



INSTRUCTIONS FOR THE GUIDANCE OF SURVEYORS ON
INTERNATIONAL LOAD LINE

MSIS41

Rev 05.23

Based on the
IMO LOAD LINES 2005 CONSOLIDATED EDITION AS AMENDED
and
SI 2018 No. 155 The Merchant Shipping (International Load Line Convention)
(Amendment) Regulations 2018

Applicable to: -

UK ships on international voyages

Non-UK Ships on international voyages within UK waters

having length \geq 24 metres

with

keels laid on or after 21st July 1968



AMENDMENTS

Version Number	Status Change	Date	Author Reviewer	Content Approver	Next Review Date/Expiry Date
Issue 1 R05.20	New Document	14/05/2019	Andrew Scott Policy Lead Stability, Load line & Tonnage	Ian Lardner Head of Marine Technology	15/04/2024
Issue 2 R05.23	Updated	06/04/2023	Andrew Scott Policy Lead Stability, Load line & Tonnage	Pete Rollason Ship Safety Lead	06/04/2028

Updates for Issue 2

P. 54-55 amended to align with MS001 diagrams and symbols.

P.87 amendments to Reg 27(13)(a) adopted at MSC 104 under Res. MSC.491(104) for entry into force on 1 January 2024. See SDC 7/16 para 12 and Annex 9 for background.

P.89 amendments to Unified Interpretations for Regulation 27(13)(e), and, P.103, new UI for Regulation 37(3), both approved at MSC 105 under MSC.1/Circ.1535/Rev.2 on May 8, 2022

INTRODUCTION

The International Convention on Load Lines, 1966 (1966 LL Convention) was adopted on April 5, 1966 and entered into force on July 21, 1968. Ships built prior to that date were covered by the 1930 Load Line Convention. The 1966 LL Convention was modified by the 1988 Protocol which was adopted on November 11, 1988 and entered into force on February 3, 2000

The 1988 LL protocol was itself modified by the 2003 Amendments which were adopted by IMO Resolution MSC.143(77) on June 5, 2003 and entered into force on January 1, 2005. The latter changes are highlighted in grey. The following more recent amending IMO resolutions are included in the main text in red (correct as of April 2023) with the entry into force date as shown: -.

MSC.172(79) adopted on December 9, 2004; entered into force July 1, 2006	included
MSC.223(82) adopted on December 8, 2006; entered into force July 1, 2008	included
MSC.270(85) adopted on December 4, 2008; entered into force July 1, 2010	included
MSC.329(90) adopted on May 24, 2012; entered into force January 1, 2014	included
MSC.345(91) adopted on November 30, 2012; entered into force July 1, 2014	included
MSC.356(92) adopted on June 21, 2013; entered into force January 1, 2015	included
MSC.375(93) adopted on May 22, 2014; entered into force January 1, 2016	included
Res. A.1082(28) adopted on December 4 2013; entered into force February 2, 2018 (note that this further amends MSC329(90))	included
Res. A.1083(28) adopted on December 4 2013; entered into force on February 2, 2018 (note that this is the same as MSC.375(93) but with an added footnote)	included
MSC.491(104) adopted on October 8, 2021; enters into force January 1, 2024	included

[R nn] indicates which regulation in SI 2018 No. 155 (The Merchant Shipping (International Load Line Convention) (Amendment) Regulations 2018) implements the Convention and Protocol Articles.

[LLnn or MGN] refers to guidance extracted from Load Line Instructions to Surveyors (MSIS01) or from MGN 579 which accompanies SI 2018 No.155.

This document also contains the IMO-approved Unified Interpretations (UI's) contained in Part 5 of the 2005 Consolidated Edition page 203 (with subsequent updates in LL.3/Circs.162, 194 & 208). A list of the approved IACS UI's and other approved interpretations is shown in the table following the contents page and they are hyper-linked to the main text for quick access.

LL.3/Circ.162 is dated May 24, 2005 and has no specific date of entry into force.

LL.3/Circ.194 is dated May 26, 2010 and applies to ships constructed on or after May 21, 2010

LL.3/Circ.208 is dated May 31, 2012 and applies to ships constructed on or after May 22, 2012

The general principles behind the 1966 LL Convention are listed in IMO SLF 42/4 para.22 as: -

- 1 adequate reserve of buoyancy under normal service conditions;
- 2 hull girder strength;
- 3 protection of the crew;
- 4 subdivision and stability (intact and damage);
- 5 watertight enclosure of all exposed parts of the ship; and
- 6 limited deck wetness.

Note

SI 1998 No. 2241, The Merchant Shipping (Load Line) Regulations, as amended, and associated documents such as MSN 1752(M) continue to remain in force for ships to which the International Load Line Convention and Protocol do not apply, such as ships on domestic voyages or ships less than 24 metres in length.

**INTERNATIONAL CONVENTION
ON LOAD LINES, 1966
AS MODIFIED BY THE
1988 PROTOCOL RELATING THERETO,
AS AMENDED**

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List of Official Interpretations (Recommendatory only)

The interpretations included in this document are extracted from the IMO “Load Lines 2005 Consolidated Edition” (CE) and subsequent IMO documents LL.3/Circs. 162, 194 & 208:-

Article (A) or Regulation (R)	Interpretation Ref.	Subject
A2(6)	IACS LL.71	Definition of “Similar stage of construction”
A2(8)	CE p.203	Length of a segmented ship
A4(4)	IACS LL.1	Increase in draught for existing ships
A6(1)	CE p.203	Submergence of load line when loading
A18	IACS LL.19	Adhere to model form of certificates
R2(5)	IACS LL.51	Freeboards greater than minimum
R2(7); R2(8)	IACS LL.71	“Similar stage of construction”
R3(5)(c); R3(9); R40(1)	IACS LL.48	Discontinuous or stepped freeboard deck
R3(6)(b)	IACS LL.2	Depth for freeboard with wood sheathing
R3(9)	IACS LL.68 LL.3 Circ.162(3)	Freeboard deck on float on/off barge carriers
R8	IACS LL.4	Details of marking
R12(4)(b)	IACS LL.5	Weathertightness of removable door sills
R13	MSC.1/Circ.1535	Position of hatchways, doorways & ventilators
R15(3),(4), (5), (6),(7); R16	IACS LL.20	Hatch beams & cover stiffeners of variable cross-section
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R20	MSC.1/Circ.1535	Air pipe strength and height
R21(1)	CE p.211	Weathertightness of cargo ports and other similar openings
R21(5)	IACS SC220 previously LL.32	Special requirements for vehicle ferries, ro-ro ships and other ships of similar type.
R24(1)(g) and R26	IACS LL.59 LL.3 Circ.194(2)	Cargo manifold gutter bars – freeing arrangements and intact stability
R25(2)	IACS LL.14	Guard rails on 1 st tier deckhouses
R25(3)(b)	IACS LL.47 LL.3 Circ.208(2)	Guard rail stanchion supports
R25-1(2)	IACS LL.50	Means of safe passage for crew.
R26(1)	CE p.208	Machinery casings not protected by other structures (R17(2) also applies).
R27(3) and R27(8)(d)	IACS LL.75 LL.3 Circ.194(2)	Permeability of store space to be 0.95
R27(12)	IACS LL.69 LL.3 Circ.162(2)	Treatment of volume of forecastle located over the foremost cargo hold for damage stability
R27(14)	IACS LL.34	Freeboards for lighters and barges
R27(14)(c)	IACS LL.42	Access openings on barges
R28(1)	IACS LL.18	Freeboard tables for Type A ships
R28(2)	IACS LL.18	Freeboard tables for Type B ships
R29;R31;R35;R36;R37;R38	IACS LL.41	Trunks
R34(1)	IACS LL.15	Length of superstructure
R35(3) and (4)	CE p.224	Raised quarter-deck and effective length of super-structure
R40(1); R3(5)(c) & R3(9)	CE p.229	Treatment of W and WNA corrections where geometric freeboard is less than minimum

**Articles of the
Protocol of 1988
Relating to the
International Convention
on Load Lines, 1966**

(from Part 2 of the 2005 Consolidated Edition)

THE PARTIES TO THE PRESENT PROTOCOL,

BEING PARTIES to the International Convention on Load Lines, 1966, done at London on 5 April 1966,

RECOGNIZING the significant contribution which is made by the above-mentioned Convention to the promotion of the safety of ships and property at sea and the lives of persons on board,

RECOGNIZING ALSO the need to improve further the technical provisions of the above-mentioned Convention,

RECOGNIZING FURTHER the need for the introduction into the above-mentioned Convention of provisions for survey and certification harmonized with corresponding provisions in other international instruments,

CONSIDERING that these needs may best be met by the conclusion of a Protocol relating to the International Convention on Load Lines, 1966,

HAVE AGREED as follows:

Article I

General Obligations

1 The Parties to the present Protocol undertake to give effect to the provisions of the present Protocol and the Annexes hereto, which shall constitute an integral part of the present Protocol. Every reference to the present Protocol constitutes at the same time a reference to the Annexes hereto.

2 As between the Parties to the present Protocol, the provisions of the International Convention on Load Lines, 1966 (hereinafter referred to as “the Convention”), except article 29, shall apply subject to the modifications and additions set out in the present Protocol.

3 With respect to ships entitled to fly the flag of a State which is not a Party to the Convention and the present Protocol, the Parties to the present Protocol shall apply the requirements of the Convention and the present Protocol as may be necessary to ensure that no more favourable treatment is given to such ships.

Article II

Existing certificates

1 Notwithstanding any other provisions of the present Protocol, any International Load Line Certificate which is current when the present Protocol enters into force in respect of the Government of the State whose flag the ship is entitled to fly shall remain valid until it expires.

2 A Party to the present Protocol shall not issue certificates under, and in accordance with, the provisions of the International Convention on Load Lines, 1966, as adopted on 5 April 1966.

Article III

Communication of information

The Parties to the present Protocol undertake to communicate to, and deposit with, the Secretary-General of the International Maritime Organization (hereinafter referred to as “the Organization”):

(a) the text of laws, decrees, orders and regulations and other instruments which have been promulgated on the various matters within the scope of the present Protocol;

(b) a list of nominated surveyors or recognized organizations which are authorized to act on their behalf in the administration of load line matters for circulation to the Parties for information of their officers, and a notification of the specific responsibilities and conditions of the authority delegated to those nominated surveyors or recognized Organizations; and

(c) a sufficient number of specimens of their certificates issued under the provisions of the present Protocol.

Article IV

Signature, ratification, acceptance, approval and accession

1 The present Protocol shall be open for signature at the Headquarters of the Organization from 1 March 1989 to 28 February 1990 and shall thereafter remain open for accession. Subject to the provisions of paragraph 3, States may express their consent to be bound by the present Protocol by:

(a) signature without reservation as to ratification, acceptance or approval; or

(b) signature subject to ratification, acceptance or approval, followed by ratification, acceptance or approval; or

(c) accession.

2 Ratification, acceptance, approval or accession shall be effected by the deposit of an instrument to that effect with the Secretary-General of the Organization.

3 The present Protocol may be signed without reservation, ratified, accepted, approved or acceded to only by States which have signed without reservation, accepted or acceded to the Convention.

Article V

Entry into force

1 The present Protocol shall enter into force twelve months after the date on which both the following conditions have been met:

- (a) not less than fifteen States, the combined merchant fleets of which constitute not less than fifty per cent of the gross tonnage of the world's merchant shipping, have expressed their consent to be bound by it in accordance with article IV, and
- (b) the conditions for the entry into force of the Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974 have been met, provided that the present Protocol shall not enter into force before 1 February 1992.

2 For States which have deposited an instrument of ratification, acceptance, approval or accession in respect of the present Protocol after the conditions for entry into force thereof have been met but prior to the date of entry into force, the ratification, acceptance, approval or accession shall take effect on the date of entry into force of the present Protocol or three months after the date of deposit of the instrument, whichever is the later date.

3 Any instrument of ratification, acceptance, approval or accession deposited after the date on which the present Protocol enters into force shall take effect three months after the date of deposit.

4 After the date on which an amendment to the present Protocol or an amendment, as between the Parties to the present Protocol, to the Convention is deemed to have been accepted under article VI, any instrument of ratification, acceptance, approval or accession deposited shall apply to the present Protocol or the Convention as amended.

Article VI

Amendments

1 The present Protocol and, as between the Parties to the present Protocol, the Convention may be amended by either of the procedures specified in the following paragraphs.

2 Amendment after consideration within the Organization:

- (a) Any amendment proposed by a Party to the present Protocol shall be submitted to the Secretary-General of the Organization, who shall then circulate it to all Members of the Organization and all Contracting Governments to the Convention at least six months prior to its consideration.
- (b) Any amendment proposed and circulated as above shall be referred to the Maritime Safety Committee of the Organization for consideration.
- (c) States which are Parties to the present Protocol, whether or not Members of the Organization, shall be entitled to participate in the proceedings of the Maritime Safety Committee for the consideration and adoption of amendments.
- (d) Amendments shall be adopted by a two-thirds majority of the Parties to the present Protocol present and voting in the Maritime Safety-Committee expanded as provided for in subparagraph (c) (hereinafter referred to as "the

expanded Maritime Safety Committee”) on condition that at least one third of the Parties shall be present at the time of voting.

(e) Amendments adopted in accordance with subparagraph (d) shall be communicated by the Secretary-General of the Organization to all Parties to the present Protocol for acceptance.

(f) (i) An amendment to an article or Annex A to the present Protocol or an amendment, as between Parties to the present Protocol, to an article of the Convention, shall be deemed to have been accepted on the date on which it is accepted by two thirds of the Parties to the present Protocol.

(ii) An amendment to Annex B to the present Protocol or an amendment, as between Parties to the present Protocol, to an Annex to the Convention, shall be deemed to have been accepted:

(aa) at the end of two years from the date on which it is communicated to Parties to the present Protocol for acceptance; or

(bb) at the end of a different period, which shall not be less than one year, if so determined at the time of its adoption by a two-thirds majority of the Parties present and voting in the expanded Maritime Safety Committee. However, if within the specified period either more than one third of the Parties, or Parties the combined merchant fleets of which constitute not less than fifty per cent of the gross tonnage of all the merchant fleets of all Parties, notify the Secretary-General of the Organization that they object to the amendment, it shall be deemed not to have been accepted.

(g) (i) An amendment referred to in subparagraph (f)(i) shall enter into force with respect to those Parties to the present Protocol which have accepted it, six months after the date on which it is deemed to have been accepted, and with respect to each Party which accepts it after the date, six months after the date of that Party’s acceptance.

(ii) An amendment referred to in subparagraph (f)(ii) shall enter into force with respect to all Parties to the present Protocol, except those which have objected to the amendment under that subparagraph and which have not withdrawn such objections, six months after the date on which it is deemed to have been accepted. However, before the date set for entry into force, any Party may give notice to the Secretary-General of the Organization that it exempts itself from giving effect to that amendment for a period not longer than one year from the date of its entry into force, or for such longer period as may be determined by a two-thirds majority of the Parties present and voting in the expanded Maritime Safety Committee at the time of the adoption of the amendment.

3 Amendment by a Conference:

(a) Upon the request of a Party to the present Protocol concurred in by at least one third of the Parties, the Organization shall convene a Conference of Parties to consider amendments to the present Protocol and the Convention.

- (b) Every amendment adopted by such a Conference by a two-thirds majority of the Parties present and voting shall be communicated by the Secretary-General of the Organization to all Parties for acceptance.
- (c) Unless the Conference decides otherwise, the amendment shall be deemed to have been accepted and shall enter into force in accordance with the procedures specified in subparagraphs 2(f) and 2(g) respectively, provided that references in these paragraphs to the expanded Maritime Safety Committee shall be taken to mean references to the Conference.
- 4 (a) A Party to the present Protocol which has accepted an amendment referred to in subparagraph 2(f)(ii) which has entered into force shall not be obliged to extend the benefit of the present Protocol in respect of the certificates issued to a ship entitled to fly the flag of a State Party which, pursuant to the provisions of that subparagraph, has objected to the amendment and has not withdrawn such an objection, in so far as such certificates relate to matters covered by the amendment in question.

(b) A Party to the present Protocol which has accepted an amendment referred to in subparagraph 2(f)(ii) which has entered into force shall extend the benefit of the present Protocol in respect of the certificates issued to a ship entitled to fly the flag of a State Party which, pursuant to the provisions of subparagraph 2(g)(ii), has notified the Secretary-General of the Organization that it exempts itself from giving effect to the amendment.
- 5 Unless expressly provided otherwise, any amendment made under this article which relates to the structure of a ship shall apply only to ships the keels of which are laid or which are at a similar stage of construction on or after the date on which the amendment enters into force.
- 6 Any declaration of acceptance of, or objection to, an amendment or any notice given under subparagraph 2(g)(ii) shall be submitted in writing to the Secretary-General of the Organization, who shall inform all Parties to the present Protocol of any such submission and the date of its receipt.
- 7 The Secretary-General of the Organization shall inform all Parties to the present Protocol of any amendments which enter into force under this article, together with the date on which each such amendment enters into force.

