety and heat resistivity as that afforded by the hull may be approved; and

(4) The material specification must show that the rigid nonmetallic material possesses characteristics adequate for its intended service and environment and must be approved for use by the cognizant OCMI.

(e) Where flexible nonmetallic hose is permitted for use in piping systems by this section, it must meet SAE Standard J–1942, ''Hose and Hose Assemblies for Marine Applications,'' or be specifically approved by the Commandant. The following restrictions apply:

(1) Flexible nonmetallic hose must be complete with factory-assembled end fittings requiring no further adjustment of the fittings on the hose, or field attachable type fittings may be used. Hose end fittings must comply with SAE J–1475, ''Hydraulic Hose Fittings For Marine Applications.''Field attachable fittings must be installed following the manufacturer's recommended practice. If special equipment is required, such as crimping machines, it must be of the type and design specified by the manufacturer. If field attachable type fittings are used, each hose assembly must be individually hydrostatically tested to twice the rated pressure stamped thereon;

(2) Flexible nonmetallic hose may be used in non-vital water and pneumatic systems, subject to the limitations of paragraph (d)(1) through (d)(4) of this section. Unreinforced hoses are limited

to a maximum service pressure of 349 kPa (50 psig), reinforced hoses are limited to a maximum service pressure of 1,034 kPa (150 psig); and

(3) Flexible nonmetallic hose may be used in lube oil, fuel oil and fluid power systems, subject to the following requirements:

(i) Flexible hose may only be used at a pressure not to exceed the manufacturer's rating and must have a high resistance to saltwater, petroleum oils, and vibration;

(ii) Flexible hose runs must be visible, easily accessible, protected from mechanical damage, and must not penetrate watertight bulkheads;

(iii) Flexible hose must be fabricated with an inner tube and a cover of synthetic rubber or other suitable material reinforced with wire braid;

(iv) Flexible hose used for alcohol-gasoline blend fuels must meet the permeability requirements specified in 33 CFR Part 183, Subpart J; and

(v) For the purpose of flexibility only, flexible hose installed in lengths of not more than 760 millimeters (30 inches) and subject to pressures of not more than 35 kPa (5 psig), may meet the following requirements:

(A) Suitable compression type connection fittings may be accepted;

(B) Flexible hose designed for use with hose clamps may be installed with two clamps, at both ends of the hose, which:

(*1*) Do not rely on the spring tension of the clamp for compressive force; and

(*2*) Are installed beyond the bead or flare or over the serrations of the mating spud, pipe, or hose fitting; and

(C) USCG Type A1, A2, B1, or B2 flexible hose may be accepted in accordance with 33 CFR Part 183, Subpart J.

§ 182.730 Nonferrous metallic piping materials.

(a) Nonferrous metallic piping materials are acceptable for use in the following:

(1) Non-vital systems;

(2) Aluminum fuel piping, if of a minimum of Schedule 80 wall thickness on an aluminum hulled vessel;

(3) Aluminum bilge, ballast, and firemain piping on an aluminum hulled vessel;

(4) If acceptable to the cognizant OCMI, nonferrous metallic piping with a melting temperature above 927° C (1,700° F) may be used in vital systems that are deemed to be galvanically compatible; and

(5) Other uses specifically accepted by the cognizant OCMI.

(b) Where nonferrous metallic material is permitted for use in piping systems by this subpart, the restrictions in this paragraph apply:

(1) Provisions must be made to protect piping systems using aluminum alloys in high risk fire areas due to the low melting point of aluminum alloys;

(2) Provisions must be made to prevent or mitigate the effect of galvanic corrosion due to the relative solution potentials of copper, aluminum, and alloys of copper and aluminum, which are used in conjunction with each other, steel, or other metals and their alloys;

(3) A suitable thread compound must be used in making up threaded joints in aluminum pipe to prevent seizing. Pipe in the annealed temper must not be threaded;

(4) The use of aluminum alloys with a copper content exceeding 0.6 percent is prohibited; and

(5) The use of cast aluminum alloys in hydraulic fluid power systems must be in accordance with the requirements of § 58.30–15(f) in subchapter F of this chapter.

PART 183—ELECTRICAL INSTALLATION

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Authority: 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 183.100 Intent.

This part contains requirements for the design, construction, installation, and operation of electrical equipment and systems including power sources, lighting, motors, miscellaneous equipment, and safety systems.

§ 183.115 Applicability to existing vessels.

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

(b) An existing vessel must comply with the requirements of §§ 183.420 and 183.430.

(c) New installations of electrical equipment and material, and the repair or replacement of wire and cable, on an existing vessel, which are completed to the satisfaction of the cognizant Officer in Charge, Marine Inspection (OCMI) on or after March 11, 1996, must comply with this part. Replacement of existing equipment, not including wire or cable, installed on the vessel prior to March 11, 1996 need not comply with the regulations in this part.

§ 183.130 Alternative standards.

(a) A vessel, other than a high speed craft, or not more than 19.8 meters (65 feet) in length carrying not more than 12 passengers, may comply with the following requirements instead of complying with the requirements of this part in their entirety:

(1) Section 183.420; and

(2) The following American Boat and Yacht Council (ABYC) Projects where applicable:

(i) E–8, ''Alternating Current (AC) Electrical Systems on Boats;''

(ii) E–9, ''Direct Current (DC) Electrical Systems on Boats;'' and

(iii) A–16, ''Electrical Navigation Lights.''

(b) A vessel with an electrical installation operating at less than 50 volts may meet the requirements in 33 CFR 183.430 instead of those in § 183.340.

Subpart B—General Requirements

§ 183.200 General design, installation, and maintenance requirements.

Electrical equipment on a vessel must be installed and maintained to:

(a) Provide services necessary for safety under normal and emergency conditions;

(b) Protect passengers, crew, other persons, and the vessel from electrical hazards, including fire, caused by or originating in electrical equipment, and electrical shock;

(c) Minimize accidental personnel contact with energized parts; and

(d) Prevent electrical ignition of flammable vapors.

§ 183.210 Protection from wet and corrosive environments.

(a) Electrical equipment used in the following locations must be dripproof:

(1) A machinery space;

(2) A location normally exposed to splashing, water washdown, or other wet conditions within a galley, a laundry, or a public washroom or toilet room that has a bath or shower; or

(3) Another space with a similar moisture level.

(b) Electrical equipment exposed to the weather must be watertight.

(c) Electrical equipment exposed to corrosive environments must be of suitable construction and corrosion-resistant.

§ 183.220 General safety provisions.

(a) Electrical equipment and installations must be suitable for the roll, pitch, and vibration of the vessel underway.

(b) All equipment, including switches, fuses, lampholders, etc., must be suitable for the voltage and current utilized.

(c) Receptacle outlets of the type providing a grounded pole or a specific direct current polarity must be of a configuration that will not permit improper connection.

(d) All electrical equipment and circuits must be clearly marked and identified.

(e) Any cabinet, panel, box, or other enclosure containing more than one source of power must be fitted with a sign warning persons of this condition and identifying the circuits to be disconnected.

Subpart C—Power Sources and Distribution Systems

§ 183.310 Power sources.

(a)(1) Each vessel that relies on electricity to power the following loads must be arranged so that the loads can be energized from two sources of electricity:

(i) The vital systems listed in § 182.710 of this chapter;

(ii) Interior lighting except for decorative lights;

(iii) Communication systems including a public address system required under § 184.610 of this chapter; and

(iv) Navigation equipment and lights.

(2) A vessel with batteries of adequate capacity to supply the loads specified in paragraph (a)(1) of this section for three hours, and a generator or alternator driven by a propulsion engine, complies with the requirement in paragraph (a)(1) of this section.

(b) Where a ship service generator driven by a propulsion engine is used as a source of electrical power, a vessel speed change, throttle movement or change in direction of the propeller shaft rotation must not interrupt power to any of the loads specified in paragraph (a)(1) of this section.

§ 183.320 Generators and motors.

(a) Each generator and motor must be:

(1) In a location that is accessible, adequately ventilated, and as dry as practicable; and

(2) Mounted above the bilges to avoid damage by splash and to avoid contact with low lying vapors.

(b) Each generator and motor must be designed for an ambient temperature of 50° C (122° F) except that:

(1) If the ambient temperature in the space where a generator or motor will be located will not exceed 40° C (104° F) under normal operating conditions, the generator or motor may be designed for an ambient temperature of 40° C (104° F); and

(2) A generator or motor designed for 40° C (104° F) may be used in 50° C (122° F) ambient locations provided the generator or motor is derated to 80 percent of the full load rating, and the rating or setting of the overcurrent devices is reduced accordingly.

(c) A voltmeter and an ammeter, which can be used for measuring voltage and current of a generator that is in operation, must be provided for a generator rated at 50 volts or more. For each alternating current generator, a means for measuring frequency must also be provided.

(d) Each generator must have a nameplate attached to it containing the information required by Article 445 of the National Electric Code (NEC) (National Fire Protection Association (NFPA) 70), and for a generator derated in accordance with paragraph (b)(2) of this section, the derated capacity.

(e) Each motor must have a nameplate attached to it containing the information required by Article 430 of the NEC (NFPA 70), and for a motor derated in accordance with paragraph (b)(2) of this section, the derated capacity.

(f) Each generator must be protected by an overcurrent device set value not exceeding 115 percent of the generator full load rating.

§ 183.322 Multiple generators.

When a vessel is equipped with two or more generators to supply ship's service power, the following requirements must be met:

(a) Each generator must have an independent prime mover; and

(b) The generator circuit breakers must be interlocked to prevent the generators from being simultaneously connected to the switchboard, except for the circuit breakers of a generator operated in parallel with another generator when the installation meets §§ 111.12–11(f) and 111.30–25(d) in subchapter J of this chapter.

§ 183.324 Dual voltage generators.

(a) A dual voltage generator installed on a vessel shall be of the grounded type, where:

(1) The neutral of a dual voltage system must be solidly connected at the switchboard's neutral bus; and

(2) The neutral bus shall be connected to ground.

(b) The neutral of a dual voltage system must be accessible for checking the insulation resistance of the generator to ground before the generator is connected to the bus.

(c) Ground detection must be provided that:

(1) For an alternating current system, meets § 111.05–27 in subchapter J of this chapter; and

(2) For a direct current system, meets § 111.05–29 in subchapter J of this chapter.

