

MSC PLAN REVIEW GUIDELINES (PRG), REVIEW OF STABILITY FOR SMALL PASSENGER VESSELS (T)

Procedure Number: H1-01
Revision Date: Apr 20, 2018


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Purpose:

This Plan Review Guideline provides guidance and information to the marine industry regarding the submission of stability work for Small Passenger Vessels seeking certification under 46 CFR Subchapter T.



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1.0 Applicability:

This Plan Review Guideline is applicable to stability calculations reviewed by the Marine Safety Center (MSC) for vessels certificated under 46 CFR Subchapter T. This document combines and supersedes the following Small Passenger Vessel PRGs: Stability for Monohull Power Vessels (H1-01), Stability for Catamaran Power Vessels (H1-05), Stability for Monohull Sailing Vessels (H1-06), Stability for Catamaran Sailing Vessels (H1-16). If the vessel's stability is being reviewed under Navigation and Vessel Inspection Circular (NVIC) No. 3-97, "Stability Related Review Performed by the American Bureau of Shipping for U.S. Flag Vessels," then MSC review of stability items is not required.

2.0 References:

1. 46 CFR Subchapter T, Parts 178, 179
2. 46 CFR Subchapter S, Parts 170, 171
3. Marine Safety Manual (MSM), Vol IV
4. Navigation and Inspection Circular No. 14-81, CH 1, "Stability Tests; Waiving of for 'Sister Vessels'," dated December 2, 1981
5. Navigation and Vessel Circular No. 17-91, CH 1, "Guidelines for Conducting Stability Tests," dated November 4, 1991
6. ASTM F1321, Standard Guide for Conducting a Stability Test (Lightweight Survey and Inclining Experiment) to Determine the Light Ship Displacement and Centers of Gravity of a Vessel
7. Federal Register, Vol. 75, No. 239, "Passenger Weight and Inspected Vessel Stability Requirements; Final Rule," dated December 14, 2010
8. Office of Vessel Activities (CG-543) Policy Letter 11-03, "Implementation of Revised Passenger Weight Standards for Existing Passenger Vessels," dated April 8, 2011
9. Marine Safety Center Technical Note 04-95, Lightship Change Determination; Weight-Moment Calculation vs. Deadweight Survey vs Full Stability Test
10. PFM 10-85, Policy File Memorandum on Watertight and Weathertight Closure Devices
11. Federal Register, Vol. 54, No.18, page 4422 "Notice of Proposed Rule Making, Section 170.170," dated January 30, 1989
12. USCG Naval Architecture Division (CG-5212) Memorandum, "Intact Stability Freeboard and Downflooding Angle Determination," dated September 5, 2008
13. Marine Safety Center Technical Note (MTN) NO. 1-08, CH-1, Marine Safety Center Review of Rigid Hull Inflatable Vessels
14. MSC Guidelines for the Submission of Stability Test (Deadweight Survey or Inclining Experiment) Results, PRG GEN-02
15. MSC Guidelines for Submission of Stability Test Procedures, PRG GEN-05

3.0 Definitions:

Downflooding:

The entry of seawater through any opening into the hull or superstructure of a vessel (or portion of a vessel) due to heel, trim, or submergence of the vessel.

Downflooding Point:

Any opening in the hull or superstructure of the vessel that cannot be closed watertight and through which downflooding can occur. Common downflooding points include windows, compartment vents, and non-tight deck hatches.

For intact stability calculations, a weathertight opening may be excluded from being considered a downflooding point if it will remain closed while the vessel is underway. See reference (10) for further information. For monohull sailing vessel intact stability calculations, openings that cannot be rapidly closed watertight are considered downflooding points.

For damage stability calculations, openings that are fitted with weathertight closures and that are not submerged during any stage of flooding will not be considered downflooding points.

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 (10), 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.

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.

4.0 Simplified Stability Test Requirements:**4.1 Test Types:**

As an alternative to the meeting the requirements in 46 CFR Subchapter S, the cognizant Officer in Charge, Marine Inspection (OCMI) may approve one of the following tests, dependent on vessel type and operations:

1. Simplified stability proof test (46 CFR 178.330).
2. Pontoon simplified stability proof test (46 CFR 178.340).
3. Operational test (46 CFR 178.325(c)) (as applicable).