Article VII

Denunciation

- 1 The present Protocol may be denounced by any Party at any time after the expiry of five years from the date on which the present Protocol enters into force for that Party.
- 2 Denunciation shall be effected by the deposit of an instrument of denunciation with the Secretary-General of the Organization.
- 3 A denunciation shall take effect one year or such longer period as may be specified in the instrument of denunciation, after its receipt by the Secretary-General of the Organization.
- 4 A denunciation of the Convention by a Party shall be deemed to be a denunciation of the present Protocol by that Party. Such denunciation shall take effect on the same date as denunciation of the Convention takes effect according to paragraph (3) of article 30 of the Convention.

Article VIII

Depositary

1 The present Protocol shall be deposited with the Secretary-General of the Organization (hereinafter referred to as “the depositary”).

2 The depositary shall:

- (a) inform the Governments of all States which have signed the present Protocol or acceded thereto of:
 - (i) each new signature or deposit of an instrument of ratification, acceptance, approval or accession, together with the date thereof;
 - (ii) the date of entry into force of the present Protocol;
 - (iii) the deposit of any instrument of denunciation of the present Protocol together with the date on which it was received and the date on which the denunciation takes effect;
- (b) transmit certified true copies of the present Protocol to the Governments of all States which have signed the present Protocol or acceded thereto.

3 As soon as the present Protocol enters into force, a certified true copy thereof shall be transmitted by the depositary to the Secretariat of the United Nations for registration and publication in accordance with Article 102 of the Charter of the United Nations.

Article IX

Languages

The present Protocol is established in a single original in the Arabic, Chinese, English, French, Russian and Spanish languages, each text being equally authentic.

DONE AT LONDON this eleventh day of November one thousand nine hundred and eighty-eight.

IN WITNESS WHEREOF the undersigned*, being duly authorized by their respective Governments for that purpose, have signed the present Protocol.

* Signatures omitted

**INTERNATIONAL CONVENTION
ON LOAD LINES, 1966
AS MODIFIED BY THE
1988 PROTOCOL RELATING THERETO,
AS AMENDED
(from Part 3 of the 2005 Consolidated Edition)
Annex A
*Articles of the
International Convention on Load Lines, 1966,
as modified by the Protocol of 1988
relating thereto***

The Contracting Governments,
DESIRING to establish uniform principles and rules with respect to the limits to which ships on international voyages may be loaded having regard to the need for safeguarding life and property at sea;

CONSIDERING that this end may best be achieved by conclusion of a Convention,

HAVE AGREED as follows:

Article 1

General Obligation under the Convention

(1) The Contracting Governments undertake to give effect to the provisions of the present Convention and the Annexes hereto, which shall constitute an integral part of the present Convention. Every reference to the present Convention constitutes at the same time a reference to the Annexes.

(2) The Contracting Governments shall undertake all measures which may be necessary to give effect to the present Convention.

Article 2

Definitions

For the purpose of the present Convention, unless expressly provided otherwise:

- (1) Regulations means the Regulations annexed to the present Convention.
- (2) Administration means the Government of the State whose flag the ship is flying.
- (3) Approved means approved by the Administration.
- (4) International voyage means a sea voyage from a country to which the present Convention applies to a port outside such country, or conversely. For this purpose, every territory for the international relations of which a Contracting Government is responsible or for which the United Nations are the administering authority is regarded as a separate country. [R.2]

- (5) A fishing vessel is a ship used for catching fish, whales, seals, walrus or other living resources of the sea. [R.2]
- (6) New ship means a ship the keel of which is laid, or which is at a similar stage of construction, on or after the date of coming into force of the present Convention for each Contracting Government. [R.2]

<p><u>IACS interpretation LL.71 Rev. 1</u> (To be implemented by IACS members and associates from 1/7/2005) Also applies to Regulation 2 paragraphs 7 and 8.</p>
<p>The term “similar stage of construction” means the stage at which:</p> <ul style="list-style-type: none"> - construction identifiable with a specific ship begins; and - assembly of that ship has commenced comprising at least 50 tonnes or one per cent of the estimated mass of all structural material, whichever is less.

- (7) Existing ship means a ship which is not a new ship. [R.2]
- (8) Length means 96 % of the total length on a waterline at 85 % of the least moulded depth measured from the top of the keel, or the length from the fore-side of the stem to the axis of the rudder stock on that waterline, if that be greater. Where the stem contour is concave above the waterline at 85 % of the least moulded depth, both the forward terminal of the total length and the fore-side of the stem respectively shall be taken at the vertical projection to that waterline of the after most point of the stem contour (above that waterline). In ships designed with a rake of keel the waterline on which this length is measured shall be parallel to the designed waterline. [R.2]

<p><u>Interpretation</u> (Ref. 2005 Load Line Consolidated Edition, page 203) Definition of length for a segmented ship</p>
<p>A ship which is composed of a series of permanently attached sections should have a freeboard determined by the overall length of the series. A rigidly attached, but detachable, propulsion section should be included in the total length (L). A non-rigidly attached, detachable propulsion section should be treated as a separate ship.</p>

- (9) Anniversary date means the day and the month of each year which will correspond to the date of expire of the relevant certificate. [R.2]

Article 3

General provisions

- (1) No ship to which the present Convention applies shall proceed to sea on an international voyage after the date on which the present Convention comes into force unless it has been surveyed, marked and provided with an International Load Line Certificate or, where appropriate, an International Load Line Exemption Certificate in accordance with the provisions of the present Convention. [R.6(1)]
- (2) Nothing in this Convention shall prevent an Administration from assigning a greater freeboard than the minimum freeboard determined in accordance with Annex I. [R.6(3)]

Article 4

Application

- (1) The present Convention shall apply to:
 - (a) ships registered in countries the Governments of which are Contracting Governments;
 - (b) ships registered in territories to which the present Convention is extended under Article 32; and
 - (c) unregistered ships flying the flag of a State, the Government of which is a Contracting Government.
- (2) The present Convention shall apply to ships engaged on international voyages. [R.4(1)]
- (3) The regulations contained in Annex I, unless expressly provided otherwise, are applicable to new ships. [R.4(6)]
- (4) Existing ships which do not fully comply with the requirements of the Regulations contained in Annex I or any part thereof shall meet at least such lesser related requirements as the Administration applied to ships on international voyages prior to the coming into force of the present Convention; in no case shall such ships be required to increase their freeboards. In order to take advantage of any reduction in freeboard from that previously assigned, existing ships shall comply with all the requirements of the present Convention. [R.4(4)]

MCA Guidance

Existing ships as so defined [R.2] are not required to meet the conditions of assignment of the current Regulations and will continue to be assigned freeboards calculated in accordance with the 1959 Rules for which purpose they must comply with the conditions of assignment applicable to them under those Rules. [LL 1.3.4]

IACS interpretation LL. 1 Application

Even where the increase in draught is only of the order of 25 mm or 50 mm there should be no relaxation from the condition that existing ships comply with all the requirements.

- (5) The Regulations contained in Annex II are applicable to new and existing ships to which the present Convention applies.

MCA Guidance

Nothing in this Guidance should be read as applying to ships in the categories excepted in [R.4(2)]. [LL 1.3.1]

Article 5

Exceptions

(1) The present Convention shall not apply to:

(a) ships of war; [R.4(2)(a)]

MCA Guidance

Her Majesty's Ships

Under S.308 of the Merchant Shipping Act 1995 Part XIII Her Majesty's ships are exempted from compliance with the Merchant Shipping Act. However Government ships which belong to Her Majesty (but not part of Her Majesty's Navy) may be the subject of an Order in Council enabling them to be registered as British ships under Part II of the Act. If a Government ship is so registered it must comply with the Act subject to any exemptions and modifications prescribed in the Order. A check should be made with Headquarters before any action is taken in connection with the issue of load line or load line exemption certificates to a Government ship. [LL 1.4]

(b) new ships of less than 24 metres in length; [R.4(2)(b)]

(c) existing ships of less than 150 tons gross; [R.4(2)(c)]

(d) pleasure yachts not engaged in trade; [R.4(2)(d)]

MCA Guidance

Vessels in commercial use for sport or pleasure (typically yachts) are required to comply with the MS (Vessels in Commercial Use for Sport or Pleasure) Regulations 1998 (S.I. 1998 No 2771) which dis-apply the MS (Load Line) Regulations 1988 (as amended). [LL 1.3.2]. "Pleasure vessel" is defined in R.2

(e) fishing vessels. [R.4(2)(e)]

2) Nothing herein shall apply to ships solely navigating: [R.4(2)(f)]

(a) the Great Lakes of North America and the River St. Lawrence as far east, as a rhumb line drawn from Cap des Rosiers to West Point, Anticosti Island, and, on the north side of Anticosti Island, the meridian of longitude 63°W;

(b) the Caspian Sea;

(c) the Plate, Parana and Uruguay Rivers as far east as a rhumb line drawn between Punta Rasa (Cabo San Antonio), Argentina, and Punta del Este, Uruguay.

Article 6

Exemptions

(1) Ships when engaged on international voyages between the near neighbouring ports of two or more States may be exempted by the Administration from the provisions of the present Convention, so long as they shall remain engaged on such voyages [R.7(1)(a)(i)], if the Governments of the States in which such ports are situated shall be satisfied that the sheltered nature or conditions of such voyages between such ports make it unreasonable or impracticable to apply the provisions of the present Convention to ships engaged on such voyages. [R.7(1)(a)(ii)]

MCA Guidance

.1 The Regulations give automatic exemption from all the provisions to the ships listed in **R.4(1)**. Any cases of doubt as to whether or not a ship falls into one of these categories should be referred to Headquarters.

.2 **R.7** gives powers to the MCA (but not to other Assigning Authorities) to exempt ships registered in the UK of any of the descriptions given in that Regulation from all or from specified provisions of the legislation.

.3 In any case of exemption under **R.7** the appropriate certificate (see **R.16**) must be issued by the MCA. **[LL 1.5]**

Exemption certificates may not be issued by any Assigning Authority other than the MCA. Within the MCA they may be issued either by Headquarters or by Marine Offices subject to the MCA guidance shown below under Article 6(3). **[LL 1.9.3]**

Interpretation

(Ref. 2005 Load Line Consolidated Edition, page 203)

Exemptions

An exemption certificate according to article 6 should be granted by the Administration for ships whose operational features lead to submergence of the load line mark during loading or unloading, to avoid contravention of article 12(1).

(2) The Administration may exempt any ship which embodies features of a novel kind from any of the provision of this Convention the application of which might seriously impede research into the development of such features and their incorporation in ships engaged on international voyages. **[R.7(1)(b)]**. Any such ship shall, however, comply with safety requirements, which, in the opinion of that Administration, are adequate for the service for which it is intended and are such as to ensure the overall safety of the ship and which are acceptable to the Governments of the States to be visited by the ship. **[R.7(2)]**

(3) The Administration which allows any exemption under paragraphs (1) and (2) of this Article shall communicate to the International Maritime Organization* (hereinafter called "the Organization") particulars of the same and reasons therefor which the Organization shall circulate to the Contracting Governments for their information. **[MGN 579 1.12]**

* The name of the Organization was changed to "International Maritime Organization" by virtue of amendments to the Organization's Convention which entered into force on 22 May 1982.

MCA Guidance

Certain International load line exemption certificates require notification to IMO (under Article 6(3) of the Convention) of their conditions and the reasons for their application. Before such exemptions are first permitted in respect of any ship reference should be made to Headquarters, who will undertake the required notification to IMO. **[LL 1.8.3]**

Where dredgers are to undertake contracts outside the UK and reduced freeboards are required, reference should be made to Headquarters regarding the proper certification. **[LL 1.8.4]**

Where it is necessary to impose limits on the geographical area of operations for ships because of their design, the certificate should be endorsed specifying those limits. **[LL 1.8.5]**

(4) A ship which is not normally engaged on international voyages but which, in exceptional circumstances, is required to undertake a single international voyage may be

exempted by the Administration from any of the requirements of the present Convention, provided that it complies with safety requirements which, in the opinion of that Administration, are adequate for the voyage which is to be undertaken by the ship. [R.7(1)(c)]

Article 7

Force majeure

(1) A ship which is not subject to the provisions of the present Convention at the time of its departure on any voyage shall not become subject to such provisions on account of any deviation from its intended voyage due to stress of weather or any other cause of *force majeure*. [R.6(4)]

(2) In applying the provisions of the present Convention, the Contracting Governments shall give due consideration to any deviation or delay caused to any ship owing to stress of weather or any other cause of *force majeure*. [R.6(4)]

Article 8

Equivalent

(1) The Administration may allow any fitting, material, appliance or apparatus to be fitted, or any other provision to be made in a ship, other than that required by the present Convention, if it is satisfied by trial thereof or otherwise that such fitting, material, appliance or apparatus, or provision, is at least as effective as that required by the Convention. [R.8(1)(a)]

(2) The Administration which allows a fitting, material, appliance or apparatus, or provision, other than that required by the present Convention, shall communicate to the Organization for circulation to the Contracting Governments particulars thereof, together with a report on any trials made. [MGN 579 1.12]

Article 9 [R.7]

Approvals for experimental purposes

(1) Nothing in the present Convention shall prevent an Administration from making specific approvals for experimental purposes in respect of a ship to which the Convention applies.

(2) An Administration which makes any such approval shall communicate to the Organization for circulation to the Contracting Governments particulars thereof.

Article 10

Repairs, alterations and modifications

(1) A ship which undergoes repairs, alterations, modifications and outfitting related thereto shall continue to comply with at least the requirements previously applicable to the ship. An existing ship in such a case shall not, as a rule, comply to a lesser extent with the requirements for a new ship than it did before. [R.9(1)]

(2) Repairs, alterations and modifications of a major character and outfitting related thereto should meet the requirements for a new ship in so far as the Administration deems reasonable and practicable. [R.9(2)]

Article 11

Zones and areas

- (1) A ship to which the present Convention applies shall comply with the requirements applicable to that ship in the zones and areas described in Annex II. [R.10]
- (2) A port standing on the boundary line between two zones or areas shall be regarded as within the zone or area from or into which the ship arrives or departs.

Article 12

Submersion

- (1) Except as provided in paragraphs (2) and (3) of this Article, the appropriate load lines on the sides of the ship corresponding to the season of the year and the zone or area in which the ship may be shall not be submerged at any time when the ship puts to sea, during the voyage or on arrival. [R.11(1)]
- (2) When a ship is in fresh water of unit density the appropriate load line may be submerged by the amount of the fresh water allowance shown on the International Load Line Certificate. Where the density is other than unity, an allowance shall be made proportional to the difference between 1.025 and the actual density. [R.11(3)]
- (3) When a ship departs from a port situated on a river or inland waters, deeper loading shall be permitted corresponding to the weight of fuel and all other materials required for consumption between the point of departure and the sea. [R.11(5)]

Article 13 [R. 3]

Surveys and marking

The surveys and marking of ships, as regards the enforcement of the provisions of the present Convention and the granting of exemptions therefrom, shall be carried out by officers of the Administration. The Administration may, however, entrust the surveys and marking either to surveyors nominated for the purpose or to organizations recognized by it. In every case the Administration concerned fully guarantees the completeness and efficiency of the surveys and marking.

Article 14

Initial, renewal and annual surveys

<u>MCA Guidance</u>	
<u>Surveys – General Principles (ref. LL Part 2)</u>	
Application for Survey [R.12] [LL 2.1]	
<p>1 The onus is upon the Owner or his agent to make application for the issue of a load line certificate or for a survey or inspection within the stipulated time period. The application is to be accompanied by a fees deposit; see “Instructions to Surveyors; Survey and Certification Policy” under ‘Fees Estimates’ (Part C paragraph 2.2). Any outstanding balance of fees or expenses must be paid before a certificate is issued or endorsed.</p> <p>2 In the case of the first survey of a ship for issue of a load line certificate full information, particulars and plans relating to the design of the ship must be submitted in good time.</p> <p>3 The Owner or builder should also submit the following information:</p>	

.1 The type of freeboard to be assigned, i.e.:

- (a) Type A;
- (b) Type B;
- (c) Type B with reduced freeboard;
- (d) Type B with increased freeboard; or
- (e) Type B with timber freeboard.

.2 The employment and intended service including any geographical limits of operation.

.3 The desired summer freeboard and the corresponding draught. Where the freeboard is less than the statutory minimum it should be accompanied by a qualifying statement.

.4 Plans showing:

(a) principal hull scantlings, framing, pillars and girders, and compensation in way of openings in the shell plating and strength decks. The nature and physical properties of the materials used and their means of connection should be stated. When a currently classed ship is presented for assignment of freeboard by the MCA the Surveyor may be satisfied with these materials if they have been tested by the Surveyors of the Classification Society.

If the ship is unclassified the Surveyor should state the makers of the materials and ensure that the materials have been tested in accordance with the rules of a recognised Classification Society; for this purpose the certificates issued by the makers or the Surveyors of a Classification Society may be accepted.

When welding is used as a means of connection the welding electrodes employed should be of a type accepted by a recognised Classification Society for the grade of steel and welding conditions used.

(b) Details and connections of the principal hull castings and forgings and the fabricated construction of shaft brackets, rudders and stabilising fins. (c) Scantling of enclosed superstructures, deckhouses and all companionways which give access to spaces below the freeboard and superstructure decks. (d) Details of patent hatch covers and the scantlings of cargo hatch covers, coamings, beams and other supports, the securing arrangements for the covers, the details of gaskets etc. and/or tarpaulins and battening arrangements where applicable (see also paragraph 3.2 and 3.3). (e) The means of protection to any openings in the casings (see also paragraph 3.5). (f) Arrangements of ventilators in Position 1 and Position 2 with the details of coamings and the means of securing the openings weathertight (see also paragraph 3.7). (g) Arrangement of exposed air pipes which lead to tanks below the freeboard and superstructure decks with the details of the air pipes and the means of securing the openings weathertight (see also paragraph 3.8). (h) Arrangement of cargo ports or similar openings in the ship's side below the freeboard deck or in the sides and ends of superstructures. The lower edges of the ship's side openings should be shown in relation to the uppermost seasonal load line. The scantlings, particulars of the doors, the securing arrangements and gasketing are also to be shown (see also paragraphs 3.6 and 3.9).

Certain International load line exemption certificates require notification to IMO (under Article 6(3) of the Convention) of their conditions and the reasons for their application. Before such exemptions are first permitted in respect of any ship reference should be made to Headquarters, who will undertake the required notification to IMO. [LL 1.8.3]

Where dredgers are to undertake contracts outside the UK and reduced freeboards are required, reference should be made to Headquarters regarding the proper certification. [LL 1.8.4]

Where it is necessary to impose limits on the geographical area of operations for ships because of their design, the certificate should be endorsed specifying those limits. [LL 1.8.5]

- (1) A ship shall be subjected to the surveys specified below:
- (a) An initial survey before the ship is put in service, which shall include a complete inspection of its structure and equipment in so far as the ship is covered by the present Convention. The survey shall be such as to ensure that the arrangements, materials and scantlings fully comply with the requirements of the present Convention. **[R.12(1)(a)]**
 - (b) A renewal survey at intervals specified by the Administration but not exceed 5 years, except where paragraphs (2), (5), (6) and (7) of article 19 are applicable, which shall be such as to ensure that the structure, equipment, arrangements, materials and scantlings fully comply with the requirements of the present Convention. **[R.12(1)(b)]**
 - (c) An annual survey within 3 months before or after each anniversary date of the certificate to ensure that:
 - (i) alterations have not been made to the hull or superstructures which would affect the calculations determining the position of the load line;
 - (ii) the fittings and appliances for the protection of openings guard rails, freeing ports and means of access to crew's quarters are maintained in an effective condition;
 - (iii) the freeboard marks are correctly and permanently indicated;
 - (iv) the information required by regulation 10 is provided; **[R.12(1)(c)]**.

<u>MCA Guidance</u>
<p>This survey shall in no case be more than 15 months from the date of the previous survey unless specifically agreed. [LL 1.6]</p> <p>On completion of the annual survey if the Surveyor is satisfied that the load line certificate should remain in force he/she will:</p> <p>.1 return the ship's copy of form MSF 2011 (formerly FRE 7), suitably endorsed, to the Master drawing his attention to the need to retain this document on the ship;</p> <p>.2 endorse the certificate and the certified copy in possession of the master; and</p> <p>.3 submit form MSF 2014 (Report of Periodical Inspection, formerly FRE 12) to his/her line manager and return the file copy of FRE 7. [LL 2.4.5]</p>

- (2) The annual surveys referred to in paragraph (1) (c) of this article shall be endorsed on the International Load Line Certificate or the International Load Line Exemption Certificate issued to a ship exempted under paragraph (2) of article 6 of the present Convention. **[R.12(2)]**

<u>MCA Guidance</u>
<p>1 In the case of renewals where:-</p> <p>.1 the ship has undergone no substantial alterations or major repairs since the date of issue of the previous certificate;</p>

.2 the fittings required by the Conditions of Assignment are in good condition and no changes have been made to them; and

.3 the freeboards, period of validity, permitted area of operations and all other conditions shown on the previous certificate remain the same in all respects,

then it will not be necessary for the load line file to be submitted provided that a copy of the new certificate is forwarded to the load line section for record purposes with confirmation that a copy of the certificate has been placed on the file, forms FRE 6 (computation of freeboard), FRE 7 (MSF 2011 Conditions of Assignment) and form FRE 8 (scantlings of steel ships) or FRE 9 (scantlings of wood ships) and FRE 10 (MSF 2012 – Report on Survey for Load Line) are completed as necessary and placed on file. [LL 1.9.4]

2 A temporary covering letter of time-limited validity may be issued by the Marine Office to cover any short administrative delay in preparation of the certificate. [LL 1.9.5]

3 Where it is necessary for a load line certificate to be re-issued to incorporate a change, e.g. in freeboard or plying limits, relevant details of the change should be submitted on completion of the load line file. [LL 1.9.5]

Article 15 [R.13]

Maintenance of conditions after survey

After any survey of the ship under Article 14 has been completed, no change shall be made in the structure, equipment, arrangements, material or scantlings covered by the survey, without the sanction of the Administration.

Article 16 [R.14]

Issue of certificates

(1) An International Load Line Certificate shall be issued to every ship which has been surveyed and marked in accordance with the present Convention.

MCA Guidance

International load line certificates should be used for new ships not less than 24 metres in length or existing ships of not less than 150 gross tons, regardless of whether or not they ply internationally. [LL 1.7.2]

(2) An International Load Line Exemption Certificate shall be issued to any ship to which an exemption has been granted under and in accordance with paragraph (2) or (4) of Article 6.

MCA Guidance

International load line exemption certificates should be used for convention ships plying on international voyages. There are strict limitations to the circumstances in which these certificates can be issued (see [R.7]). [LL 1.8.2]

(3) Such certificates shall be issued by the Administration or by any person or organization duly authorized by it. In every case, the Administration assumes full responsibility for the certificate.

Article 17

Issue or endorsement of certificates by another Government

(1) A Contracting Government may at the request of another Contracting Government cause a ship to be surveyed and, if satisfied that the provisions of the present Convention are complied with, shall issue or authorize the issue of the International Load Line Certificate to the ship and, where appropriate, endorse or authorize the endorsement of the certificate on the ship in accordance with the present Convention. **[R.15(1) & (3)]**

<u>MCA Guidance</u>
.1 Load line Convention ships belonging to countries which are parties to the 1966 Load Line Convention are provided with International load line certificates (1966) or International load line exemption certificates in the form prescribed in Annex III to the Convention. A list of these countries is given at Appendix 3 . [LL 1.14.1]
.2 At the request of the parent country, the MCA may issue an International load line certificate to a Convention ship, subject to satisfactory completion of survey in accordance with the Regulations. [LL 1.14.2]

(2) A copy of the certificate, a copy of the survey report used for computing the freeboard, and a copy of the computations shall be transmitted as early as possible to the requesting Government. **[R.15(5)]**

(3) A certificate so issued must contain a statement to the effect that it has been issued at the request of the Government of the State whose flag the ship is or will be flying and it shall have the same force and receive the same recognition as a certificate issued under Article 16. **[R.17(4)]**

(4) No International Load Line Certificate shall be issued to a ship which is flying the flag of a State the Government of which is not a Contracting Government. **[R.17(6)]**.

Article 18

Form of certificates

The certificates shall be drawn up in the form corresponding to the models given in [Annex III](#) to the present Convention. If the language used is neither English nor French, the text shall include a translation into one of these languages. **[R.16]**

<u>IACS interpretation LL.19</u> <u>Form of certificates</u>
The model form of certificates given in Annex III of the Load Line Convention should be strictly adhered to and any deviations from this pattern should be avoided.

<u>MCA Guidance</u>
The survey and documentation for the issue of load line certificates and load line exemption certificates should be exactly the same: in either case all the appropriate forms should be completed and submitted to Headquarters on completion on the load line file except that in the case of a ship which is to make a single voyage (e.g. for delivery or scrapping) it is necessary to submit to Headquarters form MSF 2012 (formerly FRE 10) only, on completion. [LL 1.9.1]
Headquarters will undertake a sampling check of surveys and documentation for issue of load line certificates by the MCA. [LL 1.9.2]

In order to be recognised as valid for the purposes of the Section 258 of the Merchant Shipping Act 1995, an International load line certificate (1966) or an International load line exemption certificate issued in respect of a Convention ship must meet the following conditions:

- .1 the certificate must show that it was issued by or on behalf of the Government of the country to which the ship belongs, which must be a party to the 1966 Convention (see Appendix 2);
- .2 the certificate must be in the official language of the country of issue and if this is neither English nor French must include a translation into one of those languages;
- .3 the certificate must be in the form prescribed by the Convention and contain all the required particulars;
- .4 the certificate must be currently in force and must be applicable to the voyage being undertaken;
- .5 the period for which the certificate is expressed to be valid must not exceed 5 years from the date of issue;
- .6 any extension of the period for which the certificate is expressed to be valid must have been duly endorsed on the certificate by the issuing authority and must not exceed 5 months; and
- .7 the required periodical inspections must have been carried out and the appropriate endorsements made on the certificate by the issuing authority. [LL 1.15.3]

Article 19

Duration and validity of certificates

(1) An International Load Line Certificate shall be issued for a period specified by the Administration, which shall not exceed 5 years. [R.17(1)]

MCA Guidance

The maximum period of validity of a load line certificate or load line exemption certificate is 5 years from the date of completion of survey (i.e. the final date of inspecting the ship in dry-dock or out of the water). [LL 1.10.1]

(2) (a) Notwithstanding the requirements of paragraph (1), when the renewal survey is completed within 3 months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding 5 years from the date of expiry of the existing certificate. [R.17(2)]

(b) When the renewal survey is completed after the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding 5 years from the date of expiry of the existing certificate. [R.17(3)]

(c) When the renewal survey is completed more than 3 months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding 5 years from the date of completion of the renewal survey. [R.17(4)]

(3) If a certificate is issued for a period of less than 5 years, the Administration may extend the validity of a certificate beyond the expiry date to the maximum period specified in paragraph (1), provided that the annual surveys referred to in article 14 applicable when a certificate is issued for a period of 5 years are carried out as appropriate. [R.18(1)]

(4) If, after the renewal survey referred to in paragraph (1)(b) of article 14, a new certificate cannot be issued to the ship before the expiry date of the existing certificate, the person or

organisation carrying out the survey may extend the validity of the existing certificate for a period which shall not exceed 5 months. This extension shall be endorsed on the certificate, and shall be granted only where there have been no alterations in the structure, equipment, arrangements, materials or scantlings which affect the ship's freeboard. [R.18(2) & (3)]

(5) If a ship at the time when a certificate expires is not in a port in which it is to be surveyed, the Administration may extend the period of validity of the certificate but this extension shall be granted only for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed, and then only in cases where it appears proper and reasonable to do so. No certificate shall be extended for a period longer than 3 months, and a ship to which an extension is granted shall not, on its arrival in the port in which it is to be surveyed, be entitled by virtue of such extension to leave that port without having a new certificate. When the renewal survey is completed, the new certificate shall be valid to a date not exceeding 5 years from the date of expiry of the existing certificate before the extension was granted. [R.18(4)]

(6) A certificate issued to a ship engaged on short voyages which has not been extended under the foregoing provisions of this article may be extended by the Administration for a period of grace of up to one month from the date of expiry stated on it. [R.18(7)] When the renewal survey is completed the new certificate shall be valid to a date not exceeding 5 years from the date of expiry of the existing certificate before the extension was granted. [R.18(8)]

(7) In special circumstances, as determined by the Administration, a new certificate need not be dated from the date of expiry of the existing certificate as required by paragraphs (2), (5) and (6). In these special circumstances, the new certificate shall be valid to a date not exceeding 5 years from the date of completion of the renewal survey. [R.18(9)]

(8) If an annual survey is completed before the period specified in article 14 then:

- (a) the anniversary date shown on the certificate shall be amended by endorsement to a date which shall not be more than 3 months later than the date on which the survey was completed;
- (b) the subsequent annual survey required by article 14 shall be completed at the intervals prescribed by that article using the new anniversary date;
- (c) the expiry date may remain unchanged provided one or more annual surveys are carried out so that the maximum intervals between the surveys prescribed by article 14 are not exceeded. [R.18(10)]

(9) An International Load Line Certificate shall cease to be valid if any of the following circumstances exist:

- (a) material alterations have taken place in the hull or superstructures of the ship such as would necessitate the assignment of an increased freeboard; [R.18(11)(a)]
- (b) the fittings and appliances mentioned in paragraph (1)(c) of article 14; are not maintained in an effective condition; [R.18(11)(b)]
- (c) the certificate is not endorsed to show that the ship has been surveyed as provided in paragraph (1)(c) of article 14; [R.18(11)(c)]

- (d) the structural strength of the ship is lowered to such an extent that the ship is unsafe. [R.18(11)(d)]

MCA Guidance

Should a Surveyor become aware of any of the listed circumstances (in R.18(11)), applying in relation to a ship having a load line or a load line exemption certificate he/she should inform his/her line manager immediately. [LL 1.11.1]

The following Regulation [R.20] appears as a legal requirement in the new A/R SI under the heading “**Procedure to be adopted when a ship is deficient**”. The text refers back to SI 1998(2241) Reg. 25-27.

- 20.**— (1) This regulation applies where an Assigning Authority determines that—
- (a) the condition of a United Kingdom ship or its equipment does not correspond substantially with the requirements applicable to it under Annex 1 and in relation to which a Convention certificate has been issued in respect to that ship, or
 - (b) a ship is not fit to proceed to sea without presenting an unreasonable threat of harm to the marine environment.
- (2) In the circumstances described in paragraph (1), the Assigning Authority must—
- (a) advise the owner or master of the corrective action which in the opinion of the Assigning Authority is required to be taken, and
 - (b) where an International Load Line Certificate has been issued in respect of the ship and is still valid, notify the Assigning Authority that issued the certificate –
 - (i) that the Assigning Authority has so advised the owner or master as the case may be, and
 - (ii) if that corrective action is not taken.
- (3) Where a Convention certificate has been issued in respect of the ship and is still valid, the Assigning Authority may suspend the validity of the certificate until the corrective action has been taken.
- (4) Where the Assigning Authority suspends the validity of a certificate issued in respect of a ship, it must immediately give notice of such suspension—
- (a) to the owner of the ship, and
 - (b) where the ship is in port outside the United Kingdom, to the appropriate maritime authorities of the country in which the port is situated.
- (5) Where the owner of the ship is given notice of suspension, that owner must notify the master of the ship in question of the suspension.

Note: In all cases reference should be made to the relevant Regulation before any action is taken against an owner or master. Headquarters should be consulted where it is proposed to institute proceedings.

.1 [R25] deals with compliance with the conditions of assignment, details of which are contained in the Record of Particulars as shown under “[Form of Conditions of Record of Assignment of Load Lines](#)”, a copy of which must be available on board.

.2 [R26] lists the penalties for non-compliance with those conditions, as well as the penalties for non-compliance with other Regulations.

.3 The penalties for non-compliance with certification and survey requirements are also dealt with in **R.26**. [LL 1.16]

Where it is found that the annual survey required by **R.12(1)(c)** has not been completed within the stipulated three months after the anniversary date the reason why the certificate was allowed to lapse should be ascertained. With the agreement of Headquarters the validity of the certificate may be restored by carrying out an annual survey, the thoroughness and stringency of the survey having regard to the time elapsed from the due date. The certificate should in such cases be endorsed on completion of survey, but the anniversary date should remain unchanged. [LL 1.11.2]

The following Regulation **R.27** appears as a legal requirement in the new A/R SI under the heading “**Detention**”. The text refers back to SI 1998(2241) Reg. 37.

27 (1) Any ship which, in contravention of regulation **6(1)**, proceeds or attempts to proceed to sea without being surveyed and marked may be detained until it has been so surveyed and marked.

(2) Any ship which does not comply with the conditions of assignment applicable to it and does not retain on board the record issued by the Assigning Authority detailing the conditions of assignment, is liable to be detained until it complies.

(3) Any ship which is loaded so as to submerge the load line may be detained until it ceases to be so loaded.

(4) Section 284 of the Merchant Shipping Act 1995(a) (enforcing detention of a ship) applies where a ship is liable to be detained under this regulation as if—

(a) references to the detention of a ship under the Act were references to detention of the ship in question under this regulation, and

(b) sub-sections (7) and (8) were omitted.

(5) The provisions of sections 96 and 97 (except section 96(3) and the words “as a dangerously unsafe ship” in section 96(5)) apply in relation to a detention notice issued pursuant to this regulation as they apply in relation to detention notices issued pursuant to section 95, and in such application “the relevant inspector” means a person issuing the detention notice.