§ 183.330 Distribution panels and switchboards.

(a) Each distribution panel and switchboard must be in as dry a location as practicable, adequately ventilated, and protected from falling debris and dripping or splashing water.

(b) Each distribution panel or switchboard must be totally enclosed and of the dead front type.

(c) Each switchboard must be fitted with a dripshield.

(d) Distribution panels and switchboards that are accessible from the rear must be constructed to prevent a person from accidentally contacting energized parts.

(e) Working space must be provided around all main distribution panels and switchboards of at least 610 millimeters (24 inches) in front of the switchboard,

and at least 455 millimeters (18 inches) behind the switchboard. Rear access is prohibited when the working space behind the switchboard is less than 455 millimeters (18 inches).

(f) Nonconducting mats or grating must be provided on the deck in front of each switchboard and, if accessible from the rear, on the deck in the rear of the switchboard.

(g) All uninsulated current carrying parts must be mounted on noncombustible, nonabsorbent, high dielectric insulating material.

(h) Equipment mounted on a hinged door of an enclosure must be constructed or shielded so that a person will not accidentally contact energized parts of the door mounted equipment when the door is open and the circuit energized.

(i) In the design of a control, interlock, or indicator circuit, the disconnect device and its connections, including each terminal block for terminating the vessel's wiring, must not have any electrically unshielded or uninsulated surfaces.

(j) Switchboards and distribution panels must be sized in accordance with § 111.30–19(a) of this chapter.

§ 183.340 Cable and wiring requirements.

(a) If individual wires, rather than cable, are used in systems greater than 50 volts, the wire must be in conduit.

(b) All cable and wire must:

(1) Have stranded copper conductors with sufficient current carrying capacity for the circuit in which they are used;

(2) Be installed in a manner to avoid or reduce interference with radio reception and compass indication;

(3) Be protected from the weather;

(4) Be installed with metal supports spaced not more than 610 millimeters (24 inches) apart, and in such a manner as to avoid chafing and other damage. The use of plastic tie wraps must be limited to bundling or retention of multiple cable installations, and not used as a means of support, except that on vessels of not more than 19.8 meters (65 feet) in length, installations in accordance with paragraph 14.h of ABYC E–8, and paragraph 15.h of ABYC E–9, are acceptable as meeting the requirements of this section;

(5) Not be installed with sharp bends;

(6) Be protected by metal coverings or other suitable means if in areas subject to mechanical abuse. Horizontal pipes used for protection shall have 6 millimeter (.25 inch) holes for drainage every 1,520 millimeters (5 feet);

(7) Be suitable for low temperature and high humidity if installed in refrigerated compartments;

(8) Not be located in a tank unless the cable provides power to equipment in the tank; and

(9) Have sheathing or wire insulation compatible with the fluid in a tank when installed as allowed by paragraph (b)(8) of this section.

(c) Conductors in power and lighting circuits must be No. 14 American Wire Gauge (AWG) or larger. Conductors in control and indicator circuits must be No. 22 AWG or larger.

(d) Cable and wire for power and lighting circuits must:

(1) Meet Section 310–13 of the NEC (NFPA 70), except that asbestos insulated cable and dry location cables cannot be used;

(2) Be listed by Underwriters Laboratories (UL), as UL Boat or UL Marine cable; or

(3) Meet § 111.60–1 in subchapter J of this chapter for cable, and § 111.60–11 in subchapter J of this chapter for wire.

(e) Cable or wire serving vital systems listed in § 182.710 of this chapter or emergency loads must be routed as far as practicable from high risk fire areas, such as galleys, laundries, and machinery spaces.

(f) Cable or wire serving duplicated equipment must be separated so that a casualty that affects one cable does not affect the other.

(g) Each connection to a conductor or terminal part of a conductor must be made within an enclosure and have either:

(1) A pressure type connector on each conductor;

(2) A solder lug on each conductor;

(3) A splice made with a pressure type connector to a flexible lead or conductor; or

(4) A splice that is soldered, brazed, or welded to a flexible lead or conductor.

(h) A connector or lug of the set screw type must not be used with a stranded conductor smaller than No. 14 AWG except if there is a nonrotating follower that travels with the set screw and makes pressure contact with the conductor.

(i) Each pressure type wire connector and lug must meet UL 486A, ''Electric Wire Connectors and Soldering Lugs for Use With Copper Conductors,'' or other standard specified by the Commandant. The use of wire nuts is prohibited.

(j) Each terminal block must have 6–32 terminal screws or larger.

(k) Wire connectors utilized in conjunction with screw type terminal blocks must be of the captive type such as the ring or the flanged spade type.

(l) A cable must not be spliced in a hazardous location.

(m) A cable may be spliced in a location, other than a hazardous location, under the following conditions:

(1) A cable installed in a subassembly may be spliced to a cable installed in another subassembly;

(2) For a vessel receiving alterations, a cable may be spliced to extend a circuit;

(3) A cable having a large size or exceptional length may be spliced to facilitate its installation; and

(4) A cable may be spliced to replace a damaged section of the cable if, before replacing the damaged section, the insulation resistance of the remainder of the cable is measured, and it is determined that the condition of the insulation is unimpaired.

(n) All material in a cable splice must be chemically compatible with all other material in the splice and with the materials in the cable.

(o) Ampacities of wires must meet Section 310–15 of the NEC (NFPA 70), or other standard specified by the Commandant. Ampacities of cable must meet table A6 of Institute of Electrical and Electronic Engineers (IEEE) Standard 45, ''Recommended Practice for Electrical Installations on Shipboard,'' or other standard specified by the Commandant. Ampacities for Navy cable must meet NAVSEA Design Data Sheet (DDS) 304–2 ''Electrical Cable, Ratings and Characteristics'' as appropriate.

(p) Conductors must be sized so that the voltage drop at the load terminals does not exceed 10 percent. Table 183.340(p) indicates the size of conductor required for corresponding lengths and steady state (stable) values to obtain not more than this voltage drop at the load terminals of a two conductor circuit.

TABLE 183.340(p.)—CONDUCTOR SIZES FOR AMPERES—LENGTHS

Total current on circuit, amperes	Length of conductor in meters (feet) from source of current to most distant fixture										
	3.1(10)	4.5(15)	6.1(20)	7.6(25)	9.2(30)	10.7(35)	12.2(40)	13.7(45)	15.2(50)	16.8(55)	18.3(60)
	12-volts, 2 wire—10 percent drop wire sizes (A.W.G.)										
5	14	14	14	14	14	14	14	14	12	12	12
10	14	14	14	12	12	12	10	10	10	10	8
15	14	14	12	10	10	10	8	8	8	8	8
20	12	12	10	10	8	8	8	8	6	6	6
25	10	10	10	8	8	8	6	6	6	6	4

Other values can be computed by means of the following formula:

$$cm = \frac{K \times I \times L(\times 2 \text{ for two-wire circuit})}{E}$$

Where:

cm=Circular-mil area of conductor
K=3.28 ohms/mil-meter (metric)
=1075 ohm/mil-foot (english)
(a constant representing the resistance of copper).
I=Load current, in amperes.
L=length of conductor from center of distribution, in meters (feet).
E=Voltage drop at load, in volts.

(q) If used, each armored cable metallic covering must:

(1) Be electrically continuous; and

(2) Be grounded at each end of the run to:

(i) The metallic hull; or

(ii) The common ground plate on nonmetallic vessels; and

(3) Have final sub-circuits grounded at the supply and only.

(r) A portable or temporary electric cord or cable must be constructed and used in compliance with the requirements of § 111.60–13 in subchapter J of this chapter for a flexible electric cord or cable.

§ 183.350 Batteries—general.

(a) Where provisions are made for charging batteries, there must be natural or induced ventilation sufficient to dissipate the gases generated.

(b) Each battery must be located as high above the bilge as practicable, secured to protect against shifting with the roll and pitch of the vessel, and free from exposure to water splash or spray.

(c) Batteries must be accessible for maintenance and removal.

(d) Connections must be made to battery terminals with permanent type connectors. Spring slips or other temporary type clamps are prohibited.

(e) Batteries must be mounted in trays lined with, or constructed of, a material that is resistant to damage by the electrolyte.

(f) Battery chargers must have an ammeter connected in the charging circuit.

(g) If the batteries are not adjacent to a distribution panel or switchboard that distributes power to the lighting, motor, and appliance circuits, the battery lead must have a fuse in series as close as practicable to the battery.

(h) Batteries used for engine starting are to be located as close as possible to the engine or engines served.

§ 183.352 Battery categories.

This section applies to batteries installed to meet the requirements of § 183.310 for secondary sources of power to vital loads, or sources of power to final emergency loads.

(a) *Large.* A large battery installation is one connected to a battery charger having an output of more than 2 kilowatt (kw), computed from the highest possible charging current and the rated voltage of the battery installation.

(b) *Small.* A small battery installation is one connected to a battery charger having an output of 2 kw or less, computed as above.

§ 183.354 Battery installations.

(a) *Large batteries.* Each large battery installation must be located in a locker, room or enclosed box solely dedicated to the storage of batteries. Ventilation must be provided in accordance with § 111.15–10 in subchapter J of this chapter. Electrical equipment located within the battery enclosure must be approved by an independent laboratory for Class I, Division 1, Group B hazardous locations and meet § 111.105 in subchapter J of this chapter.

(b) *Small batteries.* Each small battery installation must be located in a well ventilated space and protected from falling objects. A small battery installation must not be in a closet, storeroom or similar space.

§ 183.360 Semiconductor rectifier systems.

(a) Each semiconductor rectifier system must have an adequate heat removal system that prevents overheating.

(b) Where a semiconductor rectifier system is used in a propulsion system or in other vital systems it must:

(1) Have a current limiting circuit;

(2) Have external overcurrent protection; and

(3) Meet Sections 35.84.2 and 35.84.4 of the American Bureau of Shipping (ABS), ''Rules for Building and Classing Steel Vessels,'' or other standard specified by the Commandant.

§ 183.370 General grounding requirements.

(a) A vessel's hull must not carry current as a conductor except for the following systems:

(1) Impressed current cathodic protection systems; or

(2) Battery systems for engine starting.

(b) Receptacle outlets and attachment plugs for portable lamps, tools, and similar apparatus operating at 100 volts or more, must have a grounding pole and a grounding conductor in the portable cord.