4.2 Test Applicability:

To be eligible for a simplified stability proof test (SST), the vessel must satisfy the following criteria, as listed in 46 CFR 178.310(c)(1) - (4), 46 CFR 178.320(a) - (b), and 46 CFR 178.325(a)(1) – (8):

1. All vessels (Monohulls, Catamarans, and Pontoon Vessels):
 - a. Less than 65 feet in length;
 - b. Does not have more than one deck above the bulkhead deck, or if without a bulkhead deck, does not have more than one deck above the deck from which freeboard is measured, excluding a pilot house;
 - c. It is of the usual type, rig, and hull form;
 - d. Its stability has not been questioned by the OCMI;
 - e. It is not a Subchapter (R) sailing school vessel.
2. For Monohull vessels:
 - a. May be sail, auxiliary sailing, or mechanically powered;
 - b. Does not carry more than 150 passengers;
 - c. If the vessel carries more than 49 passengers, vessel may satisfy the simplified subdivision requirements of 46 CFR 179.220 instead of complying with the subdivision and damage stability requirements of 46 CFR 171.070 and 171.080;
 - d. Does not carry more than 12 passengers on an international voyage.
3. If a Sailing Monohull or Auxiliary Sailing Monohull vessel:
 - a. Does not carry more than 49 passengers;
 - b. Only operates during the daylight hours;
 - c. Does not operate on exposed waters;
 - d. Its minimum downflooding angle is greater than 60 degrees;
 - e. It does not have a cockpit greater than 20 percent of the Length Over Deck;
 1. If equipped with a cockpit and operating on Partially Protected Waters, the cockpit must be self-bailing.
4. For Catamaran vessels:
 - a. Must be non-sailing, flush deck, and propelled by mechanical means only;
 - b. Does not carry more than 49 passengers;
 - c. Does not carry more than 12 passengers on an international voyage.

5. For Pontoon Vessels:

- a. Operates on protected waters only;
- b. Limited to two symmetrical hulls only;
- c. Does not carry more than 49 passengers;
- d. Does not make international voyages;
- e. The cross section of each hull is circular or of wall-sided construction without tumblehome, and constant for at least 90 percent of the length of the hull;
- f. The distance between the centerlines of the hulls is not less than 6 feet;
- g. Each hull has a beam or diameter, as applicable, that is not less than 2 feet;
- h. The hulls contain no machinery or tanks;
- i. The deck accessible to passengers does not extend beyond:
 1. The outboard edge of the hulls, and
 2. The forward or aft end of the hulls;
- j. The deck is not more than 6 inches above the buoyant hulls.

4.3 Test Coordination and Stability:

1. For monohull and catamaran simplified stability proof tests, the stability test is coordinated with the local OCMI, who will then issue the stability letter for the vessel.
2. For pontoon simplified stability proof tests (PSST), the stability test is coordinated with the local OCMI and the Marine Safety Center (MSC). The MSC will issue the stability letter for the vessel thru the OCMI.

4.4 Additional Information:

If a vessel meets the applicability described above and a simplified stability test is conducted, only the guidance in Sections 3 (Definitions), 4 (Simplified Stability Test Requirements), 8 (Passenger/Crew Weight Guidance) and 11 (Collision Bulkhead) of this document apply.

5.0 Submittal Checklist:

In general, the following items shall be included in a stability submission:

1. Letter of intent identifying what is included in the submittal and requested actions to be taken by MSC.
2. Copy of the Application for Inspection.
3. Description of the vessel operating envelope, including but not limited to:
 - a. Route designation and classification;
 - b. Number of passengers;
 - c. Total persons carried;
 - d. Operating limits and/or restrictions (such as maximum draft, trim, wave height, speed, geographical boundaries);
 - e. All plausible loading conditions for each particular operation of the vessel.
4. Lines plan of the hull to at least the bulkhead deck. See reference (3), Section 6.B.1.a regarding possible inclusion of deck houses and superstructure in buoyant volume.
5. Computerized hull model (recommended, but not required).
6. Hydrostatics or Curves of Form and Righting Arm Curves (tabulated data may be accepted).
7. Tank Capacity Tables including liquid volume or weight, center of gravity location, and free surface factor for relevant tank filling levels.
8. General Arrangement and relevant plans showing:
 - a. Outboard Profile;
 - b. Compartmentation (at least plan and profile views);
 - c. Location and extent of bulkhead deck;
 - d. Location and extent of watertight bulkheads including collision bulkhead;
 - e. Watertight and weathertight doors, hatches, scuttles, and similar closures;
 - f. Weather deck freeing port and/or scupper sizes and locations (as applicable);
 - g. Downflooding points and other openings into the hull such as vents or windows;
 - h. Locations and reference points of any draft or loading marks. See 46 CFR 185.602(b) and (c), and reference (3), Section 6.B.6.
9. Fixed ballast plan, or written ballast description (if applicable);
 - a. Approved lightship values or stability test lightship calculations;
 - b. Intact stability calculations;
 - c. Collision bulkhead calculations (if applicable);
 - d. Subdivision and damage stability calculations (if applicable) ;
 - e. Foam flotation material information (if applicable).
10. Sail plans for sailing vessels.

