

**Coast Guard, DHS**

**§ 178.510**

partially protected waters must be located as high above the deepest load waterline as practicable.

(d) The cockpit must be self-bailing. Scuppers or freeing ports for the cockpit deck of a cockpit vessel must:

(1) Be located to allow rapid clearing of water in all probable conditions of list and trim;

(2) Have a combined drainage area of at least the area required by §178.450 of this part; and

(3) If the deck is less than 255 millimeters (10 inches) above the deepest load waterline of the vessel, be fitted with non-return devices.

**§ 178.430 Drainage of well deck vessels.**

(a) The weather deck on a well deck vessel must be watertight.

(b) The area required on a well deck vessel for drainage of well formed by the bulwarks shall be determined by §178.450.

(c) The freeing ports or scuppers on a well deck vessel must be located to allow rapid clearing of water in all probable conditions of list and trim.

(d) The deck of well deck vessel that operates on exposed or partially protected waters must be at least 255 millimeters (10 inches) above the deepest load waterline unless the vessel complies with:

(1) The intact stability requirements of §§170.170, 170.173, 171.050, 171.055, and 171.057 in subchapter S of this chapter;

(2) The Type II subdivision requirements in §§171.070, 171.072, and 171.073 in subchapter S of this chapter; and

(3) The damage stability requirements in §171.080 in subchapter S of this chapter.

**§ 178.440 Drainage of open boats.**

The deck within the hull of an open boat must drain to the bilge. Overboard drainage of the deck is not permitted.

**§ 178.450 Calculation of drainage area for cockpit and well deck vessels.**

(a) The drainage area required on a vessel must be computed using the following formula:

For protected waters required drainage = .1 × Basic Drainage

For partially protected waters required drainage = .5 × Basis Drainage

For exposed waters required drainage = Basic Drainage

where:

Basic Drainage area in centimeters<sup>2</sup> = 4389.12 × [(Recess Volume × Recess Ratio) + (Weather Deck Volume × Weather Deck Ratio)]; or

Basic Drainage area in inch<sup>2</sup> = (Recess Volume × Recess Ratio) + (Weather Deck Volume × Weather Deck Ratio)

Recess Volume = (B<sub>R</sub> × D<sub>R</sub>) - V<sub>R</sub>

B<sub>R</sub>=average height in centimeters (feet) of the bulwark above the well deck or cockpit deck;

D<sub>R</sub>=total deck area of the cockpit or well deck in the after 2/3 of the vessel length (LOD) measured in centimeters<sup>2</sup> (feet<sup>2</sup>).

V<sub>R</sub>=volume of any weather tight structure below the bulwark of the well deck or cockpit deck.

Recess Ratio = L<sub>R</sub> / L<sub>C</sub>

L<sub>R</sub>=the length of the recess in the after 2/3 vessel length (LOD).

L<sub>C</sub>=2/3 vessel length (LOD).

Weather Deck Volume = (B<sub>D</sub> × D<sub>D</sub>) - V<sub>S</sub>

B<sub>D</sub>=average height in centimeters (feet) of the bulwark above the weather deck;

D<sub>D</sub>=total deck area of the weather deck adjacent to bulwarks but not in way of the cockpit or well deck in the after 2/3 of the vessel length (LOD) measured in centimeters<sup>2</sup> (feet<sup>2</sup>).

V<sub>S</sub>=volume of any weather tight superstructure below the bulwark on the weather deck located within D<sub>D</sub>.

Weather Deck Ratio = L<sub>D</sub> / L<sub>C</sub>

L<sub>D</sub>=the length of the weather deck bulwark in the after 2/3 of the vessel length (LOD).

L<sub>C</sub>=2/3 vessel length (LOD).

(b) Vessels with bulwarks in the forward part of the vessel shall not form a well with the deckhouse which retains water.

[CGD 85-080, 61 FR 966, Jan. 10, 1996; 61 FR 20557, May 7, 1996]

**Subpart E—Special Installations**

**§ 178.510 Ballast.**

(a) Any solid fixed ballast used to comply with the requirements of parts 170, 171, 178, and 179 of this chapter must be: