

# MSC Guidelines for Review of Vents and Sounds

Procedure Number: E1-29

Revision Date: 01/04/2000

## References

Title 46 CFR 50.20-5, Procedures for submittal of plans  
Title 46 CFR 56.01-10, Plan approval  
Title 46 CFR 56.50-85, Tank-vent piping  
Title 46 CFR 56.50-90, Sounding devices  
Title 46 CFR 32.55, 36.20-1 and 38.20, Subchapter D  
Title 46 CFR 77.03-1, Subchapter H  
Title 46 CFR 96.03-1, Subchapter I  
Title 46 CFR 119.445 and 119.450, Subchapter K  
Title 46 CFR 128.110, Subchapter L  
Title 46 CFR 182.445 and 182.450, Subchapter T

## 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 Homeland Security expressly disclaim liability resulting from the use of this document.

## Contact Information

If you have any questions or comments concerning this Guidance, please contact the Marine Safety Center by e-mail or phone: Please refer to Procedure Number: E1-29.

E-mail: [customerservicemsc@uscg.mil](mailto:customerservicemsc@uscg.mil)  
Phone: 202-366-6440

## General Review Guidance

### **General Information**

- Small tanks with comparatively small surface area, such as fuel oil settling tanks, need be fitted with only one vent pipe, but tanks having a comparatively large surface shall be fitted with at least two vent pipes. The vent pipes shall be located to provide venting of the tanks under any service condition. 56.50-85 (a) (2)
- Vents from oil tanks must terminate not less than three feet from any opening into living quarters. 56.50-85 (a) (5)

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- Vents from fresh water or water ballast tanks shall not be connected to a common header with vents from oil or oily ballast tanks. 56.50-85 (a) (13)
- Where deep tanks are intended for the occasional carriage of dry or liquid cargo, a "spectacle" or ring and blank flange may be fitted in the overflow pipe so arranged as to not interfere with venting when the tanks contain oil. 56.50-85 (a) (12)

## **Vent Location and Routing**

- Vents extending above the weather decks must be at least schedule 40 pipe. 56.50-85 (a) (6).
- Venting to the weather deck
  - This is recommended for all systems when possible and is mandatory if a watertight subdivision boundary (bulkhead penetration) is compromised per 56.50-85 (b) and for fuel oil lines as required by 56.50-85 (a) (4).
- Venting to machinery spaces

Fresh water; bilge oily-water; bilge slop; lube oil; and grade E combustible systems can be vented to machinery spaces provided the following requirements are met:

  - Vents are arranged to prevent overflow onto machinery, electrical equipment, and hot surfaces. 56.50-85 (a) (4) (i)
  - Tanks containing combustible liquids are not heated. 56.50-85 (a) (4) (ii)
  - The vents terminate above the deepest load waterline if the tanks have boundaries in common with the hull. 56.50-85 (a) (4) (iii)

## **Vent Diameters**

- Vent pipe, minimum nominal pipe diameters 56.50-85 (a) (10)
  - Fresh water tanks 1.5"
  - Ballast tanks 2.0"
  - Fuel oil tanks 2.5"
  - Small independent tanks with vents that are more than 25% greater in cross sectional area than the fill line are acceptable. We can multiply the internal area of the fill pipe by 125% to determine the minimum size vent pipe that would be acceptable. (Example: If the fill pipe has an internal area of .719, such as the case with 1" nominal pipe, multiply the internal area .719 by 1.25 which indicates the vent pipe must have an internal area greater than .898). 56.50-85 (a) (10)

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- Vent pipes for fuel oil tanks shall where ever possible have a slope of no less than 30° Header lines, where both ends are adequately drained to the tank are excluded from this requirement. 56.50-85 (a) (3)
- Tank vents must remain within the watertight subdivision boundaries in which the tanks they vent are located. Where the structural configuration of a vessel makes meeting this requirement impracticable the Marine Safety Center may allow some deviation per 56.50-85 (b).
- Fuel oil tank vents must extend above the weather deck. 56.50-85 (a) (4)

