

# MSC Guidelines for the Review of Oil and Chemical Tankship Structures

Procedure Number: C1-24

Revision Date: May 2, 2012



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## Purpose

To establish a process for reviewing structural plans for an Oil or Chemical Tankship regulated under Subchapter O and/or D.

Note: Compliance with OPA 90 (33 CFR 157.10) is determined during the review of the general arrangement plans

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## References

- a. ABS 2010 Rules for Building and Classing Steel Vessels, Part 5A Specific Vessels Types (Chapter 1)
  - b. ABS 2011 Rules for Building and Classing Steel Vessels, Part 3
  - c. ABS 2011 Rules for Building and Classing Steel Vessels, Part 5C, Chapter 1 (Oil Tankers)
  - d. ABS 2011 Rules for Building and Classing Steel Vessels, Part 5C, Chapter 2 (Oil Tankers)
  - e. 46 CFR Subchapter D
  - f. ABS 2011 Rules for Building and Classing Steel Vessels, Part 5C, Chapter 9 (Chemical Carriers)
  - g. 46 CFR Subchapter O
  - h. 46 CFR 31.10-1(c), Acceptance of structural plans approved by ABS or other recognized classification society.
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## Contact Information

If you have any questions or comments concerning this document, please contact the Marine Safety Center (MSC) by email or phone. Please refer to the Procedure Number C1-24.

Email: [MSC@uscg.mil](mailto:MSC@uscg.mil)

Phone: 202-475-3403

Website: <http://homeport.uscg.mil/msc>

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## Responsibilities

Using applicable portions of references (a) through (h), the submitter shall provide sufficient documentation and plans to indicate compliance with the applicable requirements. The submission shall be made electronically to the above email address or, if paper, in triplicate to the MSC's address found on the above website. To facilitate plan review and project management, all plans and information specified in these guidelines should be submitted as one complete package through a single point of contact for the project.

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## General Guidance

- ❑ The submitter must indicate whether the vessel is new or existing. No plan review may occur until receipt of a copy of the Application for Inspection. Hard copy plans must be submitted in triplicate, where all spaces must be identified and designated on the plans.
- ❑ If the vessel is new, the submitter must accompany the basic information in the submission, such as the Application for Inspection. No plan review may occur until receipt of a copy of the Application.
- ❑ Is it clear what the submitter is asking for? Are all plans to be stamped/returned submitted in triplicate? Are there any special/unusual requests or a time critical element involved?
- ❑ Is the vessel being reviewed under NVIC 10-82 or 2-95? If Yes, you are done and may oversight the structures submittal conducted by ABS in accordance with the checklist at the assigned level.
- ❑ Is the vessel being classed by ABS (reviewed by ABS's SAFEHULL software)? If Yes, check file for ABS letter/drawings or request from submitter/ABS. USCG considers ABS Structural review for class as acceptable for showing compliance with U.S. regulations. (Reference(h))
- ❑ For vessels, 150 m (492 ft) or greater in length and is in compliance with 5A-1-2/3.1.2, and 5A-1-2/Fig 2.3.1 of reference (a):
  - **Cargo Tank Region**
    - Calculate the vessel definitions: Section 4 of reference (a).
    - Calculate and check keel plating: Section 8/2.2.1 of reference (a).
    - Calculate and check bottom shell plating: Section 8/2.2.2 of reference (a).

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- Calculate and check bilge plating: Section 8/2.2.3 of reference (a).
- Calculate and check side shell plating: Section 8/2.2.4 of reference (a).
- Calculate and check deck plating: Section 8/2.2.6 of reference (a).
- Calculate and check longitudinal tank boundary bulkhead plating: Section 8/2.5.2 of reference (a).
- Calculate and check corrugated bulkhead plating: Section 8/2.5.6 of reference (a).
- Calculate and check inner bottom plating: Section 8/2.4.1 of reference (a).
- Calculate and check inner bottom longitudinal: Section 8/2.4.2 of reference (a).
- Calculate and check longitudinal tank boundary bulkheads plating: Section 8/2.5.2 of reference (a).
- Calculate and check corrugated bulkhead plating: Section 8/ 2.5.6 of reference (a).
- Calculate and check minimum thickness primary support members: Section 8/3.5.3 of reference (a).
  
