

SECTION 2

INTEGRITY AND OPENINGS IN HULL

1 General

1.1 General

1.1.1 The requirements of the present Section are applicable to yachts and charter-yachts in scope of Classification only.

To that purpose, they only deal with the various protection index to be provided for the openings in decks and superstructures exposed to sea in a view to prevent any flooding of the floating hull under sea effect of such decks and superstructures.

1.1.2 The attention of Shipowners, Shipyards and Designers is drawn on the fact that compliance to the requirements of the present section is not necessarily sufficient at all to allow Flag Administration (to issue a load line certificate for example).

1.1.3 The Flag Administration may request for yacht greater than 24 m length load line application of National Rules and/or International Regulations. In such a case, it is the Owner, the Shipyard or the Designer responsibility to comply with the therein Rules and Regulations, which can be different from the requirements of the present Section.

1.1.4 When agreed by the Flag Administration, the Society may act on behalf of the Flag Administration in scope of National Rules and/or International Regulations.

In such case, the requirements of the present section will be superseded by the National or International Rules recongnized by the Flag Administration.

Note 1: In the scope of the limits of such authorization, the Society only notices the arrangements which are not in accordance with the requirements of the National and/or International Rules. It is to the Flag responsibility to request or not new arrangement within the scope of the National and/or International Rules.

2 Interpretation principle

2.1 General

2.1.1 Main definition

The main definitions of the present section are the one of the International Convention on Load lines, 1966, as amended.

2.1.2 Interpretation

The only purpose of the interpretations given with each definition in the present section (and which may differ from the International Load Line Convention) is to specify the list of requirements applicable for openings protection in scope of Classification only.

2.2 Definitions and interpretations

2.2.1 Freeboard deck

The freeboard deck is normally the uppermost complete deck exposed to weather and sea, which has permanent means of closing all openings in the weather part thereof, and below which all openings in the sides of the ship are fitted with permanent means of watertight closing.

Interpretation:

This deck, noted freeboard deck^(m) in the present section, is to be considered as the deck exposed to greenseas, and granting the necessary weathertightness of the hull to prevent any water ingress.

2.2.2 Superstructure

- a) A superstructure is a decked structure on the freeboard deck, extending from side to side of the ship or with the side plating not being inboard of the shell plating more than 4 per cent of the breadth (B).
- b) An enclosed superstructure is a superstructure with:
 - 1) enclosing bulkheads of efficient construction
 - 2) access openings, if any, in these bulkheads fitted with doors complying with the requirements of Regulation 12 of the International Convention on Load Lines 1966 as amended, dealing with the doors arrangement
 - 3) all other openings in sides or ends of the superstructure fitted with efficient weathertight means of closing.

Interpretation:

A superstructure, noted superstructure^(m) in the present section, is to be considered as a decked structure on the freeboard deck^(m) and complying with the requirements of Ch 8, Sec 9 and Ch 9, Sec 9 even if it is inboard of the shell plating more than 4% of the breadth. A superstructure^(m) may be:

- enclosed^(m): if all the openings in the exposed surrounding sides and decks are made weathertight as indicated in [2.2.4] of the present article
- open^(m): if the openings in the exposed surrounding sides and decks are not all made weathertight.

Note 1: The part of the freeboard deck^(m) sheltered by an enclosed^(m) superstructure^(m) is not to be considered as a deck exposed to greenseas.

2.2.3 Deckhouse

A deckhouse is a decked structure other than a superstructure, located on the freeboard deck^(m) or above.

2.2.4 Weathertightness

Weathertight means that in any sea conditions, water will not penetrate into the ships.

The weathertight closing devices (door, hatch cover,...) are to be of strong construction and with strength criteria similar to the adjacent ship's structure.

2.2.5 Green sea exposure location

The locations are defined as follows:

- Fore area: area extending on the forward 1/3 of the ship's rule length
- Aft area: area extending on the aft 2/3 of the ship's rule length
- Fore deck: exposed part of the freeboard deck^(m) and side walls or front wall of the first tier of superstructure^(m) on the freeboard deck^(m), located in the fore area
- 1st tier of fore area: exposed part of the first deck above the freeboard deck^(m) and side walls or front wall of superstructure located on this deck, located in the fore area.

3 General arrangement design

3.1 Height of sills and coamings

3.1.1 All the openings giving direct or indirect access below the freeboard deck^(m) are to be fitted with closing devices and are to be weathertight.

3.1.2 The above closing means are to be permanently ready for use, fitted with locking devices and with opening outward.

3.1.3 For classification purpose, the openings mentioned in [3.1.1], except the one giving access to machinery space (see [3.1.7]), are to be fitted with sill or coamings having following minimum height:

- fore deck: 600mm
- 1st tier of fore area: 150mm
- aft area:
 - 300mm for doors, hatchways and companion ways directly exposed to green sea effects (see also [3.1.4] and [3.1.5])
 - 200mm for doors in side walls of superstructure (see also [3.1.5])
 - 100mm for protected doors, hatchways and companion ways in aft wall of superstructure (see also [3.1.4] and [3.1.5])
- access to engine room:

As a rule, the height of sills and coamings giving direct access to machinery spaces is to be 600mm.

The above height may be reduced to 380mm where the access to machinery space is located in the aft area and this access is not directly exposed to green seas effect.

3.1.4 Deck hatchway not used for access at sea can be provided without coaming except when the hatchway is the

only access leading to the steering gear compartment or to the engine room.

In such case, permanent warnings are to be fitted close to the concerned deck hatchway, specifying that the deck hatchway under consideration is not to be used when operating in deep sea.