(c) Each nonmetallic mast and top mast must have a lightning ground conductor.

§ 183.372 Equipment and conductor grounding.

(a) All metallic enclosures and frames of electrical equipment must be permanently grounded to the hull on a metallic vessel. On a nonmetallic vessel, the enclosures and frames of electrical equipment must be bonded together to a common ground by a normally non-current carrying conductor. Metallic cases of instruments and secondary windings of instrument transformers must be grounded.

(b) On a nonmetallic vessel, where a ground plate is provided for radio equipment, it must be connected to the common ground.

(c) Equipment grounding conductors must be sized in accordance with Section 250–95 of the NEC (NFPA 70), or other standard specified by the Commandant.

(d) Each insulated grounding conductor of a cable must be identified by one of the following means:

(1) A green braid or green insulation;

(2) Stripping the insulation from the entire exposed length of the grounding conductor; or

(3) Marking the exposed insulation of the grounding conductor with green tape or green adhesive labels.

(e) Cable armor must not be used to ground electrical equipment or systems.

§ 183.376 Grounded distribution systems (Neutral grounded).

(a) If a grounded distribution system is provided, there must be only one connection to ground, regardless of the number of power sources. This ground connection must be at the switchboard or at the common ground plate, which must be accessible.

(b) Each propulsion, power, lighting, or distribution system having a neutral bus or conductor must have the neutral grounded.

(c) The neutral of each grounded generation and distribution system must be grounded at the generator switchboard and have the ground connection accessible for checking insulation resistance of the generator to ground before the generator is connected to the bus, except the neutral of an emergency power generation system must be grounded with:

(1) No direct ground connection at the emergency switchboard;

(2) The neutral bus permanently connected to the neutral bus on the main switchboard; and

(3) No switch, circuit breaker, or fuse in the neutral conductor of the bus-tie feeder connecting the emergency switchboard to the main switchboard.

(d) On a metallic vessel, a grounded alternating current system must be grounded to the hull. On a nonmetallic vessel, the neutral must be connected to the common ground, except that aluminum grounding conductors must not be used.

§ 183.380 Overcurrent protection.

(a) Overcurrent protection must be provided for each ungrounded conductor for the purpose of opening the electric circuit if the current reaches a value that causes an excessive or dangerous temperature in the conductor or conductor insulation.

(b) The grounded conductor of a circuit must not be disconnected by a switch or circuit breaker, unless the ungrounded conductors are simultaneously disconnected.

(c) A conductor of a control, interlock, or indicator circuit, such as a conductor for an instrument, pilot light, ground detector light, or potential transformer, must be protected by an overcurrent device.

(d) Conductors must be protected in accordance with their current carrying capacities. If the allowable current carrying capacity does not correspond to a standard device size, the next larger overcurrent device may be used provided it does not exceed 150 percent of the conductor current carrying capacity.

(e) Steering gear control system circuits must be protected against short circuit.

(f) Each steering gear feeder circuit must be protected by a circuit breaker that meets the requirements of paragraphs (a) and (b) of § 111.93–11 in subchapter J of this chapter.

(g) Each lighting branch circuit must be protected against overcurrent either by fuses or circuit breakers rated at not more than 30 amperes.

(h) Overcurrent devices capable of carrying the starting current of the motor must be installed to protect motors, motor conductors, and control apparatus against:

(1) Overcurrent due to short circuits or ground faults; and

(2) Overload due to motor running overcurrent, in accordance with § 111.70–1 of this chapter. A protective device integral with the motor, which is responsive to both motor current and temperature, may be used.

(i) An emergency switch must be provided in the normally ungrounded main supply conductor from a battery. The switch must be accessible and located as close to the battery as practicable.

(j) Disconnect means must be provided on the supply side of and adjacent to all fuses for the purpose of de-energizing the fuses for inspection and maintenance purposes.

(k) If the disconnect means is not within sight of the equipment that the circuit supplies, means must be provided for locking the disconnect device in the open position.

(l) Fuses must be of the cartridge type only and be listed by Underwriters Laboratories or another independent laboratory recognized by the Commandant.

(m) Each circuit breaker must meet UL 489, ''Molded—Case Circuit Breakers and Circuit Breaker Enclosures,'' or other standard specified by the Commandant, and be of the manually reset type designed for:

(1) Inverse time delay;

(2) Instantaneous short circuit protection; and

(3) Switching duty if the breaker is used as a switch.

(n) Each circuit breaker must indicate whether it is in the open or closed position.

§ 183.390 Shore power.

A vessel with an electrical system operating at more than 50 volts, which is provided with a means to connect to shore power, must meet the following:

(a) A shore power connection box or receptacle must be permanently installed at a convenient location;

(b) A cable connecting the shore power connection box or receptacle to the switchboard or main distribution panel must be permanently installed;

(c) A circuit breaker must be provided at the switchboard or main distribution panel for the shore power connection; and

(d) The circuit breaker, required by paragraph (c) of this section, must be interlocked with the vessel's power sources so that shore power and the vessel's power sources may not be operated simultaneously.

§ 183.392 Radiotelephone installations.

A separate circuit, with overcurrent protection at the main distribution panel, must be provided for each radiotelephone installation.

Subpart D—Lighting Systems

§ 183.410 Lighting fixtures.

(a) Each lighting fixture globe, lens, or diffuser must have a guard or be made of high strength material, except in an accommodation space, radio room, galley, or similar space where it is not subject to damage.

(b) A lighting fixture may not be used as a connection box for a circuit other than the branch circuit supplying the fixture.

(c) A lighting fixture must be installed as follows:

(1) Each fixture must comply with § 183.200.

(2) Each lighting fixture and lampholder must be fixed. A fixture must not be supported by the screw shell of a lampholder.

(3) Each pendant type lighting fixture must be suspended by and supplied through a threaded, rigid conduit stem.

(4) Each table lamp, desk lamp, floor lamp, or similar equipment must be secured in place so that it cannot be displaced by the roll or pitch of the vessel.

(d) An exterior lighting fixture in an electrical system operating at more than 50 volts must comply with the requirements of UL 595, ''Marine Type Electric Lighting Fixtures,'' or other standard specified by the Commandant. A lighting fixture in an accommodation space, radio room, galley or similar interior space may comply with, UL 1570, ''Fluorescent Lighting Fixtures,'' UL 1571, ''Incandescent Lighting

Fixtures,'' UL 1572, ''High Intensity Discharge Lighting Fixtures,'' UL 1573, ''Stage and Studio Lighting Units,'' or UL 1574, ''Track Lighting Systems,'' as long as the general marine requirements of UL 595 are satisfied.

§ 183.420 Navigation lights.

All vessels must have navigation lights that are in compliance with the applicable sections of the International and Inland Navigation Rules, except that a vessel of more than 19.8 meters (65 feet) in length must also have navigation lights that meet UL 1104, ''Standards for Marine Navigation Lights,'' or other standard specified by the Commandant.

§ 183.430 Portable lights

Each vessel must be equipped with at least two operable portable battery lights. One of these lights must be located at the operating station and the other at the access to the propulsion machinery space.

§ 183.432 Emergency lighting.

(a) Each vessel must have adequate emergency lighting fitted along the line of escape to the main deck from all passenger and crew accommodation spaces located below the main deck.

(b) The emergency lighting required by paragraph (a) of this section must automatically actuate upon failure of the main lighting system. If a vessel is not equipped with a single source of power for emergency lighting, it must have individual battery powered lights that:

(1) Are automatically actuated upon loss of normal power;

(2) Are not readily portable;

(3) Are connected to an automatic battery charger; and

(4) Have sufficient capacity for a minimum of 6 hours of continuous operation.

Subpart E—Miscellaneous Systems and Requirements

§ 183.520 Lifeboat winches.

Each electric power operated lifeboat winch must meet, 111.95 in subchapter J and § 160.015 in subchapter Q of this chapter, or other standard specified by the Commandant.

§ 183.530 Hazardous areas.

(a) Electrical equipment in spaces containing machinery powered by, or fuel tanks for, gasoline or other fuels having a flashpoint of 43.3° C (110° F) or lower must be explosion-proof or ignition-protected, or be part of an intrinsically safe system.

(b) Electrical equipment in lockers used to store paint, oil, turpentine, or other flammable liquids must be explosion-proof or be part of an intrinsically safe system.

(c) Explosion-proof equipment and intrinsically safe systems must meet the requirements of § 111.105 in subchapter S of this chapter.

§ 183.540 Elevators.

Each elevator on a vessel must meet the requirements of American National Standards Institute (ANSI) A17.1, ''Safety Code for Elevators, and Escalators,'' or other standard specified by the Commandant.

§ 183.550 General alarm systems.

All vessels with overnight accommodations must be equipped with a general alarm system. The public address system required by § 184.610 of this chapter may be used to sound the general alarm signal.

PART 184—VESSEL CONTROL AND MISCELLANEOUS SYSTEMS AND EQUIPMENT

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Authority: 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 184.100 General requirement.

(a) Vessel control systems and other miscellaneous systems and equipment required by this part must be suitable for the purposes intended.

(b) The cognizant Officer in Charge, Marine Inspection (OCMI) may require navigation, control, or communications equipment, in excess of the equipment specifically required by this part, on a vessel that is of a novel design, operates at high speeds in restricted or high traffic areas, operates in a dynamically supported mode, or operates on extended routes or in remote locations.

§ 184.115 Applicability to existing vessels.

(a) An existing vessel need not comply with §§ 184.402(c), 184.404, 184.410, and 184.602 unless the cognizant OCMI specifically requires compliance due to the route or service of the vessel.

(b) An existing vessel need not comply with the requirements of § 184.610 until March 11, 2001, or 10 years after its keel was laid or the vessel was at a similar stage of construction, whichever is later.

(c) An existing vessel need not comply with the requirements of § 184.710 until March 11, 1997.

Subpart B—Cooking and Heating

§ 184.200 General.

Cooking and heating equipment must be suitable for marine use. Equipment designed and installed in accordance with American Boat and Yacht Council (ABYC) A–3, ''Galley Stoves,'' and A–7, ''Boat Heating Systems,'' or with National Fire Protection Association (NFPA) 302, ''Pleasure and Commercial Motor Craft,'' complies with this requirement, except as restricted by § 184.202 of this part.

§ 184.202 Restrictions.