6.0 Lightship Characteristics:

6.1 Determination:

Lightship characteristics are to be determined using one of the following methods:

1. Sister to a vessel with known characteristics (reference (3), Section 6.D.2 and reference (4)).
2. Deadweight survey combined with an indisputably conservative assumed vertical center of gravity (VCG) height approved prior to the test (references (5) and (6)).
3. Inclining (full stability test) (references (5) and (6)).

6.2 Stability Test or Deadweight Survey:

1. In accordance with 46 CFR 170.085, a written deadweight survey or stability test procedure must be sent to MSC at least two weeks before the stability test. References (6) and (15) provide guidance on the required elements for the procedure. In addition, if completing a deadweight survey, the conservative VCG shall be provided with the procedure and approved before the survey. In all cases, the procedure shall be approved by MSC prior conducting the test or survey.
2. In accordance with 46 CFR 170.175(b), vessel owners and /or representatives shall make arrangements with the OCMI for an acceptable Coast Guard representative to witness the stability test.
3. The submission of deadweight survey or inclining Results shall be submitted in accordance with reference (14). Please ensure that any transverse center of gravity (TCG) and associated heel / list is included in the lightship characteristics.

7.0 Hull Model:

If an electronic model is available, it is strongly recommended that this be included in the submission.

8.0 Passenger/Crew Weight Guidance:

The assumed average weight per person (AAWP) of passengers and crew must not be less than 185 pounds in accordance with 46 CFR 170.090 (d)(1). All passengers must be assumed to be standing. For all vessels built or having undergone a major conversion after March 14, 2011 the VCG for all passengers must be at least 39 inches (1 meter) above the deck to which they are allowed access. For all other vessels, the VCG for all passengers must be at least 36 inches above the deck to which they are allowed access.

9.0 Loading Conditions:

The stability analysis should include loading conditions that cover the entire range of operations. This includes, but is not limited to the following conditions:

1. Departure (full load) with 100% consumables.
2. Mid Voyage with 50% consumables.
3. Arrival (Burned Out) with 10% consumables.

9.1 Passenger/Crew Distribution:

Passengers and crew shall be loaded on the vessel to represent actual operating conditions based on seating, deck space, operating stations and so forth but with a VCG as outlined in Section 8.0 above. Passengers and crew cannot be used counter balance the vessel's natural heel/trim or liquid loading conditions.

9.2 Multiple Deck Vessels:

Attention should be given to the vertical distribution of passengers. In general, assuming all passengers are on the uppermost deck will yield no restrictions in the stability letter. Consideration should also be given to conditions where passengers are on the upper deck(s) only, as this may be the most restrictive. In these cases, operating restrictions will need to be developed accordingly.

9.3 Free Surface:

The loading conditions shall incorporate liquid free surfaces in accordance with 46 CFR 170.285 for intact stability and 46 CFR 170.290 for damage stability.

9.4 Ballast:

Variable ballast for Subchapter T vessels is not normally permitted. Any permanent solid ballast shall be secured in a manner that prevents shifting as detailed in 46 CFR 178.510. Contact MSC for clarification and details.

9.5 Trim and Stability Book:

In accordance with 46 CFR 178.220, contact MSC prior to the submission of a Subchapter T vessel that requires the use of a Trim and Stability Book.

10.0 Intact Stability:**10.1 Requirements:**

Subchapter T vessels must comply with the intact stability requirements of 46 CFR Subchapter S, to include:

1. 170.170 (Weather Criteria).
2. 170.173 (Righting Energy Criteria).
3. 171.050 (Passenger Heel Criteria) in each condition of loading and operation.