The procedure for detention under **R.27** is specified in the Merchant Shipping (Port State Control) Regulations 2011 (2011 No. 2601). [LL 1.17]

(10) (a) The duration of an International Load Line Exemption Certificate issued by an Administration to a ship exempted under paragraph (2) of article 6 shall not exceed 5 years. Such certificate shall be subject to a renewal, endorsement, extension and cancellation procedure similar to that provided for an International Load Line Certificate under this article.

[R.19(1)]

(b) The duration of an International Load Line Exemption Certificate issued to a ship exempted under paragraph (4) of article 6 shall be limited to the single voyage for which it is issued. **[R.19(2)]**

(11) A certificate issued to a ship by an Administration shall cease to be valid upon the transfer of such a ship to the flag of another State. **[R.18(11)e]**.

Article 20

Acceptance of certificates

The certificates issued under the authority of a Contracting Government in accordance with the present Convention shall be accepted by the other Contracting Governments and regarded for all purposes covered by the present Convention as having the same force as certificates issued by them. [\[R.22\(1\) & \(2\)\]](#)

Article 21

Control

(1) Ships holding a certificate issued under Article 16 or Article 17 are subject, when in the ports of other Contracting Governments, to control by officers duly authorized by such Governments. [\[R.23\(1\)\]](#) Contracting Governments shall ensure that such control is exercised as far as is reasonable and practicable with a view to verifying that there is on board a valid certificate under the present Convention. [\[R.23\(2\)\]](#) If there is a valid International Load Line Certificate on board the ship, such control shall be limited to the purpose of determining that:

- (a) the ship is not loaded beyond the limits allowed by the certificate; [\[R.23\(3\)\(a\)\]](#)
- (b) the position of the load line of the ship corresponds with the certificate; and [\[R.23\(3\)\(b\)\]](#)
- (c) the ship has not been so materially altered in respect of the matters set out in sub-paragraphs (a) and (b) of paragraph (9) of Article 19 that the ship is manifestly unfit to proceed to sea without danger to human life. [\[R.23\(3\)\(c\)\]](#)

If there is a valid International Load Line Certificate on board the ship, such control shall be limited to the purpose of determining that any conditions stipulated in that certificate are complied with. [\[R.23\(4\)\]](#)

MCA Guidance

.1 MCA Surveyors may inspect any ship to which the Regulations apply whether or not the ship is registered in the UK. [R.23\(1\)](#), [\[LL 1.15.1\]](#)

.2 In relation to ships not registered in the UK, Section 258 of the Merchant Shipping Act 1995 empowers a Surveyor to go on board any ship whilst it is in a UK port for the purpose of requesting production of a valid load line certificate. If a valid Convention certificate is produced the powers of the Surveyor are limited to the specific items covered by [R.23\(3\) – \(6\)](#). [\[modified LL 1.15.2 and 2.5.2\]](#)

.3 In relation to [R.23\(3\)\(c\)](#), “been so materially altered” embraces “not deteriorated”. [\[LL 2.5.2\]](#)
See also definition of “alteration” in [R.2](#)

.4 In addition to the specific items covered by [R.23\(3\) – \(6\)](#), the powers of the surveyor also include seeing that the fittings and appliances for the protection of openings, the guard rails, the freeing ports and the means of access to the crew’s quarters have been maintained on the ship in as effective condition as they were when the certificate was issued. [\[LL 2.5.3.4\]](#)

Deck Cargoes

Under Sections 256 and 258 of the Act (Part X) a Surveyor has the power to inspect any ship to which the Act applies, for the purpose of ensuring compliance with the Merchant Shipping (Carriage of Cargoes) Regulations 1999 (SI 1999/336), as amended. Such inspection should include any mandatory Cargo Securing Manual carried by the ship and appropriate sections of the Stability Information Booklet dealing with deck cargoes, to verify that agreed arrangements for securing such cargo are being implemented. [\[LL 1.15.4\]](#)

(2) If such control is exercised under sub-paragraph (c) of paragraph (1) of this Article, it shall only be exercised in so far as may be necessary to ensure that the ship shall not sail until it can proceed to sea without danger to the passengers or the crew. [R.23(5)].

(3) In the event of the control provided for in this Article giving rise to intervention of any kind, the officer carrying out the control shall immediately inform in writing the Consul or the diplomatic representative of the State whose flag the ship is flying of this decision and of all the circumstances in which intervention was deemed to be necessary. [R.23(6)]

Article 22

Privileges

The privileges of the present Convention may not be claimed in favour of any ship unless it holds a valid certificate under the Convention.

Article 23

Casualties

(1) Each Administration undertakes to conduct an investigation of any casualty occurring to ships for which it is responsible and which are subject to the provisions of the present Convention when it judges that such an investigation may assist in determining what changes in the Convention might be desirable.

(2) Each Contracting Government undertakes to supply the Organization with the pertinent information concerning the findings of such investigations. No reports or recommendations of the Organization based upon such information shall disclose the identity or nationality of the ships concerned or in any manner fix or imply responsibility upon any ship or person.

Article 24

Prior treaties and conventions

(1) All other treaties, conventions and arrangements relating to load line matters at present in force between Governments Parties to the present Convention shall continue to have full and complete effect during the terms thereof as regards:

- (a) ships to which the present Convention does not apply; and
- (b) ships to which the present Convention applies, in respect of matters for which it has not expressly provided.

(2) To the extent, however, that such treaties, conventions or arrangements conflict with the provisions of the present Convention, the provisions of the present Convention shall prevail.

Article 25

Special rules drawn up by agreement

When in accordance with the present Convention special rules are drawn up by agreement among all or some of the Contracting Governments, such rules shall be communicated to the Organization for circulation to all Contracting Governments.

Article 26

Communication of information

- (1) The Contracting Governments undertake to communicate to and deposit with the Organization:
- (a) a sufficient number of specimens of their certificates issued under the provisions of the present Convention for circulation to the Contracting Governments;
 - (b) the text of the laws, decrees, orders regulations and other instruments which shall have been promulgated on the various matters within the scope of the present Convention; and
 - (c) a list of non-governmental agencies which are authorized to act in their behalf in the administration of load line matters for circulation to the Contracting Governments.
- (2) Each Contracting Government agrees to make its strength standards available to any other Contracting Government, upon request.

Article 27

Signature, acceptance and accession

- (1) The present Convention shall remain open for signature for three months from 5 April 1966 and shall thereafter remain open for accession. Governments of States Members of the United Nations, or of any of the Specialized Agencies, or of the International Atomic Energy Agency, or parties to the Statute of the International Court of Justice may become parties to the Convention by:
- (a) signature without reservation as to acceptance;
 - (b) signature subject to acceptance followed by acceptance; or
 - (c) accession.
- (2) Acceptance or accession shall be effected by the deposit of an instrument of acceptance or accession with the Organization which shall inform all Governments that have signed the Convention or acceded to it of each new acceptance or accession and of the date of its deposit.

Article 28

Coming into force

- (1) The present Convention shall come into force twelve months after the date on which not less than fifteen Governments of States, including seven each with not less than one million gross tons of shipping, have signed without reservation as to acceptance or deposited instruments of acceptance or accession in accordance with Article 27. The Organization shall inform all Governments which have signed or acceded to the present Convention of the date on which it comes into force.
- .

(2) For Governments which have deposited an instrument of acceptance of or accession to the present Convention during the twelve months mentioned in paragraph (1) of this Article, the acceptance or accession shall take effect on the coming into force of the present Convention or three months after the date of deposit of the instrument of acceptance or accession, whichever is the later date.

(3) For Governments which have deposited an instrument of acceptance of or accession to the present Convention after the date on which it comes into force, the Convention shall come into force three months after the date of the deposit of such instrument.

(4) After the date on which all the measures required to bring an amendment to the present Convention into force have been completed, or all necessary acceptances are deemed to have been given under sub-paragraph (b) of paragraph (2) of Article 29 in case of amendment by unanimous acceptance, any instrument of acceptance or accession deposited shall be deemed to apply to the Convention as amended.

Article 29

Amendments

(1) The present Convention may be amended upon the proposal of a Contracting Government by any of the procedures specified in this Article.

(2) Amendment by unanimous acceptance:

(a) Upon the request of a Contracting Government, any amendment proposed by it to the present Convention shall be communicated by the Organization to all Contracting Governments for consideration with a view to unanimous acceptance.

(b) Any such amendment shall enter into force twelve months after the date of its acceptance by all Contracting Governments unless an earlier date is agreed upon. A Contracting Government which does not communicate its acceptance or rejection of the amendment to the Organization within three years of its first communication by the latter shall be deemed to have accepted the amendment.

(c) Any proposed amendment shall be deemed to be rejected if it is not accepted under sub-paragraph (b) of the present paragraph within three years after it has been first communicated to all Contracting Governments by the Organization.

(3) Amendment after consideration in the Organization:

(a) Upon the request of a Contracting Government, any amendment proposed by it to the present Convention will be considered in the Organization. If adopted by a majority of two-thirds of those present and voting in the Maritime Safety Committee of the Organization, such amendment shall be communicated to all Members of the Organization and all Contracting Governments at least six months prior to its consideration by the Assembly of the Organization.

(b) If adopted by a two-thirds majority of those present and voting in the Assembly, the amendment shall be communicated by the Organization to all Contracting Governments for their acceptance.

- (c) Such amendment shall come into force twelve months after the date on which it is accepted by two-thirds of the Contracting Governments. The amendment shall come into force with respect to all Contracting Governments except those which, before it comes into force, make a declaration that they do not accept the amendment.
 - (d) The Assembly, by a two-thirds majority of those present and voting, including two-thirds of the Governments represented on the Maritime Safety Committee and present and voting in the Assembly, may propose a determination at the time of its adoption that an amendment is of such an important nature that any Contracting Government which makes a declaration under sub-paragraph (c), and which does not accept the amendments within a period of twelve months after it comes into force, shall cease to be a party to the present Convention upon the expiry of that period. This determination shall be subject to the prior acceptance of two-thirds of the Contracting Governments to the present Convention. .
 - (e) Nothing in this paragraph shall prevent the Contracting Government which first proposed action under this paragraph on an amendment to the present Convention from taking at any time such alternative action as it deems desirable in accordance with paragraph (2) or (4) of this Article.
- (4) Amendment by a conference:
- (a) Upon the request of a Contracting Government, concurred in by at least one-third of the Contracting Governments, a conference of Governments will be convened by the Organization to consider amendments to the present Convention.
 - (b) Every amendment adopted by such a conference by a two-third majority of those present and voting of the Contracting Governments shall be communicated by the Organization to all Contracting Governments for their acceptance.
 - (c) Such amendment shall come into force twelve months after the date on which it is accepted by two-thirds of the Contracting Governments. The amendment shall come into force with respect to all Contracting Governments except those which, before it comes into force, make a declaration that they do not accept the amendment.
 - (d) By a two-thirds majority of those present and voting, a conference convened under sub-paragraph (a) may determine at the time of its adoption that an amendment is of such an important nature that any Contracting Government which makes a declaration under sub-paragraph (c), and which does not accept the amendment within a period of twelve months after it comes into force, shall cease to be a party to the present Convention upon the expiry of that period.
- (5) Any amendments to the present Convention made under this article which relate to the structure of a ship shall apply only to ships the keels of which are laid, or which are at a similar stage of construction, on or after the date on which the amendment comes into force.

(6) The Organization shall inform all Contracting Governments of any amendments which come into force under this article, together with the date on which each such amendment will come into force.

(7) Any acceptance or declaration under this article shall be made by a notification in writing to the Organization which shall notify all Contracting Governments of the receipt of the acceptance or declaration.

Article 30

Denunciation

(1) The present Convention may be denounced by any Contracting Government at any time after the expiry of five years from the date on which the Convention comes into force for that Government.

(2) Denunciation shall be effected by a notification in writing addressed to the Organization which shall inform all the other Contracting Governments of any such notification received and of the date of its receipt.

(3) A denunciation shall take effect one year, or such longer period as may be specified in the notification, after its receipt by the Organization.

Article 31

Suspension

(1) In case of hostilities or other extraordinary circumstances which affect the vital interests of a State the Government of which is a Contracting Government, that Government may suspend the operation of the whole or any part of the present Convention. The suspending Government shall immediately give notice of any such suspension to the Organization.

(2) Such suspension shall not deprive other Contracting Governments of any right of control under the present Convention over the ships of the suspending Government when such ships are within their ports.

(3) The suspending Government may at any time terminate such suspension and shall immediately give notice of such termination to the Organization.

(4) The Organization shall notify all Contracting Governments of any suspension or termination of suspension under this Article.

Article 32

Territories

(1) (a) The United Nations, in cases where they are the administering authority for a territory, or any Contracting Government responsible for the international relations of a territory, shall as soon as possible consult with such territory in an endeavour to extend the present Convention to that territory and may at any time by notification in writing to the Organization declare that the Present Convention shall extend to such territory.

(b) The present Convention shall, from the date of the receipt of the notification or from such other date as may be specified in the notification, extend to the territory named therein.

(2) (a) The United Nations, or any Contracting Government which has made a declaration under sub-paragraph (a) of paragraph (1) of this Article, at any time after the expiry of a period of five years from the date on which the Convention has been so extended to any territory, may by notification in writing to the Organization declare that the present Convention shall cease to extend to any such territory named in the notification.

(b) The present Convention shall cease to extend to any territory mentioned in such notification one year, or such longer period as may be specified therein, after the date of receipt of the notification by the Organization.

(3) The Organization shall inform all the Contracting Governments of the extension of the present Convention to any territories under paragraph (1) of this Article, and of the termination of any such extension under the provisions of paragraph (2), stating in each case the date from which the present Convention has been or will cease to be so extended.

Article 33

Registration

(1) The present Convention shall be deposited with the Organization and the Secretary-General of the Organization shall transmit certified true copies thereof to all Signatory Governments and to all Governments which accede to the present Convention.

(2) As soon as the present Convention comes into force it shall be registered by the Organization in accordance with Article 102 of the Charter of the United Nations.

Article 34

Languages

The present Convention is established in a single copy in the English and French languages, both texts being equally authentic. Official translations in the Russian and Spanish languages shall be prepared and deposited with the signed original.

IN WITNESS WHEREOF the undersigned being duly authorized by their respective Governments for that purpose have signed the present Convention*.

DONE at London this fifth day of April 1966.

*Signatures omitted.

**RESOLUTION MSC.143(77)
(adopted on 5 June 2003)**

**ADOPTION OF AMENDMENTS TO THE PROTOCOL OF 1988 RELATING TO
THE INTERNATIONAL CONVENTION ON LOAD LINES, 1966**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING FURTHER article VI of the Protocol of 1988 relating to the International Convention on Load Lines, 1966 (hereinafter referred to as “the 1988 Load Lines Protocol”) concerning amendment procedures,

HAVING CONSIDERED, at its seventy-seventh session, amendments to the 1988 Load Lines Protocol proposed and circulated in accordance with paragraph 2(a) of article VI thereof,

1. ADOPTS, in accordance with paragraph 2(d) of article VI of the 1988 Load Lines Protocol, Amendments to Annex B to the 1988 Load Lines Protocol, the text of which is set out in the Annex to the present resolution;
2. DETERMINES, in accordance with paragraph 2(f)(ii)(bb) of article VI of the 1988 Load Lines Protocol, that the said amendments shall be deemed to have been accepted on 1 July 2004, unless, prior to that date, more than one third of the Parties to the 1988 Load Lines Protocol or Parties the combined merchant fleets of which constitute not less than 50% of the gross tonnage of all the merchant fleets of all Parties, have notified their objections to the amendments;
3. INVITES the Parties concerned to note that, in accordance with paragraph 2(g)(ii) of article VI of the 1988 Load Lines Protocol, the amendments shall enter into force on 1 January 2005, upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with paragraph 2(e) of article VI of the 1988 Load Lines Protocol, to transmit certified copies of the present resolution and the text of the amendments contained in the Annex to all Parties to the 1988 Load Lines Protocol;
5. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and its Annex to Members of the Organization which are not Parties to the 1988 Load Lines Protocol.

**ANNEX B
ANNEXES TO THE CONVENTION AS MODIFIED BY THE PROTOCOL OF 1988 RELATING
THERETO**

**ANNEX I
REGULATIONS FOR DETERMINING LOAD LINES**

**CHAPTER I
GENERAL**

The regulations assume that the nature and stowage of the cargo, ballast, etc., are such as to secure sufficient stability of the ship and the avoidance of excessive structural stress.

The regulations also assume that where there are international requirements relating to stability or subdivision, these requirements have been complied with.

**Regulation 1
Strength and intact stability of ships**

(1) The Administration shall satisfy itself that the general structural strength of the ship is adequate for the draught corresponding to the freeboard assigned.

