



REVIEW OF GENERAL ARRANGEMENT PLANS FOR SMALL PASSENGER VESSELS (T)

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Z. B. Robertson, LCDR, Chief, Hull Division

Purpose

This Plan Review Guideline (PRG) provides guidance and information to the marine industry regarding the submission of general arrangement plans to the Marine Safety Center for Small Passenger Vessels seeking Certification under 46 CFR Subchapter T.

Contact Information

If you have any questions or comments concerning this document, please contact the Marine Safety Center (MSC) by e-mail or phone. Please refer to Procedure Number H1-07.

E-mail: msc@uscg.mil

Phone: 202-795-6729

Website: www.dco.uscg.mil/msc

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1. Applicability

This Plan Review Guideline (PRG) is applicable to general arrangement plans reviewed by the Marine Safety Center (MSC) for vessels certificated under 46 CFR Subchapter T.

2. References

- a. 46 CFR Subchapter T, Parts 177, 178, & 179
- b. Marine Safety Manual (MSM) Vols. II & IV
- c. 21 CFR Subchapter L, Part 1250
- d. USCG Safety Alert 09-18
- e. PFM 10-85, Policy File Memorandum on Watertight and Weathertight Closure Devices
- f. Marine Safety Center Plan Review Guide (PRG) E1-03, “MSC Guidelines for Watermist Fire Suppression Systems”
- g. Marine Safety Center PRG E1-03, “MSC Guidelines for Carbon Dioxide Fire Suppression Systems”
- h. Marine Safety Center PRG E1-09, “MSC Guidelines for Fire Main Systems”
- i. Marine Safety Center PRG E2-09, “MSC Guidelines for Fire Detection Systems”
- j. Marine Safety Center PRG E2-23, “Review of Electrical Plans – Small Passenger Vessels”
- k. 86 FR 73160, Interim Rule, “Fire Safety of Small Passenger Vessels,” published December 27, 2021

3. Definitions

a. Weathertight:

Water will not penetrate into the vessel in any sea condition. This also means being able to resist boarding seas. As addressed in reference (e), windows are not accepted as weathertight closures and, without the provision of deadlight covers, must be considered as potential downflooding points. Ball check valves used in tank vent lines are generally accepted as weathertight closures.

b. Watertight:

Capable of preventing the passage of water through the structure in any direction under a head of water for which the surrounding structure was designed.

4. Submittal Checklist

In general, the following items should be included in the submission:

- a. Letter of intent identifying what is included in the submittal and requested actions to be taken by MSC.
- b. Copy of the Application for Inspection of U.S. Vessel (CG-3752) submitted to the cognizant OCMI, if not already provided, indicating:
 - (1) Hull material
 - (2) Desired passenger count
 - (3) Desired route & inspection subchapter
- c. Inboard and Outboard Profile
- d. Arrangement of Decks

All plans must include sufficient detail to allow for independent verification of compliance with the applicable requirements of 46 CFR Subchapter T.

5. General Review Guidance

Ensure the vessel complies with the requirements of Subchapter T, including the applicable items:

5.1 General and Structural Fire Protection (46 CFR 177.405-410):

- a. Machinery and fuel tank spaces must be separated from accommodation spaces so as to prevent the passage of vapors.
- b. Paint and flammable liquid lockers must be constructed of steel or equivalent material, or wholly lined with steel or equivalent material.
- c. Surfaces within 3 feet of a cooking area must have a flame spread not more than rating of 75.
- d. The resin for composite vessels must be fire retardant or general-purpose resin may be used if additional requirements of 46 CFR 177.410(c) are met.

5.2 Escape Requirements (46 CFR 177.500):

- a. Each space accessible to passengers, or regularly used by crew, must have two widely separated means of escape, at least one of which is not a watertight door.

b. As discussed in reference (k), the intent having two means of escape widely separated at opposite ends of the space is that a blockage of one will not result in the blockage of both escapes. This is strictly enforced.

c. Means of escape must be arranged such that one incident (a fire, or similar in one space) does not block both means of escape. In other words, the two means of escape must lead into separate spaces, or one or both must lead to an open deck. This is strictly enforced.

d. The two means of escape are to be unobstructed. Doors, hatches, or scuttles that are a means of escape are not to be located directly above, or dependent on, a berth.

e. A ladder leading to a deck scuttle may not be counted as a means of escape except:

(1) As not more than one means of escape from any crew accommodation space or work space, or

(2) As not more than one means of escape from a passenger accommodation space on vessels ≤ 19.8 m (65 ft) and complies with 46 CFR 177.500 (n)

f. When deck scuttles are counted as a means of escape, they must be ≥ 455 mm (18 in) in diameter and must be fitted with a quick acting release and a holdback device to hold the scuttle in an open position.

g. Only one means of escape is required from a space where:

(1) The space has a deck area less than 30 m^2 (322 ft^2);

(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 ladder

h. The minimum clear opening of a door or passageway, used as a means of escape, must be ≥ 810 mm (32 in) in width.

i. Doors or passageways for crewmembers must be ≥ 710 mm (28 in) in width.

j. Dead end passageways must be ≤ 6.1 meters (20 ft).

k. The sum of the width of all doors and passageways used as means of escape from a space must be ≥ 8.4 mm (0.333 in) multiplied by number of passengers for which the space is designed.

l. Slides: Water slides pose a unique operational hazard to passengers and shall be approved by the OCMI. Special attention should be given to any hazards (railings, etc.) in the vicinity of the slide that may impact a rider's extremities during the decent. See reference (d) for more information.