(a) The use of gasoline for cooking, heating, or lighting is prohibited on all vessels.

(b) Fireplaces or other space heating equipment with open flames are prohibited from being used on all vessels.

(c) Vessels permitted to use liquefied and non-liquefied gases as cooking fuels by 46 CFR Part 147 must meet the requirements in § 184.240 of this part. The use of these fuels for cooking, heating, and lighting on ferry vessels is prohibited by Part 147 in subchapter N of this chapter.

§ 184.210 Heating equipment.

(a) Each heater must be so constructed and installed as to prevent contact with combustible materials such as towels and clothing.

(b) Each electric space heater must be provided with a thermal cutout to prevent overheating.

(c) Each heater element of an electric space heater must be of an enclosed type, and the element case or jacket must be made of a corrosion resistant material.

§ 184.220 Cooking equipment.

(a) Doors on a cooking appliance must be provided with heavy duty hinges and locking devices to prevent accidental opening in heavy seas.

(b) A cooking appliance must be installed to prevent movement in heavy seas.

(c) For a grill or similar type of cooking appliance, means must be provided to collect grease or fat and to prevent its spillage on wiring or the deck.

(d) Grab rails must be installed on a cooking appliance when determined by the cognizant OCMI to be necessary for safety.

(e) Sea rails, with suitable barriers to prevent accidental movement of cooking pots, must be installed on a cooking range.

(f) Electric connections for a cooking appliance must be dripproof.

§ 184.240 Gas systems.

Cooking systems using liquefied petroleum gas (LPG) and compressed natural gas (CNG) must meet the following requirements:

(a) The design, installation and testing of each LPG system must meet ABYC A–1, ''Marine Liquefied Petroleum Gas (LPG) Systems,'' Chapter 6 of NFPA 302, or other standard specified by the Commandant.

(b) The design, installation and testing of each CNG system must meet ABYC A–22, ''Marine Compressed Natural Gas (CNG) Systems,'' Chapter 6 of NFPA 302, or other standard specified by the Commandant.

(c) Cooking systems using Chapter 6 of NFPA 302 as the standard must meet the following additional requirements:

(1) The storage or use of CNG containers within the accommodation area, machinery spaces, bilges, or other enclosed spaces is prohibited;

(2) LPG or CNG must be odorized in accordance with ABYC A–1 appendix 4 or A–22 appendix 4, respectively;

(3) The marking and mounting of LPG cylinders must be in accordance with ABYC A–1 appendix 7; and

(4) LPG cylinders must be of the vapor withdrawal type as specified in ABYC A–1 section 1.7.

(d) Continuous pilot lights or automatic glow plugs are prohibited for an LGP or CNG installation using ABYC A–1 or A–22 as the standard.

(e) CNG installation using ABYC A–22 as the standard must meet the following additional requirements:

(1) The storage or use of CNG containers within the accommodation area, machinery spaces, bilges, or other enclosed spaces is prohibited;

(2) CNG cylinders, regulating equipment, and safety equipment must meet the installation, stowage, and testing requirements of paragraph 6–5.12 of NFPA 302.

(3) The use or stowage of stoves with attached CNG cylinders is prohibited as specified in paragraph 6–5.1 of NFPA 302.

(f) If the fuel supply line of an LPG or CNG system enters an enclosed space on the vessel, a remote shutoff valve must be installed that can be operated from a position adjacent to the appliance. The valve must be located between the fuel tank and the point where the fuel supply line enters the enclosed portion of the vessel. A power operated valve installed to meet this requirement must be of a type that will fail closed.

(g) The following variances from ABYC A–1 section 1.12 are allowed for CNG:

(1) The storage locker or housing access opening need not be in the top.

(2) The locker or housing need not be above the waterline.

(h) The following variances from NFPA 302 are allowed:

(l) The storage locker or housing for CNG tank installations need not be above the waterline as required by paragraph 6–5.12.1.1(a);

(2) Ignition protection need not be provided as required by paragraph 6–5.4.

Subpart C—Mooring and Towing Equipment

§ 184.300 Ground tackle and mooring lines.

A vessel must be fitted with ground tackle and mooring lines necessary for the vessel to be safely anchored or moored. The ground tackle and mooring lines provided must be satisfactory for the size of the vessel, the waters on which the vessel operates, subject to the approval of the cognizant OCMI.

Subpart D—Navigation Equipment

§ 184.402 Compasses.

(a) Except as otherwise provided in this section every vessel must be fitted with a suitable magnetic compass designed for marine use, to be mounted at the primary operating station.

(b) The following vessels need not be fitted with a compass:

(1) A vessel on a rivers route;

(2) A non-self propelled vessel; and

(3) A vessel operating on short restricted routes on lakes, bays, and sounds.

(c) Except on a vessel limited to daytime operations, the compass must be illuminated.

§ 184.404 Radars.

(a) A vessel must be fitted with a Federal Communications Commission (FCC) type accepted general marine radar system for surface navigation with a radar screen mounted at the primary operating station if:

(1) The vessel is self-propelled;

(2) The vessel has an oceans, coastwise, limited coastwise, or Great Lakes route; and

(3) The vessel carries more than 49 passengers.

(b) A ferry that carries more than 49 passengers on a rivers route not within one mile of land must be fitted with a FCC Type Accepted general marine radar system for surface navigation with a radar screen mounted at the primary operating station.

(c) The radar and its installation must be suitable for the intended speed and route of the vessel.

(d) A vessel operated on a short restricted route need not be fitted with a radar if the cognizant OCMI determines that a radar is not necessary due to the vessel's route and local weather conditions.

§ 184.410 Electronic position fixing devices.

A vessel on an oceans route must be equipped with an electronic position fixing device, capable of providing accurate fixed for the area in which the vessel operates, to the satisfaction of the cognizant OCMI.

§ 184.420 Charts and nautical publications.

(a) As appropriate for the intend voyage, a vessel must carry adequate and up-to-date:

(1) Charts of large enough scale to make safe navigation possible;

(2) U.S. Coast Pilot or similar publication;

(3) Coast Guard Light List;

(4) Tide tables; and

(5) Current tables, or a river current publication issued by the U.S. Army Corps of Engineers or a river authority.

(b) Extracts from the publications listed above for the areas to be transited may be provided instead of the complete publication.

Subpart E—Radio

§ 184.502 Requirements for the Federal Communications Commission.

A vessel must comply with the applicable requirements for any radio

and Electronic Position Indicating Radiobeacon (EPIRB) installations, including the requirements for a station license and installation certificates to be issued by the Federal Communications Commission, as set forth in 47 CFR Part 80.

§ 184.506 Emergency broadcast placard.

A durable placard mut be posted next to all radiotelephone installations with the emergency broadcast instructions and information, specific to the individual vessel.

§ 184.510 Recommended emergency broadcast instructions.

The following emergency broadcast instructions, when placed on a placard, will satisfy the requirement contained in § 184.506 for an emergency broadcast placard:

(a) Emergency Broadcast Instructions.

(1) Make sure your radiotelephone is on.

(2) Select 156.8 MHz (channel 16 VHF) or 2182 kHz. (Channel 16 VHF and 2182 kHz on SSB are for emergency and calling purposes only.)

(3) Press microphone button and, speaking slowly—clearly—calmly, say:

(i) ''MAYDAY—MAYDAY—MAYDAY'' for situations involving Immediate Danger to Life and Property; or

(ii) ''PAN—PAN—PAN'' for urgent situations where there is No Immediate Danger to Life or Property.

(4) Say: ''THIS IS (INSERT VESSEL'S NAME), (INSERT VESSEL'S NAME), (INSERT VESSEL'S NAME), (INSERT VESSEL'S CALL SIGN), OVER.''

(5) Release the microphone button briefly and listen for acknowledgment. If no one answers, repeat steps 3 & 4.

(6) If there is no acknowledgment, or if the Coast Guard or another vessel responds, say: ''MAYDAY'' OR ''PAN'', (INSERT VESSEL'S NAME).''

(7) DESCRIBE YOUR POSITION using latitude and longitude coordinates, LORAN coordinates, or range and bearing from a known point.

(8) STATE THE NATURE OF THE DISTRESS.

(9) GIVE NUMBER OF PERSONS ABOARD AND THE NATURE OF ANY INJURIES.

(10) ESTIMATE THE PRESENT SEAWORTHINESS OF YOUR VESSEL.

(11) BRIEFLY DESCRIBE YOUR VESSEL: (INSERT LENGTH, COLOR, HULL TYPE, TRIM, MASTS, POWER, ANY ADDITIONAL DISTINGUISHING FEATURES).

(12) Say: ''I WILL BE LISTENING ON CHANNEL 16/2182.''

(13) End message by saying: ''THIS IS (INSERT VESSEL'S NAME & CALL SIGN).''

(14) If your situation permits, stand by the radio to await further communications with the Coast Guard or another vessel. If no answer, repeat, then try another channel

(b) [Reserved]

Subpart F—Control and Internal Communications Systems

§ 184.602 Internal communications systems.

(a) A vessel equipped with pilothouse control must have a fixed means of two-way communications from the operating station to the location where the means of controlling the propulsion machinery, required by § 184.620(a) of this part, is located. Twin screw vessels with pilothouse control for both engines are not required to have a fixed communications system.

(b) A vessel equipped with auxiliary means of steering, required by § 182.620 of this subchapter, must have a fixed means of two-way communications from the operating station to the location where the auxiliary means of steering is controlled.

(c) When the propulsion machinery of a vessel cannot be controlled from the operating station, an efficient communications system must be provided between the operating station and the propulsion machinery space.

(d) When the locations addressed in paragraphs (a), (b), and (c) of this section are sufficiently close together, direct voice communications satisfactory to the cognizant OCMI is acceptable instead of the required fixed means of communications.

(e) The OCMI may accept hand held portable radios as satisfying the communications system requirement of this section.

§ 184.610 Public address systems.

(a) Except as noted in paragraphs (d) and (e) below, each vessel must be equipped with a public address system.

(b) On a vessel of more than 19.8 meters (65 feet) in length, the public address system must be a fixed installation and be audible during normal operating conditions throughout the accommodation spaces and all other spaces normally manned by crew members.

(c) A vessel with more than one passenger deck and a vessel with overnight accommodations must have the public address system operable from the operating station.

