

MSC Guidelines for Review of Passenger Vessel Subdivision and Damage Stability (Subchapters K & H)

Procedure Number: H2-1

Revision Date: 12/21/99

References

- a. 46 CFR 170, Subpart C, "Plan Approval"
 - b. Marine Safety Manual, Volume IV, Chapter 6, Section E, Item 12, "Multi Hull Vessels"
 - c. International Code of Safety for High-Speed Craft (HSC Code)
 - d. Marine Safety Center Technical Note (MTN) 01-93, "Intact Stability Considerations for Glass Panels/Windows Located Above the Bulkhead Deck on Subchapter H & T Vessels"
 - e. Commandant (G-MTH-5) Policy File Memorandum (PFM) 10-85, "Watertight and Weathertight Closure Devices"
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Disclaimer

These guidelines were developed by the Marine Safety Center staff as an aid in the preparation and review of vessel plans and submissions. They were developed to supplement existing guidance. They are not intended to substitute or replace laws, regulations, or other official Coast Guard policy guidance. The responsibility to demonstrate compliance with all applicable laws and regulations still rests with the plan submitter. The Coast Guard and the U. S. Department of Transportation expressly disclaim liability resulting from the use of this document.

Contact Information

If you have any questions or comments concerning this document, please contact the Marine Safety Center by e-mail or phone. Please refer to the Procedure Number: H2-01

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General Review Guidance

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" (<http://www.uscg.mil/hq/g-m/nvic/index90.htm#1997>), then MSC review of stability items is not required.

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Check that the following items are included in the submittal package:

- ❑ General Arrangements including deck plans, hold plans (clearly indicating compartmentation and watertight doors), inboard and outboard profiles (clearly indicating potential downflooding points such as vents or windows).
- ❑ Lines, offsets or hull model on computer disk (GHS preferred)
- ❑ Tank Capacity Tables/Plan with Free Surface data
- ❑ Draft mark locations, longitudinal and vertical reference points
- ❑ Stability Test/Lightship results
- ❑ Subdivision and Damage Stability Calculations
- ❑ Trim and Stability Booklet (if necessary)

Ensure that vessel loading conditions cover the entire range of operation including the “passengers at refuge” condition.

Ensure that loading conditions incorporate liquid free surface in accordance with 46 CFR 170.290.

Ensure the submission of the appropriate Subdivision calculations (Type I or II as per 46 CFR 171.160) and that either the required factor of subdivision is achieved (Type I, 46 CFR 171.065) or the required standard of flooding met (Type II, 46 CFR 171.070).

Ensure that bulkhead locations and spacing are in accordance with the requirements of 46 CFR 171.065 (Type I) or 46 CFR 171.070 (Type II) and the applicable sections of 46 CFR 171 Subpart D have been addressed.

Ensure the submission of the appropriate Damage stability calculations (new or existing vessel as per 46 CFR 171.080(a)) and ensure that the vessel meets or exceeds the minimum acceptable criteria in each condition of loading and operation.

Ensure that damage stability calculations for “new” vessels correctly reflect the location of all potential downflooding (non-weathertight/watertight) points.

Ensure that permeabilities for subdivision calculations are in accordance with 46 CFR 171.066 (Type I) or 46 CFR 171.072 (Type II) and permeabilities for damage stability calculations are in accordance with 46 CFR 171.080(c) (Type I or II) for all conditions of loading and operation.

Ensure correct placement of the margin line in accordance with 46 CFR 171.015.

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Ensure the correct treatment of stepped or recessed bulkheads in accordance with 46 CFR 171.067 (Type I) or 46 CFR 171.073 (Type II).

If designated as a High Speed Craft (IMO HSC), ensure that calculations demonstrate compliance with Chapter 2, parts A and B, of reference (c).

Hull Model

The MSC will generate a hull model from the lines, offsets or provided computer disk using GHS to verify the stability of the vessel.

Definitions

Downflooding: The entry of seawater through any opening into the hull *or superstructure* of an undamaged 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. (Generally speaking for openings which remain above the static waterline, weathertight closures are sufficient to prevent downflooding and are accepted as such.

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 (d), 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.