Note: A simplified stability test (as detailed in section 4.0) may be performed in lieu of the requirements below if the vessel meets the applicability requirements and is approved by the OCMI.

10.2 Calculations:

In accordance with 46 CFR 178.310(a) and (b), calculations shall be submitted for each condition of loading and operation that demonstrate compliance with the following criteria. Note that these criteria are generally applicable to flush-decked vessels of usual proportion and form. All calculations computing the righting arm shall be with the vessel free to trim. See reference (13) and headings 10.3 through 10.8 for additional guidance, as applicable depending on vessel type.

1. Weather Criteria: 46 CFR 170.170:
 - a. Sailing vessel or auxiliary sailing vessel must be assumed to be under bare poles unless the vessel has no auxiliary propulsion, in which case it is to have storm sails set and trimmed flat;
 - b. The projected lateral area consists of the portion of the vessel and deck cargo above the waterline. Per the regulatory intent discussed in reference (11), the portion of the vessel above the waterline should include boxed off areas under railings, awnings and canopies.
2. Righting Energy Criteria: 46 CFR 170.173 (only if vessel has auxiliary power):
 - a. The applicable criterion, based on the intended route, are as follows:
 - i. Exposed Route: 46 CFR 170.173(b) or (c);
 - ii. Partially Protected Route: 46 CFR 170.173(e)(1);
 - iii. Protected Route: 46 CFR 170.173(e)(2).
 - b. These calculations shall reflect the submergence of any potential downflooding points.

Note: Some types of catamaran vessels with an angle of maximum righting arm less than 15 degrees may qualify to demonstrate an equivalent level of safety to 46 CFR 170.173(c)(2). Contact MSC for additional guidance.

3. Passenger Heel Criteria: 46 CFR 171.050: Available GM shall meet or exceed the required value.
4. Watertight Integrity: 46 CFR 179 Subpart C: Vessel bulkheads and penetrations, as applicable, shall comply with 46 CFR 179.310 through 179.360.

5. Weather Deck Drainage: 46 CFR 178 Subpart D: Please specify in the submittal whether the OCMI or MSC will be reviewing the drainage.

10.3 Well Deck Vessels:

Well deck vessels, as defined in 46 CFR 175.400, have a deck fitted with solid bulwarks that impede the drainage of water over the side or designed with expose recess in the weather deck extending more than one-half of the length of the vessel measured over the weather deck. Per MSC policy discussed in reference (12), the following equivalencies apply:

1. Modified Weather Criteria: 46 CFR 170.170:
 - a. Angle of T is to generally be the lesser of 14 degrees or half the freeboard to the weather deck (not the top of the bulwark);
 - b. For vessels that are fitted with non-return scuppers and operate on protected waters only, the angle of T is to be the lesser of 14 degrees or one-quarter of the distance from the waterline to the gunwale (measured when the vessel is in equilibrium).
2. Modified Righting Energy Criteria: 46 CFR 170.173:
 - a. For vessels fitted with scuppers and /or freeing ports, do not have non-return drains, and operate on exposed or partially protected waters, the downflooding angle is as a compartment vent, or other opening into the hull or superstructure, located above the well deck;
 - b. For vessels that operate on protected waters and are fitted with non-return scuppers, the downflooding angle is the first angle at which the gunwale is submerged;
 - c. In accordance with 46 CFR 170.173(d), calculations shall utilize a free to trim assumption. Therefore, the downflooding point for any loading condition may shift longitudinally.
3. Modified Passenger Heel Criteria: 46 CFR 171.050:
 - a. Angle of T is to generally be the lesser of 14 degrees or the freeboard to the weather deck (and not the top of the bulwark);
 - b. For vessels that operate on protected waters and are fitted with non-return scuppers, the angle of T is to be the lesser of 14 degrees or one-half of the distance from the waterline to the gunwale (measured when the vessel is in equilibrium).
4. Clarifications for Weather Deck Drainage: 46 CFR 178 Subpart D:
 - a. The required drainage is may be achieved with freeing ports and/or scuppers;
 - b. If the well deck is located less than 10 inches above the waterline, the vessel is restricted to protected waters unless the vessel complies with the Subdivision and Damage Stability requirements outlined in Section 12.0.