(d) On a vessel of not more than 19.8 meters (65 feet) in length, a battery powered bullhorn may serve as the public address system if audible throughout the accommodation spaces of the vessel during normal operating conditions. The bullhorn's batteries are to be continually maintained at a fully charged level by use of a battery charger or other means acceptable to the cognizant OCMI.

(e) On a vessel of not more than 19.8 meters (65 feet) in length carrying not more than 49 passengers, a public address system is not required if a public announcement made from operating station without amplification can be heard throughout the accommodation spaces of the vessel during normal operating conditions, to the satisfaction of the cognizant OCMI.

§ 184.620 Propulsion engine control systems.

(a) A vessel must have two independent means of controlling each propulsion engine. Control must be provided for the engine speed, direction of shaft rotation, and engine shutdown.

(1) One of the means may be the ability to readily disconnect the remote engine control linkage to permit local operation.

(2) A multiple engine vessel with independent remote propulsion control for each engine need not have a second means of controlling each engine.

(b) In addition to the requirements of paragraph (a), a vessel must have a reliable means for shutting down a propulsion engine, at the main pilothouse control station, which is independent of the engine's speed control.

(c) A propulsion engine control system, including pilothouse control, must be designed so that a loss of power to the control system does not result in an increase in shaft speed or propeller pitch.

Subpart G—Miscellaneous

§ 184.702 Oil pollution prevention equipment and procedures.

A vessel must comply with the applicable design, equipment, personnel, procedures, and record requirements of 33 CFR Parts 151, 155, and 156.

§ 184.704 Marine sanitation devices.

A vessel with installed toilet facilities must have a marine sanitation device that complies with 33 CFR Part 159.

§ 184.710 First aid kits.

A vessel must carry a first aid kit approved in accordance with 160.041 in subchapter Q of this chapter, or other standard specified by the Commandant, or a kit with equivalent contents and instructions. For equivalent kits, the contents must be stowed in a suitable container that is marked, ''First Aid

Kit''. A first aid kit shall be easily visible and readily available to the crew.

PART 185—OPERATIONS

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Authority: 46 U.S.C. 2103, 3306, 6101; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart A—General Provisions

§ 185.100 General requirement.

A vessel must be operated in accordance with applicable laws and regulations and in such a manner as to afford adequate precaution against hazards that might endanger the vessel and the persons being transported.

§ 185.115 Applicability to existing vessels.

(a) An existing vessel need not comply with the hull marking requirements in § 185.602(b) until completion of a vessel's first drydock required by § 176.600 of this subchapter, which occurs after March 11, 1996.

(b) An existing vessel need not comply with the marking requirement in §§ 185.604 and 185.610, where the size and contents of the markings required by these sections vary from the size and contents of required markings on lifesaving equipment, watertight doors, and watertight hatches on the vessel prior to March 11, 1996, until the existing markings are no longer legible as determined by the cognizant Officer in Charge, Marine Inspection (OCMI).

(c) An existing vessel need not comply with the requirements of §§ 185.514, 185.516, and 185.604(i) until completion of the first inspection for certification that occurs after March 11, 1996.

Subpart B—Marine Casualties and Voyage Records

§ 185.202 Notice of casualty.

(a) Immediately after the addressing of resultant safety concerns, the owner, agent, master, or person in charge of a vessel involved in a marine casualty shall notify the nearest Marine Safety Office, Marine Inspection Office, or Coast Guard Group Office whenever a vessel is involved in a marine casualty consisting of:

(1) An unintended grounding, or an unintended strike of (allision with) a bridge;

(2) An intended grounding, or an intended strike of a bridge, that creates a hazard to navigation, the environment, or the safety of a vessel, or that meets any criterion of paragraphs (a)(3) through (a)(7) of this section;

(3) Loss of main propulsion or primary steering, or any associated component or control system, that reduces the maneuverability of the vessel;

(4) An occurrence materially and adversely affecting the vessel's seaworthiness or fitness for service or route, including but not limited to fire, flooding, failure of or damage to fixed fire extinguishing systems, lifesaving equipment, auxiliary power generating equipment, or bilge pumping systems;

(5) Loss of life;

(6) Injury that requires professional medical treatment (treatment beyond first aid) and, if the person is engaged or employed on board a vessel in commercial service, which renders the individual unfit to perform his or her routine duties; or

(7) An occurrence not meeting any of the above criteria but causing property damage in excess of $25,000. This damage includes the cost of labor and material to restore the property to its condition before the occurrence, but does not include the cost of salvage, cleaning, gas freeing, drydocking, or demurrage.

(b) A vessel is excluded from the requirements of paragraphs (a)(5) and (a)(6) of this section with respect to the death or injury of shipyard or harbor workers when such accidents are not the result of either a vessel casualty (e.g., collision) or a vessel equipment casualty (e.g., cargo boom failure) and are subject to the reporting requirements of the Occupational Safety and Health Administration (OSHA) in 29 Code of Federal Regulations (CFR) Part 1904.

(c) Notice given as required by § 185.203 satisfies the requirement of this section if the marine casualty involves a hazardous condition.

§ 185.203 Notice of hazardous conditions.

Whenever there is a hazardous condition, as defined by § 175.400 of this subchapter, on board the vessel, the owner, master, agent, or person in charge shall immediately notify the

Captain of the Port of the port of place of destination and the Captain of the Port of the port or place in which the vessel is located of the hazardous condition.

§ 185.206 Written report of marine casualty.

(a) The owner, master, agent, or person in charge shall, within five days, file a written report of any marine casualty. This written report is in addition to the immediate notice required by 185.202. This written report must be delivered to a Coast Guard Marine Safety Office, or Marine Inspection Office. It must be provided on Form CG–2692 (Report of Marine Accident, Injury, or Death), Supplemented as necessary by appended Forms CG–2692A (Barge Addendum) and CG–2692B (Report of Required Chemical Drug and Alcohol Testing Following a Serious Marine Incident).

(b) If filed without delay after the occurrence of the marine casualty, the notice required by paragraph (a) of this section suffices as the notice required by § 185.202.

§ 185.208 Accidents to machinery.

The owner, managing operator, or master shall report damage to a boiler, unfired pressure vessel, or machinery that renders further use of the item unsafe until repairs are made, to the OCMI at the port in which the casualty occurred or nearest the port of first arrival, as soon as practicable after the damage occurs.

§ 185.210 Alcohol or drug use by individuals directly involved in casualties.

(a) For each marine casualty required to be reported by § 185.202, the owner, agent, master, or person in charge of the vessel shall determine whether there is any evidence of alcohol or drug use by individuals directly involved in the casualty.

(b) The owner, agent, master, or person in charge of the vessel shall include in the written report, Form CG 2692, submitted for the casualty information that:

(1) Identifies those individuals for whom evidence of drug or alcohol use, or evidence of intoxication, has been obtained; and

(2) Specifies the method use to obtain such evidence, such as personal observation of the individual, or by chemical testing of the individual.

(c) An entry must be made in the Official Logbook if carried, pertaining to those individuals for whom evidence of intoxication is obtained. The individual shall be informed of this entry and the entry shall be witnessed by a second person.

(d) If an individual directly involved in a casualty refuses to submit to, or cooperate in, the administration of a timely chemical test, when directed by a Coast Guard commissioned, warrant, or petty officer, or any other law enforcement officer authorized to obtain a chemical test under Federal, state, or local law, or by the owner, agent, master, or person in change, this fact must be noted in the Official Logbook, if carried, and in the written report (Form CG 2692), and will be admissible as evidence in any administrative proceeding.

§ 185.212 Mandatory chemical testing following serious marine incidents.

A marine employer whose vessel is involved in a casualty or incident that is, or is likely to become, a serious marine incident as defined in § 4.03–2 of subchapter A of this chapter shall comply with the requirements of § 4.06 in subchapter A of this chapter.

§ 185.220 Records of a voyage resulting in a marine casualty.

The owner, agent, master, or person in charge of any vessel involved in a marine casualty for which a report is required under § 185.202 of this part shall retain all voyage records maintained by the vessel, including rough and smooth deck and engine room logs, bell books, navigation charts, navigation work books, compass deviation cards, gyrocompass records, stowage plans, records of draft, aids to mariners, night order books, radiograms sent and received, radio logs, crew and passenger lists and counts, articles of shipment, official logs, and other material that might be of assistance in investigating and determining the cause of the casualty. The owner, agent, master, other officer, or person responsible for the custody thereof, shall make these records available upon request, to a duly authorized investigating officer, administrative law judge, officer of employee of the Coast Guard.

§ 185.230 Report of accident to aid to navigation.

Whenever a vessel collides with a buoy, or other aid to navigation under the jurisdiction of the Coast Guard, or is connected with any such collision, the person in charge of such vessel shall report the accident to the nearest OCMI. No report on Form CG 2692 is required unless otherwise required under 185.202.

§ 185.260 Reports of potential vessel casualty.

(a) An owner, charterer, managing operator, or agent of a vessel shall immediately notify either of the following Coast Guard offices if there is reason to believe the vessel is lost or imperiled:

(1) The Coast Guard district rescue coordination center (RCC) cognizant over the area in which the vessel was last operating; or

(2) The Coast Guard search and rescue authority nearest to where the vessel was last operating.

(b) Reasons for belief that a vessel is in distress include, but are not limited to, lack of communication with or nonappearance of the vessel.

(c) The owner, charterer, managing operator, or agent notifying the Coast Guard under paragraph (a) of this section, shall provide the name and identification number of the vessel, a description of the vessel, the names or number of individuals on board, and other information that may be requested by the Coast Guard.

§ 185.280 Official Logbook for foreign voyages.

(a) Every vessel on a voyage from a port in the United States to a foreign port except to a port in Canada, or vice versa, must have an Official Logbook.

(b) The master shall make or have made in the Official Logbook the following entries:

(1) Each legal conviction of a seaman of the vessel and the punishment inflicted;

(2) Each offense committed by a seaman of the vessel for which it is intended to prosecute or to enforce under a forfeiture, together with statements about reading the entry and the reply made to the charge as required by 46 U.S.C. 11502;

(3) A statement of the conduct, character, and qualifications of each seaman of the vessel or a statement that the master declines to give an opinion about that conduct, character, and qualifications;

(4) Each illness of or injury to a seaman of the vessel, the nature of the illness or injury, and the medical treatment;

(5) Each death on board, with the cause of death, and if a seaman, the information required by 46 U.S.C. 10702:

(i) The wages due to a seaman who dies during the voyage and the gross amount of all deductions to be made from the wages;

(ii) The sale of the property of a seaman who dies during the voyage, including a statement of each article

sold and the amount received for the property;

(6) Each birth on board, with the sex of the infant and the name of the parents;

(7) Each marriage on board, with the names and ages of the parties;

(8) The name of each seaman who ceases to be a crew member (except by death), with the place, time, manner, and the cause why the seaman ceased to be a crew member;

(9) When a marine casualty occurs, a statement about the casualty and the circumstances under which it occurred, made immediately after the casualty when practicable to do so.