(2) A ship which is designed, constructed and maintained in compliance with the appropriate requirements of an organization, including a classification society, which is recognized by the Administration or with applicable national standards of the Administration in accordance with the provisions of regulation 2-1, may be considered to provide an acceptable level of strength. The above provisions shall apply to all structures, equipment and fittings covered by this annex for which standards for strength and construction are not expressly provided.

~~(3) Ships shall comply with an intact stability standard acceptable to the Administration.~~

(3) *Compliance*

(a) Ships constructed before 1 July 2010 shall comply with an intact stability standard acceptable to the Administration.

<u>MCA Guidance</u>
Ships of 24 metres or more in length (as defined in the Convention as amended) constructed on or after 21 July 1968 but prior to 1 July 2010 need as a minimum to comply with the technical standards in Annex I as modified by the 1988 Protocol (i.e. the international standards in force immediately before 1 January 2005).
Ships of 150 gross tonnes or more constructed prior to 21 July 1968 need as a minimum to comply with the standards in force before 21 July 1968.
The intact stability standards applied by the UK to ships of 24 metres in length or more constructed on or after 21 July 1968 but before 1 July 2010 were based on IMO Resolution A.749(18) (as amended by IMO Resolution MSC.75(69)), a recommendatory rather than mandatory Code.
The intact stability standards generally applied to UK Ships of 150 gross tons or more constructed prior to 21 July 1968 were based on the recommendations in IMO Resolution A.167(ES.IV). [MGN 579 paragraph 2.2]

b) Ships constructed on or after 1 July 2010 shall, as a minimum, comply with the requirements of part A of the 2008 IS Code. [See MSC.270(85)]

<u>MCA Guidance</u>
See MCA Guidance on Intact Stability (MSIS 43) for full details.

**Regulation 2
Application**

(1) Ships with mechanical means of propulsion or lighters, barges or other ships without independent means of propulsion, shall be assigned freeboards in accordance with the provisions of regulations 1 to 40, inclusive.

(2) Ships carrying timber deck cargoes may be assigned, in addition to the freeboards prescribed in paragraph (1), timber freeboards in accordance with the provisions of regulations 41 to 45.

(3) Ships designed to carry sail, whether as the sole means of propulsion or as a supplementary means, and tugs, shall be assigned freeboards in accordance with the provisions of regulations 1 to 40, inclusive. Additional freeboard may be required as determined by the Administration.

<u>MCA Guidance</u>
Sailing ships and tugs – freeboards calculated as prescribed in the Convention may be increased by such amounts as the Secretary of State may determine. [MGN 579 Table 2 & MSN 1752 Sched 4 Part III(19)]

(4) Ships of wood or of composite construction, or of other materials the use of which the Administration has approved, or ships whose constructional features are such as to render the application of the provisions of this Annex unreasonable or impracticable, shall be assigned freeboards as determined by the Administration.

<u>MCA Guidance</u>
Ships of wood, composite construction or of other materials – freeboards will be determined by the Assigning Authority. In this context, “composite construction” means ships built with wooden planking on steel or wrought iron framing. [MGN 579 Table 2 & MSN 1752 Sched 4 Part III(20)]

(5) Regulations 10 to 26, inclusive, shall apply to every ship to which a minimum freeboard is assigned. Relaxations from these requirements may be granted to a ship to which a greater than minimum freeboard is assigned, on condition that the Administration is satisfied with the safety conditions provided.

<u>IACS interpretation LL.51 Rev.2</u> Freeboards greater than minimum
<p>Where freeboards are required to be increased, because of such considerations as strength (Regulation 1), location of shell doors (Regulation 21) or side scuttles (Regulation 23) or other reasons, then:</p> <p>.1 the height of</p> <ul style="list-style-type: none"> - Door sills (regulation 12) - Hatchway coamings (regulation 15(1)) - Sill of machinery space openings (regulation 17) - Miscellaneous openings (regulation 18) - Ventilators (regulation 19) - Air pipes (regulation 20) <p>.2 the scantlings of hatch covers (regulations 15 and 16)</p> <p>.3 freeing arrangements (regulations 24 and means for protection of crew (regulation 25)</p> <p>on the actual freeboard deck may be as required for a superstructure deck, provided the summer freeboard is such that the resulting draught will not be greater than that corresponding to the minimum freeboard calculated from an assumed freeboard deck situated at a distance equal to a standard superstructure height below the actual freeboard deck. Similar considerations may be given in cases of draught limitation on account of bow height (regulation 39).</p>

(6) Where the assigned summer freeboard is increased such that the resulting draught is not more than that corresponding to a minimum summer freeboard for the same ship, but with an assumed freeboard deck located a distance below the actual freeboard deck at least equal to the standard superstructure height, the conditions of assignment in accordance with regulations 12, 14-1 through 20, 23, 24 and 25, as applicable, to the actual freeboard deck may be as required for a superstructure deck.

(7) Unless expressly provided otherwise, the regulations of this Annex shall apply to ships the keels of which are laid or which are at a similar stage of construction on or after 1 January 2005.

(8) For ships the keels of which are laid or which are at a similar stage of construction before 1 January 2005, the Administration shall ensure that the requirements which are applicable under the International Convention on Load Lines, 1966, as modified by the Protocol of 1988 relating thereto, adopted by the International Conference on Harmonized System of Survey and Certification, 1988, are complied with.

<p><u>IACS interpretation LL.71 Rev.1</u> (To be implemented by IACS Members and Associates from 1/7/2005) Applies to regulations 2(7), 2(8) and Article 2(6).</p>
<p>The term “similar stage of construction” means the stage at which:</p> <ul style="list-style-type: none">- construction identifiable with a specific ship begins; and- assembly of that ship has commenced comprising at least 50 tonnes or one per cent of the estimated mass of all structural material, whichever is less.

(9) High-speed craft which comply with the requirements of the International Code of Safety for High-Speed Craft, 2000 (2000 HSC Code), adopted by the Maritime Safety Committee of the Organization by resolution MSC.97(73) and which have been surveyed and certified as provided in the Code shall be deemed to have complied with the requirements of this Annex. The certificates and permits issued under the 2000 HSC Code shall have the same force and the same recognition as the certificates issued under this Annex.

Regulation 2-1
Authorization of recognized organizations

The Administration shall authorize organizations, including classification societies, referred to in article 13 of the Convention and regulation 1(2) in accordance with the provisions of the present Convention and with the Code for Recognized Organizations (RO Code), consisting of part 1 and part 2 (the provisions of which shall be treated as mandatory) and part 3 (the provisions of which shall be treated as recommendatory), as adopted by the Organization by resolution MSC.349(92), as may be amended by the Organization, provided that:

- (a) amendments to part 1 and part 2 of the RO Code are adopted, brought into force and take effect in accordance with the provisions of article VI of the present Protocol;
- (b) amendments to part 3 of the RO Code are adopted by the Maritime Safety Committee in accordance with its Rules of Procedure; and
- (c) any amendments adopted by the Maritime Safety Committee and the Marine Environment Protection Committee are identical and come into force or take effect at the same time, as appropriate. [See MSC.356(92)]

Regulation 3
Definitions of terms used in the Annexes

(1) *Length*

- (a) The length (L) shall be taken as 96% of the total length on a waterline at 85% of the least moulded depth measured from the top of the keel, or as the length from the fore side of the stem to the axis of the rudder stock on that waterline, if that be greater.
- (b) For ships without a rudder stock, the length (L) is to be taken as 96% of the waterline at 85% of the least moulded depth.
- (c) Where the stem contour is concave above the waterline at 85% of the least moulded depth, both the forward terminal of the total length and the fore-side of the stem respectively shall be taken at the vertical projection to that waterline of the aftermost point of the stem contour (above that waterline) (see figure 3.1).

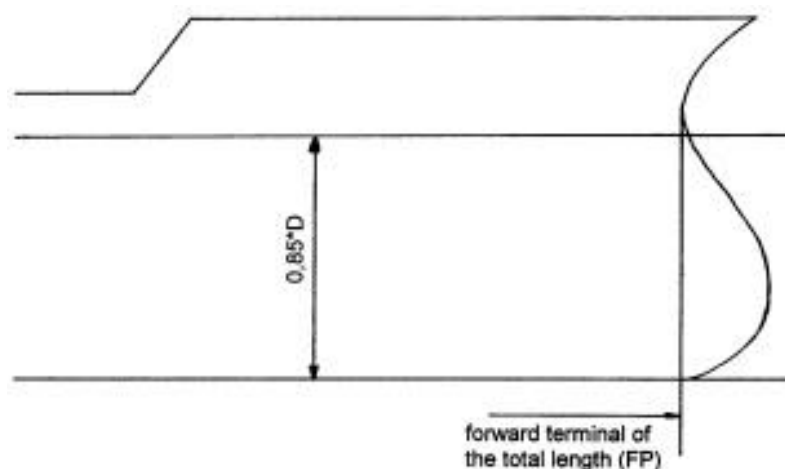


Figure 3.1

- (d) In ships designed with a rake of keel the waterline on which this length is measured shall be parallel to the designed waterline at 85% of the least moulded depth D_{min} , found by drawing a line parallel to the keel line of the vessel (including skeg) tangent to the moulded sheer line of the freeboard deck. The least moulded depth is the vertical distance measured from the top of the keel to the top of the freeboard deck beam at side at the point of tangency (see figure 3.2).

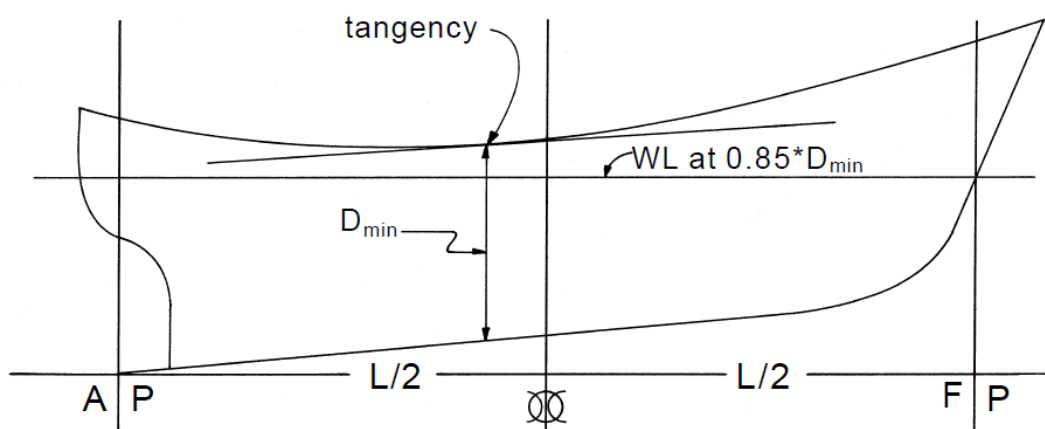


Figure 3.2

- (2) *Perpendiculars*. The forward and after perpendiculars shall be taken at the forward and after ends of the length (L). The forward perpendicular shall coincide with the foreside of the stem on the waterline on which the length is measured.
- (3) *Amidships*. Amidships is at the middle of the length (L).
- (4) *Breadth*. Unless expressly provided otherwise, the breadth (B) is the maximum breadth of the ship, measured amidships to the moulded line of the frame in a ship with a metal shell and to the outer surface of the hull in a ship with a shell of any other material.
- (5) *Moulded depth*
 - (a) The moulded depth is the vertical distance measured from the top of the keel to the top of the freeboard deck beam at side. In wood and composite ships the distance is measured from the lower edge of the keel rabbet. Where the form at the lower part of the midship section is of a hollow character, or where thick garboards are fitted, the distance is measured from the point where the line of the flat of the bottom continued inwards cuts the side of the keel.
 - (b) In ships having rounded gunwales, the moulded depth shall be measured to the point of intersection of the moulded lines of deck and sides, the lines extending as though the gunwale were of angular design.
 - (c) Where the freeboard deck is stepped and the raised part of the deck extends over the point at which the moulded depth is to be determined, the moulded depth shall be measured to a line of reference extending from the lower part of the deck along a line parallel with the raised part.

IACS interpretation LL.48/Rev.2

Moulded depth (regulation 3(5)(c) and (9)) and freeboard calculation (regulation 40(1))
 Note also the interpretation of minimum freeboard in Consolidated Load Line 2005 p.229;
 the full text is included under regulation 40(1) and also applies to regulation 3(9)

Discontinuous freeboard deck, stepped freeboard deck

1 Where a step exists in the freeboard deck, creating a discontinuity extending over the full breadth of the ship, and this step is in excess of 1 metre in length, regulation 3(9) should apply (see figure 3.3 under regulation 3(9)(c) below). A step 1 metre or less in length should be treated as a recess in accordance with paragraph 2 below.

2 Where a recess is arranged in the freeboard deck, and this recess does not extend to the side of the ship, the freeboard calculated without regard to the recess is to be corrected for the consequent loss of buoyancy. The correction should be equal to the value obtained by dividing the volume of the recess by the waterplane area of the ship (A_w) at 85% of the least moulded depth (see figure below):

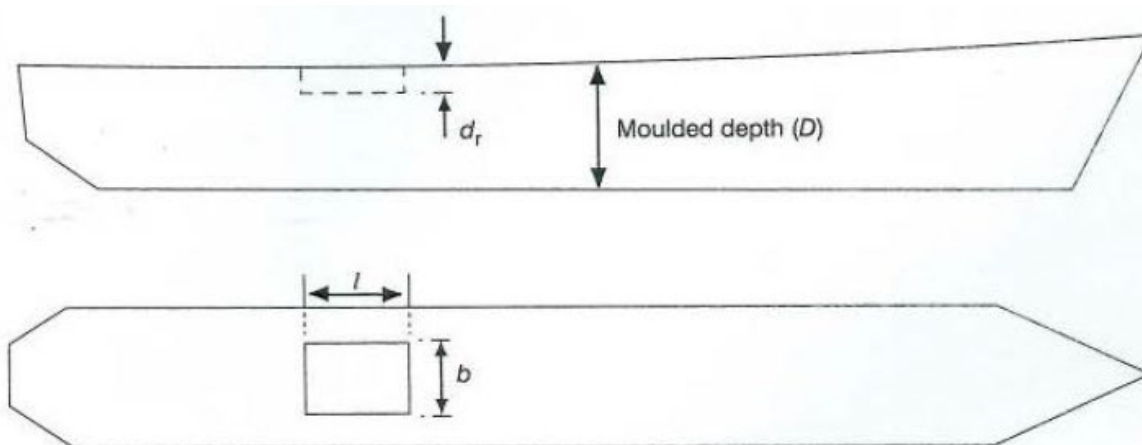
.1 The correction should be a straight addition to the freeboard obtained after all other corrections have been applied, except bow height correction.

.2 Where the freeboard, corrected for lost buoyancy as above, is greater than the minimum geometric freeboard determined on the basis of a moulded depth measured to the bottom of the recess, the latter value may be used.

3 Recesses in a second deck, designated as the freeboard deck, may be disregarded in this interpretation provided all openings in the weather deck are fitted with weathertight closing appliances.

4 Due regard is to be given to the drainage of exposed recesses and to free surface effects on stability.

5 This interpretation is not intended to apply to dredgers, hopper barges or other similar types of ships with large open holds, where each case should require individual consideration.



Correction is addition to freeboard equal to

$$\frac{l \times b \times d_r}{Aw_{0.85D}}$$

(6) *Depth for freeboard (D)*

- (a) The depth for freeboard (D) is the moulded depth amidships, plus the freeboard deck thickness at side.
- (b) The depth for freeboard (D) in a ship having a rounded gunwale with a radius greater than 4% of the breadth (B) or having topsides of unusual form is the depth for freeboard of a ship having a midship section with vertical topsides and with the same round of beam and area of topside section equal to that provided by the actual midship section.

IACS interpretation LL.2 Rev. 1
Depth for freeboard

The correction for thickness of sheathing on the exposed freeboard deck $T(L-S) / L$ is applicable only when the deck is completely sheathed between superstructures. In other cases, the correction should be $(T \times l) / L$, where l = length of sheathed area which extends from side to side. Only wood sheathing should be considered.

(7) *Block coefficient*

- (a) The block coefficient (C_b) is given by:

$$C_b = \frac{\nabla}{L \cdot B \cdot d_1} ;$$

where

∇ is the volume of the moulded displacement of the ship, excluding appendages, in a ship with a metal shell, and is the volume of displacement to the outer surface of the hull in a ship with a shell of any other material, both taken at a moulded draught of d_1 ; and where

d_1 is 85% of the least moulded depth.

- (b) When calculating the block coefficient of a multi-hull craft, the full breadth (B) as defined in paragraph (4) is to be used and not the breadth of a single hull.
- (8) *Freeboard.* The freeboard assigned is the distance measured vertically downwards amidships from the upper edge of the deck line to the upper edge of the related load line.
- (9) *Freeboard deck.*

IACS interpretation LL.48/Rev.2 regulation 3(9)

The interpretation also applies to moulded depth (regulation 3(5)(c)) and freeboard calculation (regulation 40(1)). Full text given under regulation 3(5)(c) above. Note also the interpretation of minimum freeboard in Consolidated Load Line 2005 p.229; the full text is included under regulation 40(1) and also applies to regulation 3(5)(c).

- (a) 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.

- (b) Lower deck as a freeboard deck

At the option of the owner and subject to the approval of the Administration, a lower deck may be designated as the freeboard deck provided it is a complete and permanent deck continuous in a fore and aft direction at least between the machinery space and peak bulkheads and continuous athwartships.

- (i) When this lower deck is stepped the lowest line of the deck and the continuation of that line parallel to the upper part of the deck is taken as the freeboard deck.

- (ii) When a lower deck is designated as the freeboard deck, that part of the hull which extends above the freeboard deck is treated as a superstructure so far as concerns the application of the conditions of assignment and the calculation of freeboard. It is from this deck that the freeboard is calculated.

- (iii) When a lower deck is designated as the freeboard deck, such deck as a minimum shall consist of suitably framed stringers at the ship sides and transversely at each watertight bulkhead which extends to the upper deck, within cargo spaces. The width of these stringers shall not be less than can be conveniently fitted having regard to the structure and the operation of the ship. Any arrangement of stringers shall be such that structural requirement can also be met.

- (c) Discontinuous freeboard deck, stepped freeboard deck.

- (i) Where a recess in the freeboard deck extends to the sides of the ship and is in excess of one metre in length, the lowest line of the exposed deck and the continuation of that line parallel to the upper part of the deck is taken as the freeboard deck (**see figure 3.3**).

- (ii) Where a recess in the freeboard deck does not extend to the sides of the ship, the upper part of the deck is taken as the freeboard deck.

- (iii) Recesses not extending from side to side in a deck below the exposed deck, designated as the freeboard deck, may be disregarded, provided all openings in the weather deck are fitted with weathertight closing appliances.

- (iv) Due regard shall be given to the drainage of exposed recesses and to free surface effects on stability.
- (v) Provisions of subparagraphs (i) through (iv) are not intended to apply to dredgers, hopper barges or other similar types of ships with large open holds, where each case requires individual consideration.

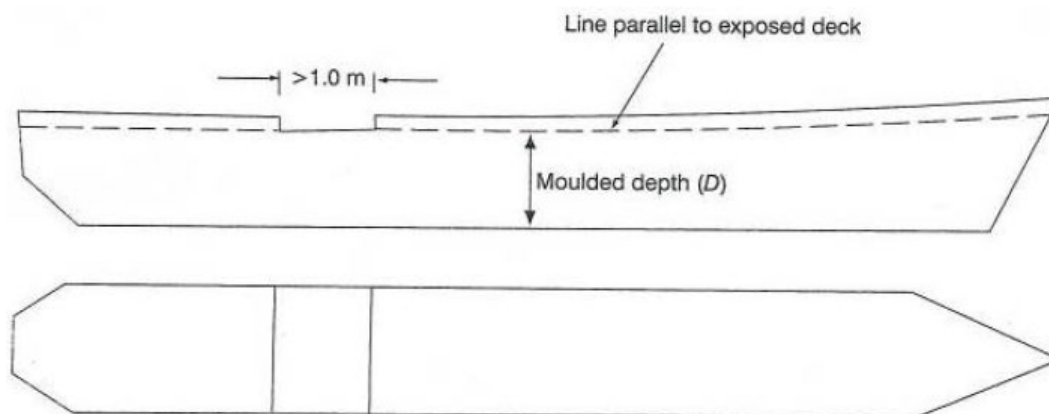


Figure 3.3

<p><u>IACS interpretation LL.68</u> (ref. LL.3/Circ.162, paragraph 3) Position of freeboard deck on float on/float off barge carriers</p>
<p>1 Float on/float off barge carriers are designed to be ballasted such that the bottom of their cargo space(s) (well deck) submerges below the waterline to allow barges being floated in and out.</p> <p>2 If such a ship is fitted with weathertight closures for the cargo space(s) and a watertight enclosure at the stern, the uppermost complete deck may be taken as the freeboard deck.</p> <p>3 If such a ship is not fitted with weathertight closures for the cargo space(s) and a watertight enclosure at the stern, the well deck may be taken as the freeboard deck, while buoyant spaces above may be considered as superstructures in accordance with the provisions of the interpretation referred to in regulations 34(1).</p> <p>4 If such a ship is not fitted with weathertight closures for the cargo space(s) but has a watertight enclosure at the stern, the uppermost complete deck may be taken as the freeboard deck provided that:</p> <p>.1 the structure of the freeboard deck complies with the provisions of the interpretation relating to regulation 3(9) of the Convention referred to in circular LL.3/Circ.77, IACS interpretation LL.39 (<i>“When a lower deck is designated as the freeboard deck, it shall be continuous in fore and aft direction as well as athwartships. Such a freeboard deck as a minimum shall consist of suitable framed stringers at the ship sides and transversely at each watertight bulkhead which extends to the upper deck, within cargo spaces. The width of these stringers shall not be less than can be conveniently fitted having regard to the structure and the operation of the ship. Any arrangement of stringers shall be such that structural requirements can also be met.”</i>).</p> <p>.2 the calculated freeboard is corrected for any missing buoyancy above the well deck in accordance with the provisions of the interpretation relating to regulation 3(5)(c) and 3(9) of the Convention referred to in circular LL.3/Circ.69, IACS interpretation LL.48 (see under regulation 3(5)(c), above).</p> <p>.3 a satisfactory safety level at the resulting draught is demonstrated according to alternative concepts.</p>

(10) 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% of the breadth (B).
- (b) An enclosed superstructure is a superstructure with:
 - (i) enclosing bulkheads of efficient construction;
 - (ii) access openings, if any, in these bulkheads fitted with doors complying with the requirements of regulation 12;
 - (iii) all other openings in sides or ends of the superstructure fitted with efficient weathertight means of closing.

A bridge or poop shall not be regarded as enclosed unless access is provided for the crew starting from any point on the uppermost complete exposed deck or higher to reach machinery and other working spaces inside these superstructures by alternative means which are available at all times when bulkhead openings are closed.

- (c) The height of a superstructure is the least vertical height measured at side from the top of the superstructure deck beams to the top of the freeboard deck beams.
- (d) The length of a superstructure (S) is the mean length of the part of the superstructure which lies within the length (L).
- (e) **Bridge.** A bridge is a superstructure which does not extend to either the forward or after perpendicular.
- (f) **Poop.** A poop is a superstructure which extends from the after perpendicular forward to a point which is aft of the forward perpendicular. The poop may originate from a point aft of the aft perpendicular.
- (g) **Forecastle.** A forecastle is a superstructure which extends from the forward perpendicular aft to a point which is forward of the after perpendicular. The forecastle may originate from a point forward of the forward perpendicular.
- (h) **Full superstructure.** A full superstructure is a superstructure which, as a minimum, extends from the forward to the after perpendicular.
- (i) **Raised quarterdeck.** A raised quarterdeck is a superstructure which extends forward from the after perpendicular, generally has a height less than a normal superstructure, and has an intact front bulkhead (sidescuttles of the non-opening type fitted with efficient deadlights and bolted manhole covers) (see figure 3.4). Where the forward bulkhead is not intact due to doors and access openings, the superstructure is then to be considered as a poop.

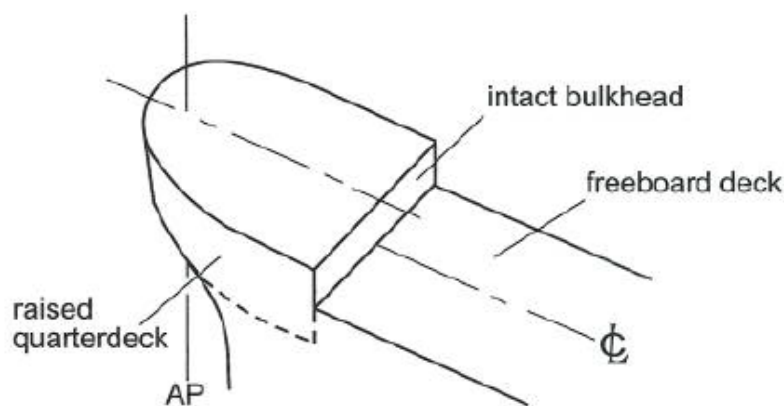


Figure 3.4

- (11) **Superstructure deck.** A superstructure deck is a deck forming the upper boundary of a superstructure.
- (12) **Flush deck ship.** A flush deck ship is one which has no superstructure on the freeboard deck.
- (13) **Weathertight.** Weathertight means that in any sea conditions water will not penetrate into the ship.
- (14) **Watertight.** Watertight means capable of preventing the passage of water through the structure in either direction with a proper margin of resistance under the pressure due to the maximum head of water which it might have to sustain.
- (15) **Well.** A well is any area on the deck exposed to the weather, where water may be entrapped. Wells are considered to be deck areas bounded on two or more sides by deck structures.
- (16) **2008 IS Code** means the International Code on Intact Stability, 2008, consisting of an introduction, part A (the provisions of which shall be treated as mandatory) and part B (the provisions of which shall be treated as recommendatory), as adopted by resolution MSC.267(85), provided that:
- .1 amendments to the introduction and part A of the Code are adopted, brought into force and take effect in accordance with the provisions of article VI of the 1988 Load Lines Protocol concerning the amendment procedure applicable to Annex B to the Protocol; and
 - .2 amendments to part B of the Code are adopted by the Maritime Safety Committee in accordance with its Rules of Procedure. [See MSC.270(85)]
- (17) **Audit** means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.
- (18) **Audit Scheme** means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization.
- (19) **Code for Implementation** means the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.1070(28).
- (20) **Audit Standard** means the Code for Implementation. [See MSC.375(93)]

**Regulation 4
Deck line**

The deck line is a horizontal line 300 mm in length and 25 mm in breadth. It shall be marked amidships on each side of the ship, and its upper edge shall normally pass through the point where the continuation outwards of the upper surface of the freeboard deck intersects the outer surface of the shell (as illustrated in figure 4.1), provided that the deck line may be placed with reference to another fixed point on the ship on condition that the freeboard is correspondingly corrected. The location of the reference point and the identification of the freeboard deck shall in all cases be indicated on the International Load Line Certificate.

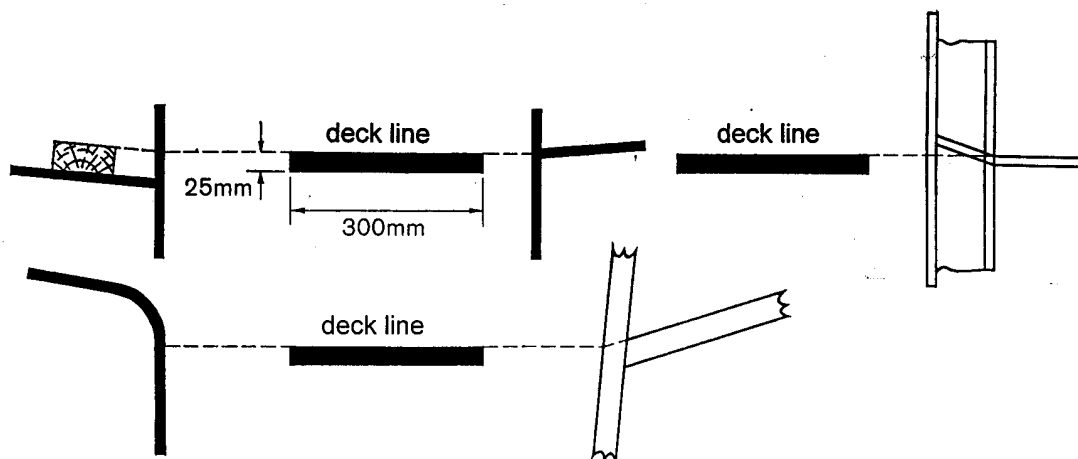


Figure 4.1 - Deck Line

**Regulation 5
Load line mark**

The load line mark shall consist of a ring 300 mm in outside diameter and 25 mm wide which is intersected by a horizontal line 450 mm in length and 25 mm in breadth, the upper edge of which passes through the centre of the ring. The centre of the ring shall be placed amidships and at a distance equal to the assigned summer freeboard measured vertically below the upper edge of the deck line (as illustrated in figure 6.1).

**Regulation 6
Lines to be used with the load line mark**

- (1) The lines which indicate the load line assigned in accordance with these regulations shall be horizontal lines 230 mm in length and 25 mm in breadth which extend forward of, unless expressly provided otherwise, and at right angles to, a vertical line 25 mm in breadth marked at a distance 540 mm forward of the centre of the ring (as illustrated in figure 6.1).

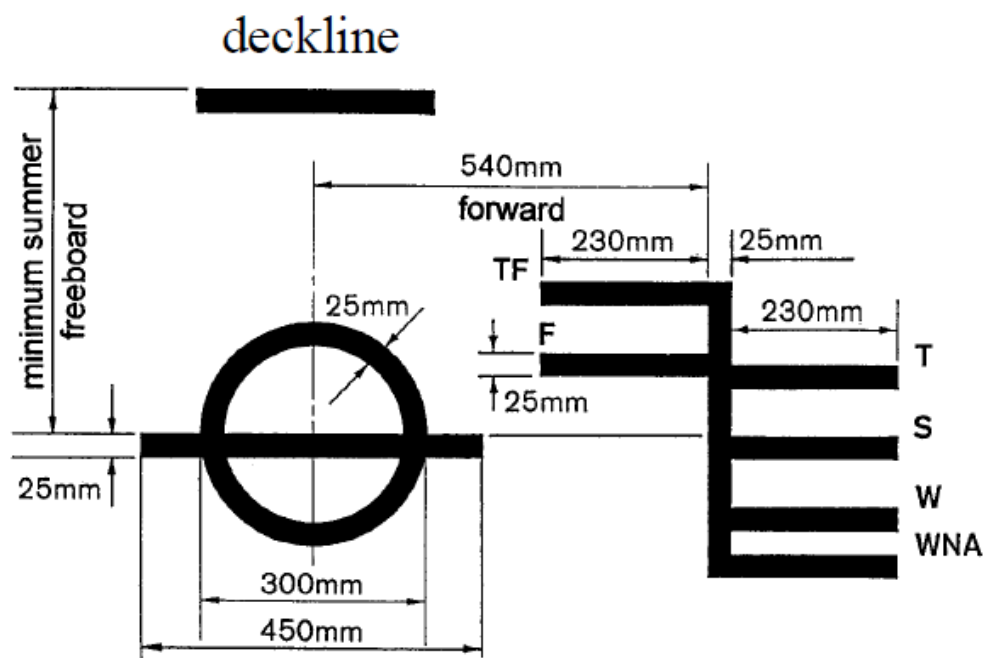


Figure 6.1 - Load line mark and lines to be used with this mark

- (2) The following load lines shall be used:
- (a) The Summer Load Line indicated by the upper edge of the line which passes through the centre of the ring and also by a line marked S.
 - (b) The Winter Load Line indicated by the upper edge of a line marked W.
 - (c) The Winter North Atlantic Load Line indicated by the upper edge of a line marked WNA.
 - (d) The Tropical Load Line indicated by the upper edge of a line marked T.
 - (e) The Fresh Water Load Line in summer indicated by the upper edge of a line marked F. The Fresh Water Load Line in summer is marked abaft the vertical line. The difference between the Fresh Water Load Line in summer and the Summer Load Line is the allowance to be made for loading in fresh water at the other load lines.
 - (f) The Tropical Fresh Water Load Line indicated by the upper edge of a line marked TF and marked abaft the vertical line.
- (3) If timber freeboards are assigned in accordance with these regulations, the timber load lines shall be marked in addition to ordinary load lines. These lines shall be horizontal lines 230 mm in length and 25 mm in breadth which extend abaft unless expressly provided otherwise, and are at right angles to, a vertical line 25 mm in breadth marked at a distance 540 mm abaft the centre of the ring (as illustrated in figure 6.2).