## **Vent Heights**

Vent height, for **Non Great Lake and Inland Barges**, from the deck to the point of water access. 56.50-85 (a) (6)

- 30 inch minimum on freeboard deck
- 17.5 inch minimum on superstructure
- Vent height for **Great Lakes** 56.50-85 (a) (6)
  - 30 inch minimum on freeboard
  - 24 inch minimum on raised quarter deck
  - 12 inch minimum on superstructure
- Vent height for **Inland Barges** 56.50-85 (a) (6)
  - 6 inch minimum above the deck

Note: A lesser amount may be approved by the MSC if evidence is provided that a particular vent has proven satisfactory in service. Ref: 56.50-85 (a) (6).

## **Vent Flame Screens**

- Vent outlets from all tanks which may emit flammable or combustible vapors, such as bilge slop tanks and contaminated drain tanks, must be fitted with either:
  - A single screen of corrosion resistant wire of at least 30 by 30 mesh
  - Or two screens of corrosion resistant wire of at least 20 by 20 meshSpaced not less than 1/2 inch nor more than 1 1/2 inches apart. The clear area through the mesh must not be less than the internal unobstructed area of the required pipe. 56.50-85 (a) (8).

## **Sounding Pipes which Terminate below Deck**

- Cargo vessel with sounding pipes which terminate below the freeboard deck must be fitted with gate valves.

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- Passenger vessels with sounding pipes which terminate below the bulkhead deck must be fitted with self-closing gate valves.  
56.50-90 (b)

## **Sounding Pipes for Fuel Systems built on or after 9 June 1995**

- Sounding pipes may not terminate in the following spaces
  - Spaces with risk of ignition
  - Passenger or crew spaces
  - Machinery spaces unless the Marine Safety Office determines it impractical to avoid terminating a pipe in the machinery space.If sounding pipe terminates in the machinery space refer to the special requirements of 56.50-90 (c) (1), (2) and (3).

## **Sounds Closure Devices**

The upper end of pipes terminating at the weather deck shall be closed by:

- Screw cap or plug
- Great lakes dry cargo carriers may have hinged covers for sounding pipes which service ballast water tanks provided it meets the requirements of 56.50-90 (e).

## **Alternative Sounding (gauging devices) for Vessels Constructed on or after June 9, 1995**

- Refer to 56.50-90 (d)

## **Vent Closure Devices**

- Satisfactory means, permanently attached, shall be provided for closing the openings of all vents. (inland barges may be exempted)
  - Ball check valve, must close under the action of a submerging wave.  
56.50-85 (a) (7) (i)
  - Hinged closure, must close under the action of a submerging wave. 56.50-85 (a) (7) (ii)
  - Other suitable device acceptable to the Marine Safety Office 56.50-85 (a) (7) (iii)

Where vents are provided with flame screens, the closure device shall be situated so as to not damage these screens.

## **Tank Over Pressure Protection**

- Tanks filled by a pressure head exceeding that for which the tank is designed must be protected as follows:

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- The aggregate cross-sectional area of the vents in each tank must be not less than the cross-sectional area of the filling line unless the tank is protected by overflows.
- If overflows are used the aggregate cross-sectional area of the overflows must not be less than the cross-sectional area of the filling line.  
Ref: 56.50-85 (a) (11) (i)
- Provisions must be made to guard against liquids from rising in the venting system to a height that would exceed the design head of a cargo tank or fuel tank by using one of the following: 56.50-85 (a) (11) (ii)
  - high level alarms, Or
  - Overflow-control systems, Or
  - Other, equivalent means, together with gauging devices and procedures for filling cargo tanks.  
Ref: 56.50-85 (a) (11) (ii)

## **Material Specifications and Design Standards**

- Materials and specifications shall be selected from 46 CFR 56.60  
Check for ASTM and ANSI standards
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Attachments      None