Subpart C—Miscellaneous Operating Requirements

§ 185.304 Navigation underway.

(a) The movement of vessel shall be under the direction and control of the master or a licensed mate at all times. The master shall operate the vessel keeping the safety of the passengers and crew foremost in mind by directing the vessel in order to prevent a casualty. Special attention should be paid to:

(1) The current(s) velocity and direction of the transiting area;

(2) Tidal state;

(3) Prevailing visibility and weather conditions;

(4) Density of marine traffic;

(5) Potential damage caused by own wake;

(6) The danger of each closing visual or each closing radar contact;

(7) Vessel's handling characteristics; and

(8) Magnetic variation and deviation errors of the compass.

§ 185.315 Verification of vessel compliance with applicable stability requirements.

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. The vessel may not depart until it is in compliance with these requirements.

§ 185.320 Steering gear, controls, and communication system tests.

The master of a vessel shall have examined and tested the steering gear, signaling whistle, propulsion controls, and communication systems of the vessel prior to getting underway for a voyage, except that such examination and testing need not be conducted more than once in any 24 hour period.

§ 185.330 Hatches and other openings.

(a) Except when operating on lakes, bays, and sounds, or rivers routes in calm weather, all hatches and openings in the hull, except loading doors, of a vessel must be kept tightly closed except when being used.

(b) All watertight doors in subdivision bulkheads must be kept tightly closed during the navigation of the vessel except when being used for transit between compartments.

§ 185.335 Loading doors.

(a) Except as allowed by paragraph (b) of this section, the master of a vessel fitted with loading doors shall assure that all loading doors are closed watertight and secured during the entire voyage.

(b) Loading doors, other than bow visors, may be opened when operating in protected or partially protected waters, provided the master of the vessel determines that the safety of the vessel is not impaired.

(c) For the purpose of this section, ''loading doors'' include all weathertight ramps, bow visors, and openings used to load personnel, equipment, and stores, in the collision bulkhead, the side shell, and the boundaries of enclosed superstructures that are continuous with the shell of the vessel.

185.340 Vessels carrying vehicles.

(a) Automobiles or other vehicles must be stowed in such a manner as to permit both passengers and crew to get out and away from the vehicles freely in the event of fire or other disaster. The decks, where necessary, must be distinctly marked with painted lines to indicate the vehicle runways and the aisle spaces.

(b) The master shall take any necessary precautions to see that automobiles or other vehicles have their motors turned off and their emergency brakes set when the vessel is underway, and that the motors are not started until the vessel is secured to the landing. In addition, a vehicle at each end of a line of vehicles or next to a loading ramp must have its wheels securely blocked, while the vessel is being navigated.

(c) The master shall have appropriate ''NO SMOKING'' signs posted and shall take all necessary precautions to prevent smoking or carrying of lighted or smoldering pipes, cigars, cigarettes, or similar items in the deck area assigned to automobiles or other vehicles.

(d) The master shall, prior to getting underway, ensure that vehicles are properly distributed consistent with the guidance in the vessel's stability letter and Certificate of Inspection, if applicable.

§ 185.350 Fueling of vessels using fuel having a flash point of 43.3° C (110° F) or lower (such as gasoline).

A vessel must not take on fuel having a flash point of 43.3° C (110° F) or lower when passengers are on board.

§ 185.352 Ventilation of gasoline machinery spaces.

The mechanical exhaust for the ventilation of a gasoline machinery space, required by § 182.460(a)(1)(ii) of this chapter, must be operated prior to starting gasoline engines for the time sufficient to insure at least one complete change of air in the space served.

§ 185.356 Carriage of hazardous materials.

A vessel that transports a hazardous material, listed in 49 CFR 172.101, in commerce shall ensure the material is handled and transported in accordance with 49 CFR Parts 171 and 179.

§ 185.360 Use of auto pilot.

Whenever an automatic pilot is used the master shall ensure that:

(a) It is possible to immediately establish manual control of the vessel's steering;

(b) A competent person is ready at all times to take over steering control; and

(c) The changeover from automatic to manual steering and vice versa is made by, or under the supervision of, the master or the mate on watch.

Subpart D—Crew Requirements

§ 185.402 Licenses.

Each licensed individual employed upon any vessel subject to the provisions of this subchapter shall have his or her license on board and available for examination at all times when the vessel is operating.

§ 185.410 Watchmen.

The owner, charterer, master, or managing operator of a vessel carrying overnight passengers shall have a suitable number of watchmen patrol throughout the vessel during the nighttime, whether or not the vessel is underway, to guard against, and give alarm in case of, a fire or other danger.

§ 185.420 Crew training.

The owner, charterer, master or managing operator shall instruct each crew member, upon first being employed and prior to getting underway for the first time on a particular vessel and at least once every three months, as to the duties that the crew member is expected to perform in an emergency including, but not limited to, the emergency instructions listed on the emergency instruction placard required by § 185.510 of this part and, when

applicable, the duties listed in the station bill required by § 185.514 of this part.

(b) Crew training shall be logged or otherwise documented for review by the Coast Guard upon request. The training entry shall include the following information.

(1) Date of the training; and

(2) General description of the training topics.

Subpart E—Preparations for Emergencies

§ 185.502 Crew and passenger list.

(a) The owner, charterer, managing operator, or master of the following vessels must keep a correct list of the names of all persons that embark on and disembark from the vessel:

(1) A vessel making a coastwise or oceans voyage where:

(i) Passengers embark or disembark from the vessel to another vessel or port other than at the port of origin; or

(ii) Passengers are carried overnight;

(2) A vessel making a voyage of more than 300 miles on the Great Lakes, except from a Canadian to a United States port; and

(3) A vessel arriving from a foreign port, except at a United States Great Lakes port from a Canadian Great Lakes port.

(b) The master of a vessel required to prepare a crew and passenger list by paragraph (a) of this section shall see that the list is prepared prior to departing on a voyage. The list must be communicated verbally or in writing ashore at the vessel's normal berthing location or with a representative of the owner or managing operator of the vessel. The crew and passenger list shall be available to the Coast Guard upon request.

§ 185.503 Voyage plan

(a) The master of the following vessels shall prepare a voyage plan:

(1) A vessel making an oceans or coastwise voyage;

(2) A vessel making a voyage of more than 300 miles on the Great Lakes, except from a Canadian to a United States port;

(3) A vessel, with overnight accommodations for passengers, making an overnight voyage; and

(4) A vessel arriving from a foreign port, except at a United States Great Lakes port from a Canadian Great Lakes port.

(b) The voyage plan required by paragraph (a) of this section must be prepared prior to departing on a voyage and communicated verbally or in writing, ashore at the vessel's normal berthing location or with a representative of the owner or managing operator of the vessel. The voyage plan shall be available to the Coast Guard upon request.

§ 185.504 Passenger count.

The master of a vessel, except a vessel listed in § 185.502(a) of this part, shall keep a correct, written count of all passengers that embark on and disembark from the vessel. Prior to departing on a voyage, the passenger count must be communicated verbally or in writing, and available ashore at the vessel's normal berthing location or with a representative of the owner or managing operator of the vessel. The passenger count shall be available to the Coast Guard upon request.

§ 185.506 Passenger safety orientation.

(a) Except as allowed by paragraph (b) of this section, before getting underway on a voyage, the master of a vessel shall ensure that suitable public announcements are made informing all passengers of the information in this section when applicable to the vessel's operations and arrangement:

(1) The location of emergency exists, survival craft embarkation areas, and ring life buoys;

(2) The stowage location(s) of life jackets;

(3) Either:

(i) The proper method of donning and adjusting life jackets of the type(s) carried on the vessel including a demonstration of the proper donning of a lifejacket, or

(ii) that passengers may contact a crew member for a demonstration as appropriate, prior to beginning an oceans or coastwise voyage;

(4) The location of the instruction placards for life jackets and other lifesaving devices;

(5) That all passengers will be required to don life jackets when possible hazardous conditions exist, as directed by the master; and

(6) If the vessel is operating with reduced manning or equipment requirements in § 176.114 of this chapter.

(b) On a vessel with other than an oceans or coastwise route, as an alternative to an announcement that complies with paragraph (a) of this section, the master or other designated person may:

(1) Prior to getting underway, deliver to each passenger or, on a vessel that does not carry vehicles and that has seats for each passenger, place near each seat, a card or pamphlet that has the information listed in paragraphs (a)(1) and (a)(6) of this section; and

(2) Make an abbreviated announcement consisting of:

(i) A statement that passengers should follow the instructions of the crew in an emergency;

(ii) The location of life jackets; and

(iii) That further information concerning emergency procedures including the donning of life jackets, location of other emergency equipment, and emergency evacuation procedures are located on the card or pamphlet that was given to each passenger or is located near each seat.

(c) The master of a vessel shall ensure that a passenger, who boards the vessel on a voyage after the initial public announcement has been made as required by paragraphs (a) or (b) of this section, is also informed of the required safety information.

(d) On a vessel on a voyage of more than 24 hours duration, passengers shall be requested to don life jackets and go to the appropriate embarkation station during the safety orientation. If only a small number of passengers embark at a port after the original muster has been held, these passengers must be given the passenger safety orientation required by paragraphs (a) or (b) of this section if another muster is not held.

§ 185.508 Wearing of life jackets.

(a) The master of a vessel shall require passengers to don life jackets when possible hazardous conditions exist, including, but not limited to:

(1) When transiting hazardous bars and inlets;

(2) During severe weather;

(3) In event of flooding, fire, or other events that may possibly call for evacuation; and

(4) When the vessel is being towed, except a non-self-propelled vessel under normal operating conditions.

(b) The master or crew shall assist each passenger in obtaining a life jacket and donning it, as necessary.

§ 185.510 Emergency instructions.