3.1.5 Doors not used during operation in deep sea, can be provided with height of sills reduced by half.

In such case, permanent warnings are to be fitted close to the concerned doors, specifying that the door under consideration is not to be used when operating in deep sea.

3.1.6 Removable sills

Except for the fore deck, a part of the required sill of the openings used during operation in deep sea, may be made of removable part, provided:

- a) the height of the removable sill is at maximum half of the required height according to [3.1.3], and
- b) the removable sill is permanently stored close to the opening, and
- c) the weathertightness of the complete sill is satisfactorily demonstrated by a hose test.

3.1.7 For yachts having the navigation notation **sheltered area** or **coastal area** or **unrestricted navigation limited to 60 nautical miles** as defined in Pt A, Ch 1, Sec 2, the height of sills and coamings as required in [3.1.3] may be reduced by half.

In this case, fitting of removable sills according to [3.1.6] cannot be simultaneously accepted.

3.2 Ventilation openings

3.2.1 Spaces located below the freeboard deck^(m)

The ventilation openings serviceing spaces located below the freeboard deck^(m) are to be protected from direct green-seas effect and are to be fitted, as a rule, with a sill of height equal to 900mm where located in fore area or 760mm where located in aft area.

The ventilation openings must be fitted with water trap system.

Smaller sill heights may be accepted provided:

- ventilation openings is located in a protected area not directly exposed to green seas effect
- ventilation openings are fitted with systems limiting direct water ingress. The efficiency of the system is to be tested by hose.

3.2.2 For yachts having the navigation notation sheltered area or coastal area or unrestricted navigation limited to 60 nautical miles as defined in Pt A, Ch 1, Sec 2, the height of the sills as defined in [3.2.1] may be reduced to 450 mm and 380 mm, respectively.

3.2.3 Engine rooms

As a rule, the sills of ventilation openings serviceing the machinery space are to be in accordance with Pt C, Ch 1, Sec 9, [7.3.8].

Smaller sills as indicated in [3.2.1] may be accepted.

3.3 Scantlings of doors, hatch covers, superstructure windows and side scuttles

3.3.1 The scantlings of the doors, hatch covers, superstructure windows and side scuttles giving access below the freeboard deck are to be determined with sea pressure given in Ch 7, Sec 1, and with due consideration given to the material used for construction.

Weather-tightness is to be demonstrated after fitting on board by means of hose tests.

3.3.2 Side scuttles

As a rule, the lower edge of the side scuttle is to be at least 500mm above the waterline.

Side scuttles below the freeboard deck^(m) the less exposed to chocks may be fitted with removable deadlights, provided the side scuttle strength is equivalent to the strength of the surrounding hull sides (see Ch 10, Sec 3).

3.3.3 Window arrangement

Opening windows may not be fitted:

- below the freeboard deck^(m)
- where they become immersed by any intermediate stage of flooding or the final equilibrium waterplane in any required damage case for ships subject to damage stability regulations
- in the first tier deckhouses considered as being buoyant in the stability calculations.

3.4 Freeing ports

3.4.1 General

Where bulwarks on the weather portions of the freeboard deck^(m) or the superstructure^(m) decks form wells, ample provision is to be made for rapidly freeing the decks of water and for draining them.

The minimum section area of the freeing ports is determined according to [3.4.2] in scope of classification.

3.4.2 Minimal section

The minimum section area of freeing ports on each side of the yacht and for each well, is based on the volume of the well formed by the deck and the corresponding bulwark.

As a rule, the minimum section area of freeing ports is not to be less than:

- where the exposed deck is not sheltered by any decked construction, the minimum section area A of freeing port on each side, in m^2 is given in Tab 1
- where the exposed deck is sheltered by a superstructure^(m) or a decked construction, the minimum section area A of freeing ports on each side, in m^2 , is given as a

percentage of the lateral surface of the corresponding bulwark, according to Tab 2.

3.4.3 Location

The lower edge of the freeing ports is to be as close to deck as possible.

Freeing ports are to be located in the areas of the well where the sheer is the lowest and in the areas of the well where the sea water may accumulate due to yacht motions at sea.

3.4.4 Protection

All such openings in the bulwarks are to be protected by rails or bars spaced approximately 230mm apart. If shutters are fitted to freeing ports, ample clearance is to be provided to prevent jamming. Hinges are to have pins or bearings of non-corrodible material.

Table 1 : Freeing ports for deck without decked construction

Area A of freeing ports, in m^2	
$\ell_B \leq 20$	$\ell_B > 20$
$0,7 + 0,035 \ell_B + A_C$	$0,07 \ell_B + A_C$
Note 1:	
ℓ_B	: Length, in m, of bulwark in the well, to be taken not greater than $0,7 L_{HULL}$
A_C	: Area, in m^2 , to be taken, with its sign, equal to:
	$A_C = \frac{\ell_B}{25} (h_B - 1, 2)$ for $h_B > 1, 2$
	$A_C = 0$ for $0, 9 \leq h_B \leq 1, 2$
	$A_C = \frac{\ell_B}{25} (h_B - 0, 9)$ for $h_B < 0, 9$
h_B	: Mean height, in m, of the bulwark in a well of length ℓ_B

Table 2 : Freeing ports for deck with decked construction

Relative breadth of the superstructure or the decked construction, compared to the breadth of the deck	Minimum area of freeing ports on each side compared to the lateral area of the lateral bulwark
40%	10%
50%	8,6%
60%	7,1%
70%	5%
80% and more	4,3%

