

MSC Guidelines for Review of Offshore Supply Vessel (OSV) Structures

Procedure Number: T1-7

Revision Date: 01/12/00

References

- a. 46 CFR Subchapter I
- b. 46 CFR Subchapter L
- c. *1997 ABS Rules for Building and Classing Steel Vessels under 90 m (295 feet) in Length
- d. 1983 ABS Rules for Building and Classing Steel Vessels under 61 m (200 feet) in Length
- e. *1997 ABS Guide for Building and Classing High-Speed Craft
- f. 46 CFR 92.01-10 and 127.210, Acceptance of structural plans approved by ABS or other recognized classification society.
- g. NVIC No. 10-82: Acceptance of Plan Review and Inspection Tasks Performed by the American Bureau of Shipping for New Construction or Major Modification of U.S. Flag Vessels

*Note: 46 CFR 125.180 has outdated references concerning acceptable structural standards. These standards are also acceptable for new construction.

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 documents. 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: **T1-7**

E-mail: customerservicemsc@msc.uscg.mil

Phone: 202-366-6480.

General Review Guidance

- If the vessel is new and not a sister vessel, has the Application for Inspection been submitted? In general, no plan review will occur until receipt of a copy of the Application.
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- Is it clearly stated what is desired from the MSC? Are all plans requiring Coast Guard review and/or approval submitted in triplicate? Are there any special or unusual requests involved?

Is the vessel being reviewed under NVIC 10-82? If **Yes**, then MSC review of the structural submittal is not required.

- Is the vessel being classed by ABS? If **Yes**, check file for ABS letter/drawings or request from submitter/ABS. The MSC considers structural plan approval by ABS for the purpose of classification as sufficient demonstration of compliance with the regulations. Any plans of a vessel classed by ABS and submitted to us will be returned without action, stating this policy.
- Per 46 CFR 92.01-10 and 127.210, all vessels must be built to one of the ABS structural design standards in references (c), (d), or (e). If another standard is used then Commandant (G-MSE) may approve the standard per 46 CFR 127.210 (b).

*Note: Some existing and newly constructed 46 CFR Subchapter T crewboats are seeking certification as Offshore Supply Vessels, regulated under 46 CFR Subchapter L. Many of these are constructed of aluminum, and if so, please see the MSC Guideline for Review of Structural Plans for Steel and Aluminum Vessels.

DOCUMENTATION

- Check that the following items are in the submittal package:
 - A detailed list of all plans noting what action by the reviewing party is intended (approval, information only, etc.)
 - A general description of the vessel and its functions such as: length overall, length between perpendiculars, breadth, depth, block coefficient, estimated lightship and draft, load line draft, vessel speed, wave height vs. speed relationship (if applicable), service limitations, identification of novel designs and/or connection details requiring direct analyses, anticipated route, and types of cargo to be carried.
 - If the vessel is classed, the submitter should provide a copy the approval letter from the classification society. After receipt, MSC will file one copy of the plans and return the others without action stating that the MSC considers the structural plan approval by a classification society for the purpose of

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classification as sufficient demonstration of compliance with the regulations. In the return letter, MSC will direct the submitter to provide a copy of the society's approved drawings to the cognizant OCMI for their use in the inspection process.

- If the vessel is not classed or load-lined but the hull structure has been reviewed and approved by a classification society for other reasons (e.g. NVIC 10-92), the submitter should provide the class society's approval letter and approved drawings. After receipt, the plans will be approved and returned, and the following statement will be included with the cover letter: "*Classification society x has verified that the vessel complies with the design requirements of _____.* We consider a vessel reviewed to these Rules and approved by Classification society x as sufficient evidence that the vessel's hull structure has adequate safety and strength in accordance with Title 46 CFR 127.210," (or 92.01-10, as appropriate). (Note: Such submittals may be reviewed under normal oversight procedures.)