(a) The master and crew of a vessel will be familiar with the content of and have mounted at the operating station, emergency instructions containing the actions to be taken in the event of fire, heavy weather, or man overboard conditions.

(b) Except when in the judgment of the cognizant OCMI the operation of a vessel does not present one of the hazards listed, the emergency instruction placard should contain at least the applicable portions of the ''Emergency Instructions'' listed in § 185.512. The emergency instructions must be designed to address the particular equipment, arrangement, and operation of each individual vessel.

(c) If the cognizant OCMI determines that there is no suitable mounting surface aboard the vessel, the emergency instructions need not be posted but must be carried aboard the vessel and be available to the crew for familiarization.

§ 185.512 Recommended emergency instructions format.

An emergency instruction placard containing the following information will satisfy the requirements of § 185.510.

(a) Emergency Instructions. (1) *Rough weather at sea, crossing hazardous bars, or flooding.* (i) Close all watertight and weathertight doors, hatches, and airports to prevent taking water aboard or further flooding in the vessel.

(ii) Keep bilges dry to prevent loss of stability due to water in bilges. Use power driven bilge pump, hand pump, and buckets to dewater.

(iii) Align fire pumps to use as bilge pump if possible.

(iv) Check all intake and discharge lines, which penetrate the hull, for leakage.

(v) Passengers must remain seated and evenly distributed.

(vi) Passengers must don life jackets if the going becomes very rough, the vessel is about to cross a hazardous bar, or when otherwise instructed by the master.

(vii) Never abandon the vessel unless actually forced to do so.

(viii) If assistance is needed follow the procedures on the emergency broadcast placard posted by the radiotelephone.

(ix) Prepare survival craft (life floats, (inflatable) rafts, (inflatable) buoyant apparatus, boats) for launching.

(2) *Man overboard.* (i) Throw a ring buoy overboard as close to the person as possible.

(ii) Post a lookout to keep the person overboard in sight.

(iii) Launch rescue boat and maneuver to pick up person in the water, or maneuver the vessel to pick up the person in the water.

(iv) Have crew member put on life jacket, attach a safety line to him or her, and have him or her stand by jump into the water to assist the person overboard if necessary.

(v) If person is not immediately located, notify Coast Guard and other vessels in vicinity by radiotelephone.

(vi) Continue search until released by Coast Guard.

(3) *Fire.* (i) Cut off air supply to fire—close items such as hatches, ports, doors, ventilators, and louvers, and shut off ventilation system.

(ii) Cut off electrical system supplying affected compartment if possible.

(iii) If safe, immediately use portable fire extinguishers at base of flames for flammable liquid or grease fires or water for fires in ordinary combustible materials. Do not use water on electrical fires.

(iv) If fire is in machinery spaces, shut off fuel supply and ventilation and activate fixed extinguishing system if installed.

(v) Maneuver vessel to minimize effect of wind on fire.

(vi) If unable to control fire, immediately notify the Coast Guard and other craft in the vicinity by radiotelephone.

(vii) Move passengers away from fire, have them put on life jackets, and if necessary, prepare to abandon the vessel.

(b) [Reserved]

§ 185.514 Station bill.

(a) A station bill must be posted by the master on a vessel of more than 19.8 meters (65 feet) in length having a Certificate of Inspection requiring more than four crew members at any one time, including the master.

(b) The station bill required by paragraph (a) of this section must set forth the special duties and duty station of each crew member for various emergencies. The duties must, as far as possible, be comparable with the regular work of the individual. The duties must include at least the following and any other duties necessary for the proper handling of a particular emergency:

(1) The closing of hatches, airports, watertight doors, vents, scuppers, and valves for intake and discharge lines that penetrate the hull, the stopping of fans and ventilating systems, and the operating of all safety equipment;

(2) The preparing and launching of survival craft and rescue boats;

(3) The extinguishing of fire; and

(4) The mustering of passengers including the following:

(i) Warning the passengers;

(ii) Assembling the passengers and directing them to their appointed stations; and

(iii) Keeping order in the passageways and stairways and generally controlling the movement of the passengers.

(c) The station bill must be posted at the operating station and in a conspicuous location in each crew accommodation space.

§ 185.516 Life jacket placards.

(a) Placards containing instructions for the donning and use of the life jackets aboard the vessel must be posted in conspicuous places that are regularly accessible and visible to the crew and passengers.

(b) If the cognizant OCMI determines that there is no suitable mounting surface aboard the vessel, the life jacket placards need not be posted but must be carried aboard the vessel and be available to the crew and passengers for familiarization.

§ 185.518 Inflatable survival craft placards.

(a) Every vessel equipped with an inflatable survival craft must have approved placards or other cards containing instruction for launching and inflating inflatable survival craft for the information of persons on board posted in conspicuous places by each inflatable survival craft.

(b) Under the requirement in § 160.051–6(c)(1) in subchapter Q of this chapter, or other standard specified by the Commandant, the manufacturer of approved inflatable liferafts is required to provide approved placards containing such instructions with each liferaft. Similar placards must be used for other inflatable survival craft.

§ 185.520 Abandon ship and man overboard drills and training.

(a) The master shall conduct sufficient drills and give sufficient instructions to make sure that all crew members are familiar with their duties during emergencies that necessitate abandoning ship or the recovery of persons who have fallen overboard.

(b) Each abandon ship drill must include:

(1) Summoning the crew to report to assigned stations and prepare for assigned duties;

(2) Summoning passengers on a vessel on an overnight voyage to muster stations or embarkation stations and ensuring that they are made aware of how the order to abandon ship will be given;

(3) Checking that life jackets are correctly donned;

(4) Operation of any davits used for launching liferafts; and

(5) Instruction on the automatic and manual deployment of survival craft.

(c) Each abandon ship drill must, as far as practicable, be conducted as if there were an actual emergency.

(d) Each rescue boat required in accordance with § 180.210 of this chapter must be launched with its assigned crew aboard and maneuvered in the water as if during an actual man overboard situation:

(1) Once each month, if reasonable and practicable; but

(2) At least once within a 3 month period before the vessel gets underway with passengers.

(e) Onboard training in the use of davit launched liferafts must take place at intervals of not more than 3 months on a vessel with a davit launched liferaft.

(f) Abandon ship and man overboard drills and training shall be logged or otherwise documented for review by the Coast Guard upon request. The drill entry shall include the following information:

(1) Date of the drill and training; and

(2) General description of the drill scenario and training topics.

§ 185.524 Fire fighting drills and training.

(a) The master shall conduct sufficient fire drills to make sure that each crew member is familiar with his or her duties in case of a fire.

(b) Each fire drill must include:

(1) Summoning passengers on a vessel on an overnight voyage to muster or embarkation stations;

(2) Summoning the crew to report to assigned stations and to prepare for and demonstrate assigned duties; and

(3) Instruction in the use of fire extinguishers and any other fire fighting equipment on board.

(c) Each fire drill must, as far as practicable, be conducted as if there were an actual emergency.

(d) Fire fighting drills and training shall be logged or otherwise documented for review by the Coast Guard upon request. The drill entry shall include the following information:

(1) Date of the drill and training; and

(2) General description of the drill scenario and training topics.

§ 185.530 Responsibilities of licensed individuals.

Nothing in the emergency instructions or a station bill required by this subpart exempts any licensed individual from the exercise of good judgment in an emergency situation.

Subpart F—Markings Required

§ 185.602 Hull markings.

(a) This section applies to each vessel that fits into any one of the following categories:

(1) A vessel of more than 19.8 meters (65 feet) in length.

(2) A sailing vessel of more than 19.8 meters (65 feet) in length.

(3) A vessel authorized to carry more than 12 passengers on an international voyage.

(4) A vessel with more than 1 deck above the bulkhead deck exclusive of a pilot house.

(b) Each vessel must be marked as required by Part 67 in subchapter G of this chapter.

(c) Each vessel that complies with the stability requirements of §§ 170.170, 170.173, 171.050, 171.055, and 171.057 in subchapter S of this chapter, in accordance with § 178.310 of this chapter, must:

(1) Have permanent draft marks at each end of the vessel; or

(2) Have permanent loading marks placed on each side of the vessel forward, amidships, and aft to indicate the maximum allowable draft and trim.

(d) A loading mark required by paragraph (c)(2) of this section must be a horizontal line of at least 205 millimeters (8 inches) in length and 25 millimeters (1 inch) in height, with its upper edge passing through the point of maximum draft. The loading mark must be painted in a contrasting color to the sideshell paint.

(e) On a vessel that has a load line, the amidships marks required by paragraph (c)(2) of this section will be those required by the 1966 International Load Line Convention.

(f) 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.

(g) On a vessel on which the number of passengers permitted on upper decks is limited by stability criteria, as indicated by the vessel's stability letter, the maximum number of passengers allowed on an upper deck must be indicated by a durable marking of at least 25 millimeters (1 inch) numbers and letters at the entranceway to each such deck.

§ 185.604 Lifesaving equipment markings.

(a) The name of a vessel must be marked or painted in clearly legible letters and numbers at least 76 millimeters (3 inches) high:

(1) On each side of the bow of each rescue boat; and

(2) On each life float and buoyant apparatus.

(b) Each life jacket, immersion suit, and ring life buoy must be marked in clearly legible block capital letters with the vessel's name. The marking is not required on a life jacket carried to meet a temporary need for additional life jackets, if the life jacket has the name of another vessel marked on it. For an immersion suit, the name of the person to whom the immersion suit is assigned is an acceptable alternative to the name of the vessel.

(c) The name of the vessel must be marked or painted in clearly legible letters on each Emergency Position Indicating Radiobeacon (EPIRB), except on an EPIRB in an inflatable liferaft.

(d) The number of persons capacity must be marked or painted in clearly legible letters on each side of the bow of each rescue boat in letters and numbers at least 40 millimeters (1.5 inches) high.

(e) The number of persons capacity must be marked or painted in clearly legible letters on each life float and buoyant apparatus in letters and numbers at least 40 millimeters (1.5 inches high). This number must:

(1) Be the number of persons the device is equipped for; and

(2) Not be greater than the number of persons the device is approved for as shown on its nameplate.