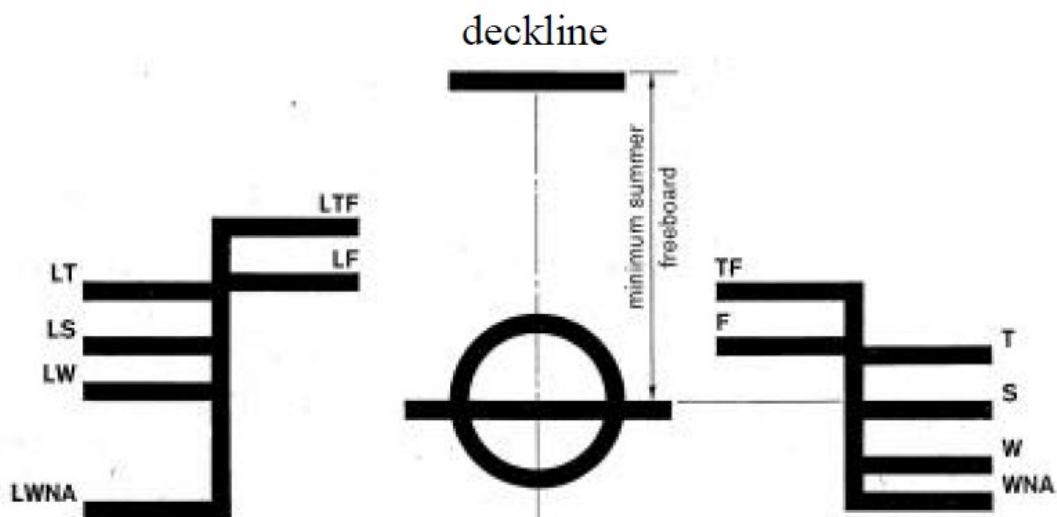


Figure 6.2 – Timber load line mark and lines to be used with this mark

- (4) The following timber load lines shall be used:
- (a) The Summer Timber Load Line indicated by the upper edge of a line marked LS.
 - (b) The Winter Timber Load Line indicated by the upper edge of a line marked LW.
 - (c) The Winter North Atlantic Timber Load Line indicated by the upper edge of a line marked LWNA.
 - (d) The Tropical Timber Load Line indicated by the upper edge of a line marked LT.
 - (e) The Fresh Water Timber Load Line in summer indicated by the upper edge of a line marked LF and marked forward of the vertical line. The difference between the Fresh Water Timber Load Line in summer and the Summer Timber Load Line is the allowance to be made for loading in fresh water at the other timber load lines.
 - (f) The Tropical Fresh Water Timber Load Line indicated by the upper edge of a line marked LTF and marked forward of the vertical line.
- (5) Where the characteristics of a ship or the nature of the ship's service or navigational limits make any of the seasonal lines inapplicable, these lines may be omitted.
- (6) Where a ship is assigned a greater than minimum freeboard so that the load line is marked at a position corresponding to, or lower than, the lowest seasonal load line assigned at minimum freeboard in accordance with the present Protocol, only the Fresh Water Load Line need be marked.
- (7) Where a Winter North Atlantic Load Line is identical with the Winter Load Line corresponding to the same vertical line, this load line shall be marked W.
- (8) Alternative/additional load lines required by other international conventions in force may be marked at right angles to and abaft the vertical line specified in paragraph (1).

Regulation 7
Mark of assigning Authority

The mark of the Authority by whom the load lines are assigned may be indicated alongside the load line ring above the horizontal line which passes through the centre of the ring, or above and below it. This mark shall consist of not more than four initials to identify the Authority's name, each measuring approximately 115 mm in height and 75 mm in width.

Regulation 8
Details of marking

The ring, lines and letters shall be painted in white or yellow on a dark ground or in black on a light ground. They shall also be permanently marked on the sides of the ships to the satisfaction of the Administration. The marks shall be plainly visible and, if necessary, special arrangements shall be made for this purpose.

MCA Guidance

The positions of the load line marks and the deck-line are to be checked at each annual survey and, if necessary, they are to be re-marked and re-painted. [LL 2.4.4.1]

IACS interpretation LL.4 (Rev.1)

Details of marking

'Permanently marked' is considered to include welding of the marks on the sides of the ship provided the usual precautions as to material, electrodes, etc. are observed.

Regulation 9
Verification of marks

The International Load Line Certificate shall not be delivered to the ship until the officer or surveyor acting under the provisions of article 13 of the Convention has certified that the marks are correctly and permanently indicated on the ship's sides.

**CHAPTER II
CONDITIONS OF ASSIGNMENT OF FREEBOARD**

**Regulation 10
Information to be supplied to the master**

- (1) The master of every new ship shall be supplied with information to arrange for the loading and ballasting of his ship in such a way as to avoid the creation of any unacceptable stresses in the ship's structure, provided that this requirement need not apply to any particular length, design or class of ship where the Administration considers it to be unnecessary.
- (2) Information shall be provided to the master in a form that is approved by the Administration or a recognised organization. Stability information, and loading information also related to ship strength when required under paragraph (1), shall be carried on board at all times together with evidence that the information has been approved by the Administration.

MCA Guidance

For ships built prior to 1 July 2010, the UK requires that the information is provided in the form of a Stability Book, the form and content of which is prescribed in [Appendix 1](#)

Ships constructed on or after 1 July 2010 must comply with the 2008 Intact Stability (IS) Code (see MSC.270(85)) which contains (in Part B, Regulation 3.6) recommendations on the form and content of the approved stability information to be provided to the master. Although MSC.270(85) strictly only requires adherence to the mandatory requirements in part A of the 2008 IS Code, we recommend that all the sections of the Code relevant to the provision of approved stability information to the master be applied. For ships constructed on or after 1 July 2010, the 2008 IS Code supersedes earlier IMO Resolutions, such as A.167(ES.IV) and A.749(18) and Schedule 6 of MSN 1752(M) in this respect. [MGN 579 paragraph 1.8]

- (3) A ship which is not required under the International Convention for Safety of Life at Sea in force to undergo an inclining test upon its completion shall:
 - (a) be so inclined and the actual displacement and position of the centre of gravity shall be determined for the lightship condition;
 - (b) if the Administration so approves, have its inclining test on completion dispensed with, provided basic stability data are available from the inclining test of a sister ship and it is shown to the satisfaction of the Administration that reliable stability information for the ship can be obtained from such basic data;
 - (c) if the Administration decides that the performance of an inclining experiment is not practicable or safe or yields inaccurate results due to the specific proportions, arrangements, strength or hull form of a ship, have the ship's lightship characteristics determined by a detailed weight estimate confirmed by a lightweight survey;
 - (d) have such information* supplied for the use of its master as is necessary to enable the master, by rapid and simple processes, to obtain accurate guidance as to the stability of the ship under all conditions likely to be encountered in normal service; and
 - (e) carry on board at all times its approved stability information together with evidence that the information has been approved by the Administration.
- (4) Where any alterations are made to a ship so as to materially affect the loading or stability information supplied to the master, amended information shall be provided. If necessary the ship shall be re-inclined.

* For ships constructed before 1/7/2010 refer to the Code on Intact Stability for All Types of Ships covered by IMO Instruments, adopted by the Organization by resolution A.749(18), as amended. For ships constructed on or after 1/7/2010 refer to the 2008 Intact Stability Code as amended.

Regulation 11 Superstructure end bulkheads

Bulkheads at exposed ends of enclosed superstructures shall be of an acceptable level of strength.

MCA Guidance

For the UK, “an acceptable level of strength” in this context means complying with the highest standard of structural strength required by the Rules of an Assigning Authority” (reference Instructions to Surveyors 2.2.1).

[MGN 579 Table 2 & LL 2.2.1]

Regulation 12 Doors

- (1) All access openings in bulkheads at ends of enclosed superstructures shall be fitted with doors of steel or other equivalent material, permanently and strongly attached to the bulkhead, and framed, stiffened and fitted so that the whole structure is of equivalent strength to the un-pierced bulkhead and weathertight when closed. The means for securing these doors weathertight shall consist of gaskets and clamping devices or other equivalent means and shall be permanently attached to the bulkhead or to the doors themselves, and the doors shall be so arranged that they can be operated from both sides of the bulkhead.
- (2) Unless otherwise permitted by the Administration, doors shall open outwards to provide additional security against the impact of the sea.

MCA Guidance

The UK will only permit deviation from this standard in specific circumstances of practical need, determined on a case by case basis by the Assigning Authority, and only if satisfied that an equivalent level of safety to an outward-opening door is achieved. Where, in exceptional circumstances, the doors are permitted to open inwards, the framing of the door panel and the securing arrangements of the door will be specifically considered.

[MGN 579 Table 2]

- (3) Except as otherwise provided in these regulations, the height of the sills of access openings in bulkheads at ends of enclosed superstructures shall be at least 380 mm above the deck.
- (4) Portable sills shall be avoided. However, in order to facilitate the loading/unloading of heavy spare parts or similar, portable sills may be fitted on the following conditions:
 - (a) they shall be installed before the ship leaves port; and
 - (b) they shall be gasketed and fastened by closely spaced through bolts.

IACS interpretation LL.5 (Rev.1)

Doors

Whenever the sills are replaced after removal, the weathertightness of the sills and related doors should be verified by hose testing. The dates of removal, replacing and hose testing should be recorded in the ship's log-book.

Regulation 13 Position of hatchways, doorways and ventilators

For the purpose of these regulations, two positions of hatchways, doorways and ventilators are defined as follows:

- Position 1 - Upon exposed freeboard and raised quarter decks, and upon exposed superstructure decks situated forward of a point located a quarter of the ship's length from the forward perpendicular.

Position 2 - Upon exposed superstructure decks situated abaft a quarter of the ship's length from the forward perpendicular and located at least one standard height of superstructure above the freeboard deck.

Upon exposed superstructure decks situated forward of a point located a quarter of the ship's length from the forward perpendicular and located at least two standard heights of superstructure above the freeboard deck.

<u>Unified interpretation</u> (Ref. MSC.1/Circ.1535/Rev.2, dated May 9, 2022) Position of hatchways, doorways and ventilators
For the purpose of these regulations, two positions of hatchways, doorways and ventilators are defined as follows:
Position 1 – Upon freeboard decks and raised quarterdecks, or other exposed decks* lower than one standard height of superstructure above the freeboard deck, and upon exposed decks* situated forward of a point located a quarter of the ship's length from the forward perpendicular that are located lower than two standard heights of superstructure above the freeboard deck.
Position 2 – Upon exposed decks* situated abaft a quarter of the ship's length from the forward perpendicular and located at least one standard height of superstructure above the freeboard deck and lower than two standard heights of superstructure above the freeboard deck.
Upon exposed decks* situated forward of a point located a quarter of the ship's length from the forward perpendicular and located at least two standard heights of superstructure above the freeboard deck and lower than three standard heights of superstructure above the freeboard deck.
* "Exposed decks" include top decks of superstructures, deckhouses, companionways and other similar deck structures.

Regulation 14 Cargo and other hatchways

- (1) The construction and means for securing the weathertightness of cargo and other hatchways in position 1 and 2 shall be at least equivalent to the requirements of regulation 16, unless the application of regulation 15 to such hatchways is granted by the Administration.

<u>MCA Guidance</u>
It should be noted that "new ships", as defined in the Merchant Shipping (Load Line) Regulations 2018 (i.e., for UK registered ships, those built after 21 July 1968) are expected to comply with the requirements of regulation 16 of Annex 1 to the Convention/Protocol.
Also, the application of regulation 15 of Annex 1 to the Convention/Protocol will only be granted to other ships where there is a specific need such as for historic or replica vessels and the Secretary of state is satisfied that a minimum level of safety is achieved.
Owners, Masters and Skippers are also reminded that proceeding to sea with improperly fitting hatch covers, defective cleats, wedges, battens or tarpaulins constitutes non-compliance with the "Conditions of Assignment" and as such is an offence under Regulation 27(1) of the Merchant Shipping (Load Lines) Regulations 2018. [MGN 579 Table 2]

- (2) Coamings and hatchway covers to exposed hatchways on decks above the superstructure deck shall comply with the requirements of the Administration.

<u>MCA Guidance</u>
The UK requirement in this context is simply that such coamings and hatchway covers shall comply with the requirements of the Assigning Authority, taking into account their position as defined in Annex I regulation 13 (in association with its Unified Interpretation (ref. IMO MSC.1/Circ.1535)). [MGN 579 Table 2]

**Regulation 14-1
Hatchway coamings**

- (1) The coamings of hatchways shall be of substantial construction in accordance with their position, and their height above the deck shall be at least as follows:
 - (a) 600 mm if in position 1; and
 - (b) 450 mm if in position 2.
- (2) In the case of hatchways which comply with regulation 16(2) through (5), the height of these coamings may be reduced, or the coamings omitted entirely, on condition that the Administration is satisfied that the safety of the ship is not thereby impaired in any sea conditions.

MCA Guidance

The UK will accept coamings of reduced height provided that they can withstand the wave loadings in regulations 16(2) through (4) and not exceed the stress levels in 16(5); in other words they should be at least as strong and seaworthy as the hatch covers they support. Coamings may be omitted entirely provided that the hatch covers and securing arrangements are tested for weathertight-ness in any sea condition. [MGN 579 Table 2]

**Regulation 15
Hatchways closed by portable covers and secured weathertight by tarpaulins
and battening devices**

Hatchway covers

- (1) The width of each bearing surface for hatchway covers shall be at least 65 mm.
- (2) Where covers are made of wood, the finished thickness shall be at least 60 mm in association with a span of not more than 1.5 m.
- (3) Where covers are made of mild steel the strength shall be calculated in accordance with the requirement of regulation 16(2) to (4) and the product of the maximum stress thus calculated and the factor 1.25 shall not exceed the minimum upper yield point strength of the material. They shall be so designed as to limit the deflection to not more than 0.0056 times the span under these loads.

IACS interpretation LL.20 Rev. 1

Hatch beams and cover stiffeners of variable cross section
See also regulations 15(4), 15(5), 15(6), 15(7) and 16

To avoid stresses and deflections exceeding those given in the above Regulations along construction elements of variable cross section, the required section modulus calculated as for construction elements of constant cross section is to be increased by a factor K expressed by:

$$K = 1 + \frac{3.2\alpha - \gamma - 0.8}{7\gamma + 0.4}$$

where $\alpha = Z_1 / Z_0$, $\gamma = W_1 / W_0$

The value of factor K obtained by the formula should not be less than unity.

Z_1 , Z_0 , W_1 and W_0 are indicated on the sketch below:

I_0 and I_1 are the inertias of the beam at the midspan and the end respectively.
 W_0 and W_1 , are the depths of the beam at the mid-span and the end respectively.

The moment of inertia is likewise to be increased by the factor C expressed by:

$$C = 1 + 8\alpha^3 \frac{1 - \beta}{0.2 + 3\sqrt{\beta}}$$

where $\alpha = \frac{Z_1}{Z_0}$, $\beta = \frac{I_1}{I_0}$

The value factor of C obtained by the formula should not be less than unity.

I_1 and I_0 are indicated on the sketch above.

The use of the above formulae should be limited to the determination of the strength of hatch beams and covers in which abrupt changes in the section of the face material do not occur along the length of the beam or cover.

Portable beams

- (4) Where portable beams for supporting hatchway covers are made of mild steel, the strength shall be calculated with assumed loads not less than 3.5 t/m² on hatchways in position 1 and not less than 2.6 t/m² on hatchways in position 2 and the product of the maximum stress thus calculated and the factor 1.47 shall not exceed the minimum upper yield point strength of the material. They shall be so designed as to limit the deflection to not more than 0.0044 times the span under these loads.

IACS interpretation LL.20 for Regulations 15(4), 15(5), 15(6), 15(7) and 16 Rev. 1
 For full details see under Regulation 15(3) above
 Hatch beams and cover stiffeners of variable cross section

- (5) The assumed loads on hatchways in position 1 may be reduced to 2 t/m² for ships 24 m in length and shall be not less than 3.5 t/m² for ships 100 m in length. The corresponding loads on hatchways in position 2 may be reduced to 1.5 t/m² and 2.6 t/m², respectively. In all cases, values at intermediate lengths shall be obtained by linear interpolation.

IACS interpretation LL.20 for Regulations 15(4), 15(5), 15(6), 15(7) and 16 Rev. 1
 For full details see under Regulation 15(3) above
 Hatch beams and cover stiffeners of variable cross section

Pontoon covers

- (6) Where pontoon covers used in place of portable beams and covers are made of mild steel, the strength shall be calculated in accordance with the requirement of regulation 16(2) to (4) and the product of the maximum stress thus calculated and the factor 1.47 shall not exceed the minimum upper yield point strength of the material. They shall be so designed as to limit the

deflection to not more than 0.0044 times the span. Mild steel plating forming the tops of covers shall be not less in thickness than 1% of the spacing of stiffeners or 6 mm if that be greater.

IACS interpretation LL.20 for Regulations 15(4), 15(5), 15(6), 15(7) and 16 Rev. 1

For full details see under Regulation 15(3) above
Hatch beams and cover stiffeners of variable cross section

- (7) The strength and stiffness of covers made of materials other than mild steel shall be equivalent to those of mild steel to the satisfaction of the Administration.

MCA Guidance

To satisfy the UK Administration, covers made of wood must be in compliance with regulation 15(2) of the Convention/ Protocol, and where the span exceeds 1.5 metres, the UK requires thickness of covers to be increased by 4 millimetres for each 100 millimetres above the span of 1.5 metres.

For tarpaulin covers, these must comply with the requirements in regulation 15(11).

Any other material will be considered on a case by case basis.

The UK follows UI LL.20 Rev 1 hatch beams and cover stiffeners of variable cross section.