PLANS

- Ensure that the following plans are submitted in triplicate (if applicable to the vessel). Representative sections must be submitted when scantling plans are not available.
 - Midship section - Identifying all cutouts, longitudinal stiffeners/girders that are not considered effective, and all local loadings (i.e. wheel loads, foundation loads, concentrated or distributed loads).
 - Booklet of Scantling Plans, which may include:
 - Pillars and girders
 - Bottom construction, floors, girders, inner bottom plating, etc.
 - Deck plans
 - Framing plan
 - Scantling profile and decks
 - Shell expansion
 - Superstructure and deckhouses
 - Watertight and deep-tank bulkheads
 - Miscellaneous nontight bulkheads which are used as structural supports
 - Watertight doors and framing
 - Window and framing details

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- ❑ Structural details of panel stiffeners, brackets, openings in girders, structural intersections, tripping brackets, stanchion supports, stiffener endings, snipes, bulkhead penetrations, and cutouts
- ❑ Typical sections for areas of unusual structure
- ❑ General arrangement (for reference only)
- ❑ General material specifications
- ❑ A plan detailing the location and installation of special materials including the material's chemical and physical properties and weld procedures.
- ❑ Welding Schedule and details - Structural and welding details need not be itemized on each plan and can be referenced to the "Booklet of Standard Details" developed for each vessel. Shipyard standard details need to be submitted only if the Coast Guard does not have an approved copy on file, or if it contains revised details for the specific vessel under review.

CALCULATIONS

- ❑ Ensure that the structural standard used by the submitter/designer is:
 - (1) a standard permitted by the vessel's specific subchapter, and
 - (2) applicable to the vessel.
- ❑ Ensure that the structural calculations are performed in accordance with the applicable standard.
- ❑ Spot-check the calculations to ensure that the Rule definitions, stiffener spacings, and unsupported span lengths accurately reflect the drawings.
- ❑ For vessels receiving a loadline, only.
 - ❑ Vessels designed to meet the **1997 ABS Rules (Reference (c))** 4.3.1.1
 - ❑ Check the location and integrity of the collision bulkhead, e/r bulkheads, and chain locker: Section 12.3.
 - ❑ Calculate the scantlings for the watertight bulkheads: Section 12.5.
 - ❑ Check the location of the watertight doors: Section 12.9.
 - ❑ Calculate and check the deep tank scantlings, if applicable: Section 13.
 - ❑ Vessels designed to meet the **1983 ABS Rules (Reference (d))**, Part 3
 - ❑ Check the location and integrity of the collision bulkhead, e/r bulkheads, and chain locker: Section 10.3.
 - ❑ Calculate the scantlings for the watertight bulkheads: Section 10.5.
 - ❑ Check the location of the watertight doors: Section 10.7.

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- Calculate and check the deep tank scantlings, if applicable: Section 11.

For unclassified, non-loadlined OSVs

- Vessels designed to meet the **1997 ABS Rules, (Reference (c))** Part 3
 - Calculate and check the scantlings for the keel: Section 4.1.
 - If vessel is SOLAS-certificated or requires a double bottom as shown in the general arrangement checklist, calculate and check the scantlings for double bottom: Section 7.1.
 - For single bottom vessels: Use Section 7.3 or 7.5.
 - Check the location and integrity of the collision bulkhead, e/r bulkheads, and chain locker: Section 12.3.
 - Calculate and check the scantlings for the watertight bulkheads: Section 12.5.
 - Calculate and check the scantlings for the bottom shell plating: Section 15.3.
 - Calculate and check the scantlings for side shell plating: Section 15.5.
 - Calculate and check the scantlings for deck plating: Section 16.3.
 - Check the arrangements of the machinery space: Section 7.11.
 - Check the location of the watertight doors: Section 12.9.
 - Calculate and check the deep tank scantlings, if applicable: Section 13
 - Calculate and check the scantlings for superstructures and deckhouses: Section 17.3, 17.5, and 17.9.
 - Check through Part 5, Section 10 for any special requirements.
- Vessels designed to meet the **1983 ABS Rules (Reference (d))**
 - Calculate and check the scantlings for the keel: Section 4.1.
 - If vessel is SOLAS certificated and requires a double bottom as shown in the general arrangement checklist, calculate and check the scantlings for double bottom: Section 7.5.
 - For single bottom vessels: Use Section 7.1 or 7.3.
 - Check the location and integrity of the collision bulkhead, e/r bulkheads, and chain locker: Section 10.3.
 - Calculate and check the scantlings for the watertight bulkheads: Section 10.5.
 - Calculate and check the scantlings for the bottom shell plating: Section 12.3.
 - Calculate and check the scantlings for side shell plating: Section 12.5.
 - Calculate and check the scantlings for deck plating: Section 13.3.
 - Check the location of the watertight doors: Section 10.7.
 - Calculate and check the deep tank scantlings, if applicable: Section 11

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- Calculate and check the scantlings for superstructures and deckhouses: Section 14.1 and 14.3.