10.4 Cockpit Vessels:

Cockpit vessels, as defined in 46 CFR 175.400, have an exposed recess in the weather deck that extends not more than one-half of the length of the vessel measured over the weather deck. Per MSC policy discussed in reference (12), the following equivalencies apply:

1. Modified Weather Criteria: 46 CFR 170.170:
 - a. For vessels with non-return drains, the angle of T is to be the lesser of 14 degrees or the angle measured to the immersion freeboard “i” per 46 CFR 178.330(d)(3); note that the freeboard “f” in this equation is to be measured to the top of the gunwale;
 - b. For vessels without non-return devices, the angle of T is to be the lesser of 14 degrees or half the freeboard to the cockpit deck.
2. Modified Righting Energy Criteria: 46 CFR 170.173:
 - a. For vessels fitted with scuppers and /or freeing ports, and do not have non-return drains, the downflooding angle is as a compartment vent, or other opening into the hull or superstructure, located above the cockpit deck;
 - b. For vessels that are fitted with non-return scuppers, the downflooding angle is the first angle at which the gunwale is submerged;
 - c. In accordance with 46 CFR 170.173(d), calculations shall utilize a free to trim assumption. Therefore, the downflooding point for any loading condition may shift longitudinally.
3. Modified Passenger Heel Criteria: 46 CFR 171.050:
 - a. For vessels with non-return drains, the angle of T is to be the lesser of 14 degrees or double the angle measured to the immersion freeboard “i” per 46 CFR 178.330(d)(3). Note that the freeboard “f” in this equation is to be measured to the top of the gunwale;
 - b. For vessels without non-return devices, the angle of T is to be the lesser of 14 degrees or the angle at which the cockpit deck edge is first submerged (and not the top of the bulwark).
4. Clarifications for Weather Deck Drainage: 46 CFR 178 Subpart D
 - a. The required drainage is not modified for the cockpit;
 - b. If the cockpit deck is located less than 10 inches above the waterline, the following provisions apply:
 - i. Non-return devices must be fitted to the deck drains;
 - ii. The vessel is restricted to protected waters unless the vessel complies with the Subdivision and Damage Stability requirements outlined in Section 12.0.

10.5 Open Boats:

Open Boat, as defined in 46 CFR 175.400, are vessels not protected from water entry by means of a complete watertight deck, or by a combination of a partial watertight deck and superstructure. Per MSC policy discussed in reference (12), the following equivalencies apply:

1. Modified Weather Criteria: 46 CFR 170.170:
 - a. The angle of T is to be the lesser of 14 degrees or the angle measured to one-quarter of the freeboard. The freeboard is measured to the gunwale;

- b. In accordance with 46 CFR 170.173(d), calculations shall utilize a free to trim assumption. Therefore, the downflooding point for any loading condition may shift longitudinally.
2. Modified Passenger Heel Criteria: 46 CFR 171.050: The angle of T is to be the lesser of 14 degrees or the angle measured to one-half of the freeboard. The freeboard is measured to the gunwale.
3. Clarifications for Weather Deck Drainage: 46 CFR 178 Subpart D:
 - a. These regulations are not applicable to open boats, however a system for dewatering is required and is to be to the satisfaction of the OCMI;
 - b. Decks must drain to the bilge.

10.6 Monohull Sailing Vessels Criteria:

Vessels equipped with sails as a mean for primary or auxiliary propulsion must comply with 46 CFR 171.055:

1. The applicable criterion, based on the intended route, are as follows:
 - a. Exposed Route: 46 CFR 171.055(c)(2) and (d)(2);
 - b. Partially Protected and Protected Routes: 46 CFR 171.055(c)(1) and (d)(1).
2. Determine the values of HZA, HZB, and HZC in accordance with 46 CFR 171.055(e): In accordance with 46 CFR 171.055(e)(2), ensure the righting arm is correctly truncated if the angle at which the maximum righting arm occurs is less than 35 degrees.
3. For the purposes of this section, the downflooding angle means the static angle from the intersection of the vessel's centerline and waterline in calm water to the first opening that cannot be rapidly closed watertight.

10.7 Catamaran Sailing Vessels Criteria:

Catamaran vessels equipped with sails as a mean for primary or auxiliary propulsion must comply with 46 CFR 171.057:

1. The applicable criterion, based on the intended route, are as follows:
 - a. Protected Route: 46 CFR 171.057(a);
 - b. Partially Protected and Exposed Routes: 46 CFR 171.057(b).