(f) The number and identification of the items stowed inside, and their sizes, must be marked in clearly legible letters and numbers on each container for life jackets and immersion suits. Identification of the items may be in words, or the appropriate symbols in International Maritime Organization (IMO) Resolution A.760(18), ''Symbols Related to Life-Saving Appliances and Arrangements.'' Letters and numbers must be at least 50 millimeters (2 inches) high. Symbols must be at least 100 mm (4 inches) square.

(g) The name of the vessel must be marked or painted in clearly legible letters on each life float paddle.

(h) Each life jacket must be marked with Type I retroreflective material approved in accordance with § 164.018 in subchapter Q of this chapter, or other standard specified by the Commandant. The arrangement of the retroreflective material applied after March 11, 1996, must be as specified by IMO Resolution A.658(16), ''Use and Fitting Of Retro-Reflective Materials on Life-Saving Appliances.''

(i) Each rescue boat and ring life buoy must be marked with Type II retroreflective material approved in accordance with § 164.018 in subchapter Q of this chapter, or other standard specified by the Commandant. The arrangement of the retroreflective material applied after March 11, 1996, must be as specified by IMO Resolution A.658(16).

§ 185.606 Escape hatches and emergency exits.

All escape hatches and other emergency exits used as means of escape must be marked on both sides in clearly legible letters at least 50 millimeters (2 inches) high: ''EMERGENCY EXIT, KEEP CLEAR'', unless such markings are deemed unnecessary by the cognizant OCMI.

§ 185.608 Fuel shutoff valves.

Remote fuel shutoff stations must be marked in clearly legible letters at least 25 millimeters (1 inch) high indicating purpose of the valve and direction of operation.

§ 185.610 Watertight doors and watertight hatches.

Watertight doors and watertight hatches must be marked on both sides in clearly legible letters at least 25 millimeters (1 inch) high: ''WATERTIGHT DOOR—KEEP CLOSED'' or ''WATERTIGHT HATCH—KEEP CLOSED'', unless such markings are deemed unnecessary by the cognizant OCMI.

§ 185.612 Fire protection equipment.

(a) Complete but simple instructions for the operation of a fixed gas fire extinguishing system must be located in a conspicuous place at or near each pull box and stop valve control and in the space where the extinguishing agent cylinders are stored. If the storage cylinders are separate from the protected space, the instructions must also include a schematic diagram of the system and instructions detailing alternate methods of releasing the extinguishing agent should the local manual release or stop valve controls fail to operate. Each control valve to a distribution line must be marked to indicate the space served.

(b) An alarm for a fixed gas fire extinguishing system must be clearly and conspicuously marked ''WHEN ALARM SOUNDS-VACATE AT ONCE. CARBON DIOXIDE BEING RELEASED''. Where a different extinguishing agent is installed, that agent shall be marked in place of ''carbon dioxide.''

(c) Each distribution line valve of a fixed gas fire extinguishing system and the fire main, must be plainly, conspicuously, and permanently marked indicating the space served.

(d) An alarm for an automatic sprinkler system must be conspicuously marked in clearly legible letters ''SPRINKLER ALARM''.

(e) An alarm bell for a smoke detecting system must be conspicuously marked in clearly legible letters ''SMOKE DETECTION ALARM''.

(f) A control cabinet or space containing valves, manifolds, or controls for any fixed gas fire extinguishing system must be conspicuously marked in clearly legible letters ''CARBON DIOXIDE FIRE EXTINGUISHING APPARATUS'', or as otherwise required by the cognizant OCMI. Where a different extinguishing agent is installed, that agent shall be marked in place of ''carbon dioxide.''

§ 122.614 Portable watertight container for distress flares and smoke signals.

Portable watertight containers for distress flares and smoke signals shall be of a bright color, and containers shall be clearly marked in legible contrasting letters at least 12.7 millimeters (0.5 inches) high: ''DISTRESS SIGNALS''.

Subpart G—Operational Readiness, Maintenance, and Inspection of Lifesaving Equipment

§ 185.700 Operational readiness.

(a) Each launching appliance and each survival craft and rescue boat on a vessel must be in good working order and ready for immediate use before the vessel leaves port and at all times when the vessel is underway.

(b) Each deck where survival craft or rescue boats are stowed or boarded must be kept clear of obstructions that would interfere with the boarding and launching of the survival craft or rescue boat.

§ 185.702 Maintenance.

(a) The manufacturer's instructions for onboard maintenance of survival craft, rescue boats, and launching appliances, manufactured on or after March 11, 1996, must be onboard a vessel of more than 19.8 meters (65 feet) in length and readily available for a vessel of not more than 19.8 meters (65 feet) in length. The instructions must also be readily available at each inspection for certification and reinspection.

(b) The owner or managing operator shall make sure that maintenance is carried out in accordance with the instructions required under paragraph (a) of this section.

(c) The cognizant OCMI may accept, instead of the instructions required under paragraph (a) of this section, a shipboard planned maintenance program that includes the items listed in that paragraph.

(d) The inspection and maintenance of the equipment listed in paragraph (a) of this section shall be logged or otherwise documented for review by the Coast Guard upon request.

§ 185.704 Maintenance of falls.

(a) Each fall used in a launching appliance on a vessel must be turned end for end at intervals of not more than 30 months.

(b) Each fall must be renewed when necessary due to deterioration or at intervals of not more than 5 years, whichever is earlier.

(c) Each fall must have a corrosion resistant tag with the following permanently marked on it:

(1) The date the new fall was installed; and

(2) If the fall has been turned end for end, the date it was turned.

§ 185.720 Weekly maintenance and inspections.

The following tests and inspections must be carried out weekly on a vessel:

(a) Each survival craft, rescue boat, and launching appliance must be visually inspected to ensure its readiness for use;

(b) Each rescue boat engine must be run ahead and astern for not less than 3 minutes, unless the ambient temperature is below the minimum temperature required for starting the engine; and

(c) Each battery for rescue boat engine starting must be brought up to full charge at least once each week if:

(1) The battery is of a type that requires recharging; and

(2) The battery is not connected to a device that keeps it continuously charged.

§ 185.722 Monthly inspections.

Each survival craft, rescue boat, and launching appliance on a vessel must be inspected monthly, using the manufacturers instructions to make sure it is complete and in good order.

§ 185.724 Quarterly inspections.

(a) Each winch control apparatus of a launching appliance on a vessel, including motor controllers, emergency switches, master switches, and limit switches, must be examined once in each 3 months.

(b) The examination required by paragraph (a) of this section must include the removal of drain plugs and the opening of drain valves to make sure that enclosures are free of water.

§ 185.726 Annual inspections.

(a) Each rescue boat must be stripped, cleaned, and thoroughly inspected, and any necessary repairs made at least once each year, including emptying and cleaning of each fuel tank, and refilling it with fresh fuel.

(b) Each davit, winch, fall and other launching appliance must be thoroughly inspected, and any necessary repairs made, at least once each year.

(c) Each item of lifesaving equipment with an expiration date must be replaced during the annual inspection and repair if the expiration date has passed.

(d) Each battery used in an item of lifesaving equipment, except inflatable survival craft equipment, must be replaced during the annual inspection if the expiration date of the battery has passed. The expiration date of the battery may be marked on the battery or the owner or managing operator may have a record of the expiration date from the manufacturer of a battery marked with a serial number.

(e) Except for a storage battery used in a rescue boat, each battery without an expiration date indicated on it or for which the owner or managing operator does not have a record of the expiration date, used in an item of lifesaving equipment, must be replaced during the annual inspection.

§ 185.728 Testing and servicing of Emergency Position Indicating Radiobeacons (EPIRB).

The master of the vessel shall ensure that:

(a) Each EPIRB, other than an EPIRB is an inflatable liferaft, must be tested monthly, using the integrated test circuit and output indicator, to determine that it is operative;

(b) The EPIRB's battery is replaced after it is used, or before the date required by FCC regulations in 47 CFR Part 80, whichever comes sooner; and

(c) The EPIRB test required by paragraph (a) shall be logged or otherwise documented, as applicable.

§ 185.730 Servicing of inflatable liferafts, inflatable buoyant apparatus, inflatable life jackets and inflated rescue boats.

(a) Each inflatable liferaft, inflatable buoyant apparatus, inflatable life jacket, and hybrid inflatable life jacket or work vest must be serviced:

(1) Within 12 months of its initial packing; and

(2) Within 12 months of each subsequent servicing, except when servicing is delayed until the next scheduled inspection of the vessel, provided that the delay does not exceed 5 months.

(b) Each inflatable liferaft and inflatable buoyant apparatus must be serviced:

(1) Whenever the container of the raft is damaged, or the straps or seal are broken; and

(2) In accordance with the servicing procedure under § 160.151 in subchapter Q of this chapter, or other standard specified by the Commandant.

(c) Each inflatable life jacket must be serviced in accordance with the servicing procedure under § 160.176 in subchapter Q of this chapter, or other standard specified by the Commandant.

(d) Each hybrid inflatable life jacket or work vest must be serviced in accordance with the servicing procedure under § 160.077 in subchapter Q of this chapter, or other standard specified by the Commandant.

(e) Repair and maintenance of inflated rescue boats must be in accordance with the manufacturer's instructions. All repairs must be made at a servicing facility approved by the Commandant, except for emergency repairs carried out on board the vessel.

§ 185.740 Periodic servicing of hydrostatic release units.

(a) Each hydrostatic release unit, other than a disposable unit, must be serviced:

(1) Within 12 months of its manufacture and within 12 months of each subsequent servicing, except when servicing is delayed until the next scheduled inspection of the vessel, provided that the delay does not exceed 5 months; and

(2) In accordance with the repair and testing procedures under § 160.062 in subchapter Q of this chapter, or other standard specified by the Commandant.

(b) Each disposable hydrostatic release unit must be marked with an expiration date of two years after the date on which the unit is installed.

Subpart H—Penalties

§ 185.900 Penalty for violations.

Violation of the provisions of this subchapter will subject the violator to the applicable penalty provisions of Subtitle II of Title 46, United States Code.

§ 185.910 Suspension and revocation.

An individual holding a license, certificate of registry, or merchant mariner's document who commits an act of misconduct, negligence, or incompetence, or who violates or fails to comply with this subchapter or any other law or regulation intending to promote marine safety, is subject to proceedings under the provisions of 46 U.S.C. 7703 and Part 5 of this chapter with respect to suspension or revocation of a license, certificate, or document.

Robert E. Kramek,

Admiral, U.S. Coast Guard Commandant.

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