Note: Additional requirements for fire safety not directly applicable to review of general arrangements may be found in references (f) through (k).

5.3 Stairs

a. Subchapter T does not have prescriptive requirements for the dimensions of stairways. In accordance with 46 CFR 177.500(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."

b. Subchapter K has prescriptive stairway requirements in 46 CFR 116.438. These may be utilized as a reference point, with the understanding that deviations from the Subchapter K requirements on a Subchapter T vessel may be required.

(1) In accordance with 46 CFR 116.438(j), the maximum stairway inclination angle from the horizontal for Subchapter K vessels is 40 degrees for passenger stairs, and 50 degrees for crew stairs, and the MSC may approve higher angles of inclination for spaces with severe space constraints.

c. Stairways must be the same width as that of passageways in accordance with 46 CFR 177.500(f), 32 inches in general or 28 inches for passageways used solely by crew members.

5.4 Crew Spaces (46 CFR 177.700-710)

d. Decks above crew accommodation spaces must be above the deepest load waterline.

e. Overnight accommodations must be provided for all crew if the vessel is operated more than 12 hours in a 24-hour period with the same crew.

5.5 Passenger Accommodations (46 CFR 177.800-820)

a. Ceilings in passenger accommodation spaces must be $\geq 1,880$ mm (74 in).

b. Decks above passenger accommodation spaces must be above the deepest load waterline.

c. Passenger accommodations must not contain electrical generators, high temperature parts, pipelines, rotating assemblies, controls for operating the vessel, or any item that could injure a passenger, unless such an item is adequately shielded or isolated.

- d. Berths must be provided for each overnight passenger, and must meet the requirements of 46 CFR 177.810.
- e. Each passenger overnight accommodation berth must be immediately adjacent to an aisle leading to a means of escape.
- f. An aisle alongside a berth must be ≥ 610 mm (24 in) wide; an aisle joining two or more aisles in an overnight accommodation space must be $\geq 1,060$ mm (42 in) wide.
- g. A seat must be provided for each passenger where fixed seating criterion in 46 CFR 176.113(b)(3) is used.
- h. Seats must be arranged as follows:
 - (1) Aisles ≤ 4.6 m (15 ft) in length must be ≥ 610 mm (24 in) in width.
 - (2) Aisles > 4.6 m (15 ft) in length must be ≥ 760 mm (30 in) in width.
 - (3) Where seats are in rows, the distance from seat front to seat front must be ≥ 760 mm (30 in).

5.6 Rails and Guards (46 CFR 177.900-970)

- a. Rails must be installed around decks accessible to passengers or crew.
- b. Height requirements:
 - (1) Ferries, excursion vessels, or vessels subject to the International Convention of Load Lines (ICLL): ≥ 1000 mm (39.5 in),
 - (2) Others: ≥ 910 mm (36 in), except
 - (3) On big game angling vessels, the rail may be reduced to ≥ 760 mm (30 in) in way of a person using specialized angling techniques and equipment.
- c. Rails must be permanently installed with exceptions listed in 46 CFR 177.900(h).
- d. Deck rails must be designed to withstand a point load of 91 kg (200 lbs) at any point in any direction and a uniform load of 74 kg/m (50 lb/ft) applied to the top rail in any direction; the point and uniform loads need not be applied simultaneously.
- e. Rail courses must be installed so no open space exceeds 305 mm (12 in).
 - (1) On passenger decks of a ferry or a vessel on an excursion trip, chain link fencing or bars and slats must be installed with no greater than a 4 inch opening.

(2) On a vessel subject to ICLL, rail courses must be installed so that there is not an open space higher than 230 mm (9 in) from the deck to the first rail course.

f. Temporary rails or equivalent must be installed in way of vehicle ramps. Suitable chains, cables, or other barriers must be installed at ends of vehicle runways.

5.7 Passengers Permitted (46 CFR 176.113)

a. The maximum number of passengers must be less than the greatest number permitted by length of rail criterion, deck area criterion, fixed seating criterion, or a combination of deck area and fixed seating criterion; see exceptions in 46 CFR 176.113(d).

b. The measurement criteria in 46 CFR 176.113 is applied for each deck aboard the vessel, and the sum of all decks results in the maximum passenger capacity for the vessel. These regulations do not require each deck to have a maximum passenger capacity. Passenger capacity on upper decks should only be limited by stability.