11.0 Collision Bulkhead:

11.1 Location:

In accordance with 46 CFR 179.210(a) and (b), include calculations demonstrating the collision bulkhead location complies with 46 CFR 179.310(b) (collision bulkhead location) if the vessel meets one or more of the following criteria:

1. Is more than 65 feet in length.
2. Is not more than 65 feet in length and it:
 - a. Carries more than 49 passengers;
 - b. Operates on exposed waters;
 - c. Is not more than 40 feet in length and operates on partially protected waters; or
3. Is constructed of wood on or after March 11, 2001, and operates in cold water. Note that wooden vessels that operate in cold waters must also comply with subdivision and damage stability (see Section 12).

11.2 Construction:

The collision bulkhead shall be constructed in accordance with 46 CFR 179.310(a). Additional information on collision bulkhead requirements are included in reference (3), Section 6.E.9.g. Additionally, vessels meeting the applicability of 179.212(a) must comply with the subdivision and damage stability requirements of 46 CFR 171.070 (Type II Subdivision) and 171.080 (Damage Stability) as discussed in Section 12.

12.0 Subdivision/Damage Stability:

12.1 Applicability:

In accordance with 46 CFR 179.212(a), include calculations in the submittal package demonstrating compliance with 46 CFR 170.070 (Type II Subdivision) and 46 CFR 171.080 (Damage Stability) in each condition of loading and operation if the vessel meets one or more the following criteria:

1. Is more than 65 feet in length.
2. Carries more than 49 passengers.
3. Is constructed of wood on or after March 11, 2001, and operates in cold water; or
4. Is constructed before January 1, 2009 and carries more than 12 passengers on an international voyage.

12.2 Requirements:

Existing vessels, as defined in 46 CFR 171.080(a), shall comply with the requirements of 171.080(e). New vessels, as defined in 171.080(a), shall comply with the requirements of 171.080(f). In accordance with reference (3), all righting arm computations shall assume that the vessel is free to trim.

12.3 Margin Line:

The margin line shall be in accordance with 46 CFR 171.015.

12.4 Damage:

The extent and character of damage shall be as defined in 46 CFR Table 171.080(a).

12.5 Subdivision:

The appropriate standard of flooding is used for subdivision calculations in accordance with 46 CFR 171.070(a) and (b) and 46 CFR 171.017. This requires that the margin line must not be submerged when the total buoyancy between each set of two adjacent Main Transverse Watertight Bulkheads (MTWB) is lost.

12.6 Tank Contents (Run-Off):

Subdivision and damage stability calculations shall not incorporate the emptying of tank contents (run-off) for any damaged tanks. Subdivision calculations must comply with the permeability requirements of 46 CFR 171.072. Damage stability calculations must comply with the permeability requirements of 46 CFR 171.080(c). In accordance with 46 CFR 171.080(c), our policy is to “double count” tank loading for damage stability calculations. This policy provides the most conservative means to account for any deviations from the cargo loading restrictions and will not be waived by our office.

12.7 Main transverse watertight bulkhead spacing:

Main transverse watertight bulkhead (MTWB) minimum spacing shall meet the requirements of 46 CFR 171.070(e)(1) (if the LBP of the vessel is 143 feet or more) or 171.070(e)(2) (if the LBP of the vessel is less than 143 feet). In cases where the MTWBs are spaced closer than the minimum allowed, some of those MTWBs may be considered ineffective in the subdivision stability analysis in order to meet the minimum spacing requirement.

12.8 Catamaran Specific Criteria:

If the separation between the individual hulls is greater than the beam of a single individual hull, subdivision is applied by requiring surviving a one-compartment standard by damaging both bow compartments simultaneously, and then one compartment at a time down one side of the vessel, with a bottom damage whose vertical extent is $B/15$ or 30 inches (whichever is greater, where B is the sum of the buoyant beam of each hull at the highest waterline). Catamarans that have a separation between the individual hulls less than the beam of a single individual hull are treated as a single conventional hull, with an equivalent beam twice that of a single individual hull, for the purpose of subdivision and damage stability. Damage stability is applied by requiring meeting the criteria in 46 CFR 171.080 by damaging both bow compartments simultaneously, then one compartment at a time down one side of the vessel, using the extents of damage in 46 CFR 171.080.

13.0 Special Considerations:

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.

14.0 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.