§ 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 of this part; and

(c) The freeing ports or scuppers on a well deck 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.

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§ 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\(^2\) = \(4389.12 \times ((\text{Recess Volume} \times \text{Recess Ratio}) + (\text{Weather Deck Volume} \times \text{Weather Deck Ratio}))\);

Basic Drainage area in inch\(^2\) = \((\text{Recess Volume} \times \text{Recess Ratio}) + (\text{Weather Deck Volume} \times \text{Weather Deck Ratio})\)

Recess Volume = \((B_R \times D_R) - V_R\)

\(B_R\)=average height in centimeters (feet) of the bulwark above the well deck or cockpit deck;

\(D_R\)=total deck area of the cockpit or well deck in the after 2⁄3 of the vessel length (LOD) measured in centimeters\(^2\) (feet\(^2\)).

\(V_R\)=volume of any weather tight structure below the bulwark of the well deck or cockpit deck.

Recess Ratio = \(L_R / L_{C}\)

\(L_R\)=the length of the recess in the after 2⁄3 vessel length (LOD);

\(L_{C}\)=2⁄3 vessel length (LOD).

Weather Deck Volume = \((B_D \times D_D) - V_S\)

\(B_D\)=average height in centimeters (feet) of the bulwark above the weather deck;

\(D_D\)=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\(^2\) (feet\(^2\)).

\(V_S\)=volume of any weather tight superstructure below the bulwark on the weather deck located within \(D_D\).

Weather Deck Ratio = \(L_D / L_{C}\)

\(L_D\)=the length of the weather deck bulwark in the after 2⁄3 of the vessel length (LOD);

\(L_{C}\)=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.