5.8 Window Construction and Visibility (46 CFR 177.1010-1030)

a. Glass and other glazing material used in windows must not break into dangerous fragments if fractured.

b. Windows and portholes must be capable of withstanding expected maximum loads from wave and wind conditions expected due to its location on the vessel and the authorized route of the vessel.

c. Windows and other openings at the operating station must be of sufficient size and in the proper location.

d. Glass or other glazing material used in windows at the operating station must meet light transmission and other testing requirements of ANSI Z 26.1.

5.9 Drainage of Weather Decks (46 CFR 178.410-450)

a. Flush deck vessels:

(1) Must have a watertight weather deck,

(2) Must have no obstructions to overboard drainage, and

(3) May have solid bulwarks in the forward 1/3rd of the vessel if they do not form a well enclosed on all sides and there is sufficient sheer to ensure drainage aft.

b. Cockpit, well deck, and open vessels must meet drainage requirements of 178.420-450.

c. The deck of a cockpit or well deck vessel that operates on partially protected waters or exposed waters must be more than 10 inches above the deepest load waterline; otherwise

it will need to comply with damage stability and Type II subdivision standards in Subchapter S.

5.10 Collision Bulkhead (46 CFR 179.210, 310, 46 CFR 171.085)

- a. Each vessel > 65 ft must have a collision bulkhead.
- b. A vessel < 65 ft must have a collision bulkhead if:
 - (1) Carries more than 49 passengers;
 - (2) Operates on exposed waters;
 - (3) Is > 40 ft and operates on partially protected waters and/or exposed 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.
- d. The collision bulkhead must be located at least 5% of the length between perpendiculars (LBP) aft of the forward perpendicular.
- e. The collision bulkhead must be located no more than 15% of the LBP aft of the forward perpendicular.
- f. If the vessel is required to meet damage stability criteria, then the collision bulkhead may be located at any point farther aft than 5 % of the LBP from the forward perpendicular, provided it passes damage stability requirements.
- g. The collision bulkhead must not have any watertight doors in it.

5.11 Watertight Bulkheads for Subdivision (46 CFR 179.212-220, 320)

- a. All vessels greater than 65 ft in length must comply with subdivision requirements of Subchapter S.
- b. A vessel <65 ft must comply with subdivision requirements of 179.220 or Subchapter S if:
 - (1) It carries more than 49 passengers, or
 - (2) Is constructed of wood after March 11, 2001, and operates in cold water.

5.12 Watertight Doors (46 CFR 179.330)

a. Watertight doors in bulkheads are not permitted unless the vessel will remain within 20 miles of shore and;

(1) The door separates a machinery space and an accommodation space and the OCMI determines the door will be closed except when a person is passing through the door; or

(2) The Commandant determines that due to the arrangement the door will be closed except when a person is passing through the door. Submitters should request approval from CVC-1 through the OCMI.

b. See 170.255 for exceptions for Class 1 watertight doors in offshore oil industry vessels.

c. Watertight door locations shall be in accordance with 46 CFR 179.330.

5.13 Watertight integrity (46 CFR 179.360)

a. Hatches exposed to weather must be watertight.

b. The following hatches may be weathertight;

(1) Hatch on a watertight trunk at least 12 in above the weather deck.

(2) A hatch in a cabin top.

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

c. A weathertight door must be provided for each deck house or companionway opening with permanent watertight coamings as below:

(1) On exposed or partially protected route, there must be a 6 inch coaming.

(2) On a protected route there must be a 3 inch coaming.

6. Potable Water Tanks

Ensure that potable water tanks on the vessel comply with the requirements of 21 CFR Subchapter L, §1250.82, including the following applicable items:

a. Potable water tanks must be independent of any tanks holding non-potable water or other liquids.

b. Potable water tanks must be independent of the shell of the ship unless:

- i. The bottom of the tank is at least 2 feet above the maximum load waterline,
 - ii. The seams in the shell are continuously welded, and
 - iii. There are no rivets in that part of the shell which forms a side of the tank.
- c. Toilets or urinals are not permitted directly above a deck which forms the tanktop of a potable water tank.

8. Special Consideration

In accordance with 46 CFR 175.550, the cognizant OCMI may give special consideration to authorizing departures from the specific requirements of 46 CFR Subchapter T 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 intends to operate must approve any special consideration granted to the vessel.

9. Disclaimer

This guidance is not a substitute for applicable legal requirements, nor is it itself a rule. It is not intended to nor does it impose legally-binding requirements on any party. It represents the Coast Guard's current thinking on this topic and may assist industry, mariners, the general public, and the Coast Guard, as well as other federal and state regulators, in applying statutory and regulatory requirements. You can use an alternative approach for complying with these requirements if the approach satisfies the requirements of the applicable statutes and regulations. If you want to discuss an alternative, you may contact MSC, the unit responsible for implementing this guidance.