- **Hull Girder**
  - Calculate and check minimum hull girder still water bending moment: Section 7/2.1.2 of reference (a).
  - Calculate and check minimum hull girder water shear force: Section 7/2.1.4 of reference (a).
  
- **Fwd of the Fwd Cargo Tank**
  - Calculate and check bottom shell plating: Section 8/3.2.2 of reference (a).
  - Calculate and check bottom longitudinals: Section 8/3.2.3 of reference (a).
  - Calculate and check bracketed connection: Section 8/3.2.3 of reference (a).
  - Calculate and check inner bottom plating: Section 8/3.2.3 of reference (a).
  - Calculate and check side shell plating: Section 8/3.3.1 of reference (a).
  - Calculate and check side shell primary support structures: Section 8/3.3.3 of reference (a).
  - Calculate and check deck plating: Section 8/3.4.1 of reference (a).
  - Calculate and check side shell plating: Section 8/3.4.2 of reference (a).
  - Calculate and check deck stiffeners: Section 8/3.4.2 of reference (a).

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- Calculate and check deck scantling of the tank boundary bulkheads: Section 8/3.5.3 of reference (a).
- **Machinery Space**
  - Calculate and check bottom shell plating: Section 8/4.2.2 of reference (a).
  - Calculate and check bottom shell stiffeners: Section 8/4.2.3 of reference (a).
  - Calculate and check side shell plating: Section 8/4.2.5 of reference (a).
  - Calculate and check deck scantlings: Section 8/4.4.2 of reference (a).
- For vessels, 150 meters (492 feet) or greater in length and does not comply with 5A-1-2/3.1.2, 5A-1-2/ Fig 2.3.1 of reference (a), it must meet Part 5C, Chapter 1, and use Appendix 1 to Part 5C, reference (c)
  - It must meet Part 5C, Chapter 1, and use Appendix 1 of Part 5C, reference (c).
  - Calculate the vessel definitions: Section 1 of reference (c).
  - Check and validate the information in Introduction: Section 1 of reference (c).
  - Calculate and check longitudinal and transverse bulkheads: Section 4.13 of reference (c).
  - Validate corrugated bulkhead scantling, as applicable: Section 17 of reference (c).
  - Calculate the scantlings for the bottom shell: Section 4/7.3 of reference (c).
  - Calculate the scantlings for bottom structure: Section 4/7.5 of reference (c).
  - Calculate and check bottom shell plating scantlings: Section 7 of reference (c).
  - Calculate and check side shell and deck plating scantlings: Section 9 of reference (c).
  - Calculate and check total strength assessment: Section 5 of reference (c).
- For vessels, less than 150 meters (492 feet),
  - Calculate the vessel definitions: Section 1 of reference (a).
  - Check and validate the general information: Section 1 of reference (d).
  - Calculate and check bulkhead plating: Section 2/7 of reference (d).
  - Calculate and check side shell plating: Section 2/3 of reference (d).
  - Calculate and check deck plating: Section 2/5 of reference (d).

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- Calculate the scantlings for double bottom structure: Section 11, reference (d).
  - Check the scantlings of deep supporting members: Section 13 of reference (d).
  - Check the scantlings of frames, beams, and bulkhead stiffeners: Section 15 of reference (d).
  - Calculate and check hull girder strength: Part C, Appendix 1.
  - Check Loading information 46 CFR 31.10-32 of reference (e).
- For vessels, Carrying Chemicals,
- Calculate the vessel definitions: Section 1 of reference (f).
  - Calculate /check still water bending moment calculations: Section 1/7 of reference (f).
  - Check Loading information 46 CFR 153.806 of reference (g).
  - Loading guidance: Section 1/9 of reference (f), and refers to Section 1/7 of reference (b).
  - Hull scantlings: Section 1/11 of reference (f) (are to be generally in accordance with Section 1/11.3 of reference (f)).
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## Disclaimer

This guidance is not a substitute for applicable legal requirements, nor is it itself a rule. It is not intended 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 the MSC, the unit responsible for implementing this guidance.

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Attachments

Diagram for Chemical & Oil Tankship Structures

## PRG C1-24 diagram for Chemical & Oil Tankship Structures

