

§ 177.310

§ 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

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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 non-combustible 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) *Composite materials.* When the hull, bulkheads, decks, deckhouse, or superstructure of a vessel is partially or completely constructed of a composite material, including fiber reinforced plastic, the resin used must be fire retardant as accepted by the Commandant as meeting MIL-R-21607. Resin systems that have not been accepted as meeting MIL-R-21607 may be accepted as fire retardant if they have an ASTM E-84 flame spread rating of not more than 100 when tested in laminate form. The laminate submitted for testing the resin system to ASTM E-84 must meet the following requirements:

(1) The test specimen laminate total thickness must be between 3.2 and 6.4 millimeters ($\frac{1}{8}$ to $\frac{1}{4}$ inch).

(2) The test specimen laminate must be reinforced with glass fiber of any form and must have a minimum resin content of 40 percent by weight.

(3) Tests must be performed by an independent laboratory.

(4) Test results must include, at a minimum, the resin manufacturer's name and address, the manufacturer's designation (part number) for the resin system including any additives used, the test laboratory's name and address, the test specimen laminate schedule, and the flame spread index resulting from the ASTM E-84 test.

(5) Specific laminate schedules, regardless of resin type, that have an ASTM E-84 flame spread rating of not more than 100 may be considered as

equivalent to the requirement in this section to use a fire retardant resin. Requests for qualifying a specific laminate schedule as fire retardant for use in a particular vessel may be submitted for consideration to the Commanding Officer, U.S. Coast Guard Marine Safety Center, 400 Seventh Street, SW., Washington, DC 20590-0001.

(c) *Use of general purpose resin.* General purpose resins may be used instead of fire retardant resins if 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 griddles, 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 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