[MGN 579 Table 2]

Carriers or sockets

- (8) Carriers or sockets for portable beams shall be of substantial construction, and shall provide means for the efficient fitting and securing of the beams. Where rolling types of beams are used, the arrangements shall ensure that the beams remain properly in position when the hatchway is closed.

Cleats

- (9) Cleats shall be set to fit the taper of the wedges. They shall be at least 65 mm wide and spaced not more than 600 mm centre to centre; the cleats along each side or end shall be not more than 150 mm from the hatch corners.

Battens and wedges

- (10) Battens and wedges shall be efficient and in good condition. Wedges shall be of tough wood or other equivalent material. They shall have a taper of not more than 1 in 6 and shall be not less than 13 mm thick at the toes.

Tarpaulins

- (11) At least two layers of tarpaulin in good condition shall be provided for each hatchway in position 1 or 2. The tarpaulins shall be waterproof and of ample strength. They shall be of a material of at least an approved standard weight and quality.

MCA Guidance

What constitutes “Ample Strength” will be determined on a case-by-case basis by the Assigning Authority. [MGN 579 Table 2]

Securing of hatchway covers

- (12) For all hatchways in position 1 or 2 steel bars or other equivalent means shall be provided in order efficiently and independently to secure each section of hatchway covers after the tarpaulins are battened down. Hatchway covers of more than 1.5 m in length shall be secured by at least two such securing appliances.

IACS interpretation LL.40 Rev. 2

Security of hatchway covers

This interpretation is not intended to be applied to existing ships.

Acceptable equivalent means to steel bars shall consist of devices and materials which will provide strength equivalent to, and elasticity not greater than that of, steel.
 Steel wire ropes cannot be regarded as satisfactory equivalent means.
 Care is to be taken that tarpaulins are adequately protected from the possibility of damage arising from the use of securing devices which do not provide a flat bearing surface

Regulation 16

Hatchways closed by weathertight covers of steel or other equivalent materials

- (1) All hatchways in position 1 and 2 shall be fitted with hatch covers of steel or other equivalent material. Except as provided in regulation 14(2), such covers shall be weathertight and fitted with gaskets and clamping devices. The means for securing and maintaining weathertightness shall be to the satisfaction of the Administration. The arrangements shall ensure that the tightness can be maintained in any sea conditions, and for this purpose tests for tightness shall be required at the initial survey, and may be required at renewal and annual surveys or at more frequent intervals.

MCA Guidance

The means for securing and maintaining weathertightness will be decided on a case-by-case basis by the Assigning Authority following IACS Recommendation 14 (see below). [MGN 579 Table 2]

IACS interpretation LL.20 for Regulations 15(4), 15(5), 15(6), 15(7) and 16 Rev. 1

Hatch beams and cover stiffeners of variable cross section
 For full details see under Regulation 15(3) above

IACS interpretation LL.6 Rev. 3

Hatchways closed by weathertight covers of steel or other equivalent material fitted with gaskets and clamping devices
 (see also regulation 27(8)(c))

Where hatchways are fitted with coamings of standard height, no extra strengthening (beyond what is required in the Convention) should be required for covers loaded with cargo, even dense cargo, provided the load does not exceed 1.75 tonnes/m² (in position 1).

IACS Recommendation No. 14 Rev .2

Hatch cover securing and tightness

1. Application

1.1 The following recommendations apply to steel hatch covers that are fitted to hatch openings on weather decks.

1.2 These recommendations, when relevant, also apply to the non-weathertight hatch covers which are accepted on container ships in accordance with the UI LL 64.

1.3 Where large relative movements between cover and ship structure or between cover elements are expected for ships having comparatively long/wide hatch ways, the application of these arrangements specified in this Recommendation for the gasket and securing arrangements are to be specially considered.

2. Design and Weathertightness

2.1 General

2.1.1 The weight of covers and any cargo stowed thereon, together with inertial forces generated by ship motions, are to be transmitted to the ship structure through suitable contact, such as continuous steel to steel contact of the cover skirt plate with the ship's structure or by means of defined bearing pads.

2.2 Weathertight Hatch Covers

2.2.1 The arrangement of weathertight hatch covers is to be such that weathertightness can be maintained in all sea conditions.

2.2.2 Weathertight sealings are to be obtained by a continuous gasket of relatively soft elastic material compressed to achieve the necessary weathertightness. Similar sealing is to be arranged between cross-joint elements. Where fitted, compression flat bars or angles are to be well rounded where in contact with the gasket and are to be made of a corrosion-resistant material.

2.2.3 The gasket material is to be of a quality suitable for all environmental conditions likely to be experienced by the ship, and is to be compatible with the cargoes carried. The material and form of gasket selected is to be considered in conjunction with the type of cover, the securing arrangement and the expected relative movement between cover and ship structure. The gasket is to be effectively secured to the cover.

3. Drainage Arrangement

3.1 General

3.1.1 Drain openings are to be arranged at the ends of drain channels and are to be provided with effective means for preventing ingress of water from outside, such as non-return valves or equivalent.

3.2 Weathertight Hatch Covers

3.2.1 Drainage is to be arranged inside the line of gasket by means of a gutter bar or vertical extension of the hatch side and end coaming.

3.2.2 Cross-joints of multi-panel covers are to be arranged with drainage of water from the space above the gasket and a drainage channel below the gasket.

3.2.3 If a continuous outer steel contact between cover and ship structure is arranged, drainage from the space between the steel contact and the gasket is also to be provided.

4. Securing Devices

4.1 General

4.1.1 Devices used to secure hatch covers, i.e. bolts, wedges or similar, are to be suitably spaced along the coamings and between cover elements.

4.1.2 The minimum gross sectional area of each securing device is not to be less than:

$$A = \frac{1.4 \bar{a}}{f} \text{ (cm}^2\text{)}$$

where

\bar{a} = half the distance between the two adjacent securing devices, measured along hatch cover periphery, see Fig. 1 [m]

$$f = (\sigma_F/235)^m$$

σ_F = minimum upper yield stress of the material, not to be taken greater than 70% of the ultimate tensile strength [N/mm²]

$$m = 0.75 \text{ for } \sigma_F > 235 \text{ N/mm}^2 \\ = 1.00 \text{ for } \sigma_F \leq 235 \text{ N/mm}^2$$

Where the packing line pressure (see 4.2.2) exceeds 5 N/mm, the cross-sectional area of the securing devices is to be increased in direct proportion.

Rods or bolts are to have a minimum gross diameter not less than 19 mm for hatchways exceeding 5 m² in area.

4.1.3 Securing devices are to be of reliable construction and securely attached to the hatchway coamings, decks or covers. Individual securing devices on each cover are to have approximately the same stiffness characteristics.

4.1.4 Where rod cleats are fitted, resilient washers or cushions are to be incorporated.

4.1.5 Where hydraulic cleating is adopted, a positive means is to be provided to ensure that it remains mechanically locked in the closed position in the event of failure of the hydraulic system.

4.2 Weathertight Hatch Covers

4.2.1 Arrangement and spacing of securing devices are to be determined with due attention to the effectiveness for weathertightness, depending upon the type and the size of the hatch cover, as well as on the stiffness of the cover edges between the securing devices.

4.2.2 Between cover and coaming and at cross-joints, a packing line pressure sufficient to obtain weathertightness is to be maintained by the securing devices. The packing line pressure is to be specified.

4.2.3 The cover edge stiffness is to be sufficient to maintain adequate sealing pressure between securing devices. The gross moment of inertia of edge elements is not to be less than:

$$I = 6 pa^4 \text{ [cm}^4\text{]}$$

where

p = packing line pressure, with $p \geq 5$ [N/mm]

a = maximum of the distances, a_i , between two consecutive securing devices, measured along the hatch cover periphery (see Fig. 1), not to be taken as less than $2.5 a_c$, [m]

a_c : $\max(a_{1.1}, a_{1.2})$ [m]

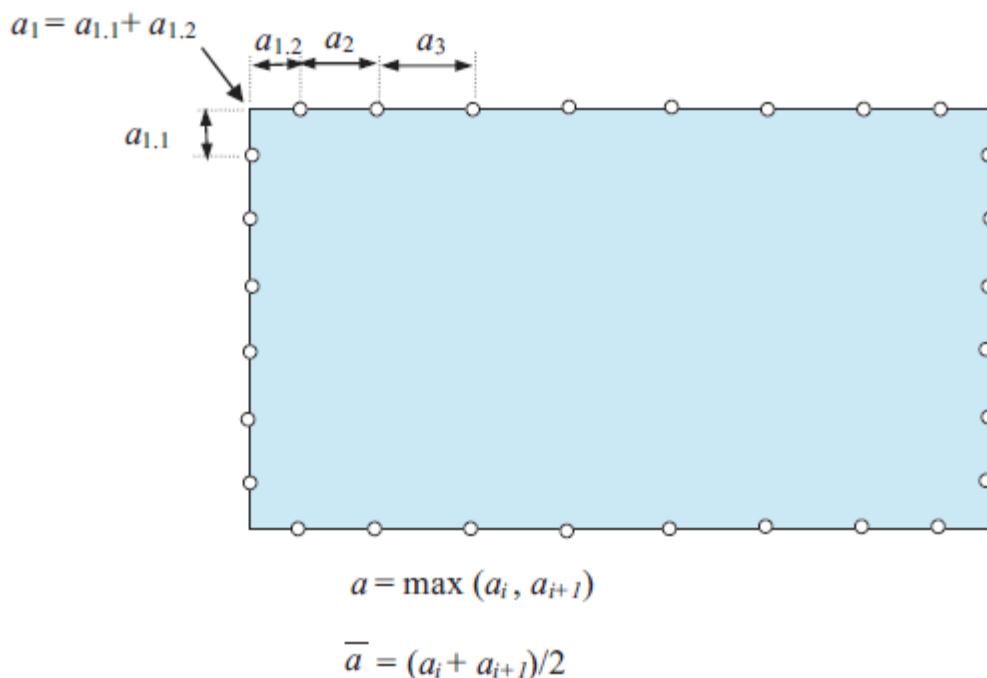


Fig. 1 Distance between securing devices, measured along hatch cover periphery

When calculating the actual gross moment of inertia of the edge element, the effective breadth of the attached plating of the hatch cover, in m, is to be taken equal to the lesser of the following values:

- 0.165 a
- half the distance between the edge element and the adjacent primary member

4.2.4 The angle section or equivalent section bearing the rubber seal is to be of adequate size and well integrated with the cover edge element structure to ensure uniform sealing pressure all along the line of contact

5. Securing Arrangement for Hatch Covers carrying Deck Cargo

5.1 In addition to the recommendations given in 4, all hatch covers, especially those carrying deck cargo are to be effectively secured against horizontal shifting due to the horizontal forces arising from ship motions.

5.2 To prevent damage to hatch covers and ship structure, the location of stoppers is to be compatible with the relative movements between hatch covers and ship structure. The number should be as small as practically possible.

5.3 Considerations are to be given for assessment of cargo loads that towards the end of the ship vertical acceleration forces may exceed the gravity force. The resulting lifting forces must be considered when dimensioning the securing devices according to 4. Also lifting forces from cargo secured on the hatch cover during rolling are to be taken into account.

5.4 Hatch coamings and supporting structure are to be adequately stiffened to accommodate the loading from hatch covers.

5.5 At cross-joints of multi-panel covers vertical guides (male/female) are to be fitted to prevent excessive relative vertical deflections between loaded/unloaded panels.

5.6 In the absence of hatch cover lifting under loads arising from the ship's rolling motion, securing devices for non-weathertight hatch covers may be omitted. In such cases, it is to be proven by means of grillage and/or finite element analyses that an equilibrium condition is achieved using compression-only boundary elements for the vertical hatch cover supports. If securing devices are omitted, transverse cover guides are to be effective up to a height h_E above the hatch cover supports, where h_E must not be less than:

$$h_E = 1,75(2se + d^2)^{0.5} - 0.75d \text{ [mm]}$$

$$h_{E, \min} = \text{height of the cover edge plate} + 150 \text{ [mm]}$$

where

e = largest distance from the inner edges of the transverse cover guides to the ends of the cover edge plate [mm]

s = total clearance within the transverse cover guide, with $10 \leq s \leq 40$ [mm]

d = distance between upper edge of transverse stopper and hatch cover supports [mm]

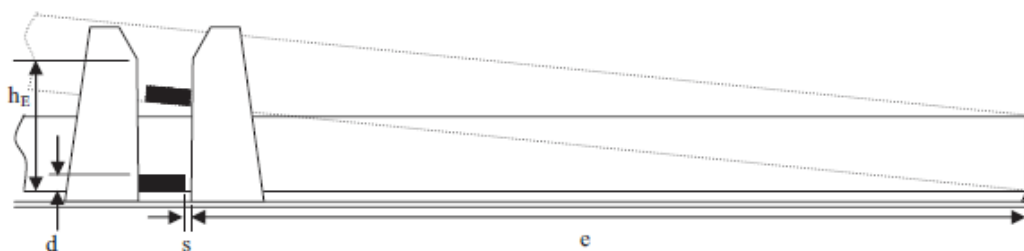


Fig. 2 Height of transverse cover guides

The transverse cover guides and their substructure are to be dimensioned in accordance with the transverse loads acting at a height h_E and an allowable stress defined by each Classification Society.

6. Tightness Testing of Weathertight Hatch Covers

6.1 Upon completion of installation of hatch covers, a chalk test is to be carried out.

6.2 This is to be followed by a hose test with a pressure of water not less than 200 kN/m².

The following may be assumed for guidance:

Nozzle diameter : minimum 12 mm
 Water pressure : sufficient for a free height of water with the stream directed upwards of 10 meters maximum
 Distance to structure : maximum 1.5 meters

6.3 Alternative methods of tightness testing will be considered.

7. Operation Test

7.1 All hatch covers are to be operationally tested.

8. Operation and Maintenance

8.1 It is recommended that ships with steel hatch covers are supplied with an operation and maintenance manual including:

- Operating and closing instructions
- Maintenance requirements for packings, securing devices and operating items
- Cleaning instructions for the drainage system
- Corrosion prevention instructions
- List of spare parts

Hatch cover minimum design loads

(2) For ships of 100 m in length and above:

(a) Position 1 hatch covers located in the forward quarter of the ship's length shall be designed for wave loads at the forward perpendicular, calculated from the following equation:

$$\text{Load} = 5 + (L_H - 100)a \text{ in t/m}^2$$

where :

L_H is L for ships of not more than 340 m but not less than 100 m in length and equal to 340 m for ships of more than 340 m in length;

L is the length of the ship (meters), as defined in regulation 3;

a is given in table 16.1,

and reduced linearly to 3.5 t/m² at the end of the forward quarter's length, as shown in table 16.2. The design load used for each hatch cover panel shall be that determined at its midpoint location.

(b) All other position 1 hatch covers shall be designed to 3.5 t/m².

- (c) Position 2 hatch covers shall be designed to 2.6 t/m².
- (d) Where a position 1 hatchway is located at least one superstructure standard height higher than the freeboard deck, it may be designed to 3.5 t/m².

	a
Type B freeboard ships	0.0074
Ships assigned reduced freeboard by regulation 27(9) or (10)	0.0363

Table 16.1

- (3) For ships 24 m in length:
 - (a) Position 1 hatch covers located in the forward quarter of the ship's length shall be designed for wave loads of 2.43 t/m² at the forward perpendicular and reduced linearly to 2 t/m² at the end of the forward quarter's length as shown in table 16.2. The design load used for each hatch cover panel shall be that determined at its midpoint location.
 - (b) All other position 1 hatch covers shall be designed to 2 t/m².
 - (c) Position 2 hatch covers shall be designed to 1.5 t/m².
 - (d) Where a position 1 hatchway is located at least one superstructure standard height higher than the freeboard deck, it may be designed to 2 t/m².
- (4) For ships between 24 m and 100 m in length, and for positions between FP and 0.25L, wave loads shall be obtained by linear interpolation of the values shown in table 16.2.

	Longitudinal position		
	FP	0.25L	Aft of 0.25L
L > 100 m			
Freeboard deck	Equation in 16(2)(a)	3.5 t/m ²	3.5 t/m ²
Superstructure deck	3.5 t/m ²		2.6 t/m ²
L = 100 m			
Freeboard deck	5 t/m ²	3.5 t/m ²	3.5 t/m ²
Superstructure deck	3.5 t/m ²		2.6 t/m ²
L = 24 m			
Freeboard deck	2.43 t/m ²	2 t/m ²	2 t/m ²
Superstructure deck	2 t/m ²		1.5 t/m ²

Table 16.2

- (5) All hatch covers shall be designed such that:
 - (a) the product of the maximum stress determined in accordance with the above loads and the factor of 1.25 does not exceed the minimum upper yield point strength of the material in tension and the critical buckling strength in compression;

- (b) the deflection is limited to not more than 0.0056 times the span;

IACS interpretation LL.66
(ref. LL.3/Circ.162 paragraph 2)
Hatch cover stress/deflection calculation
(regulations 16(5)(a) and (b))

In the calculation of stress and deflection from the prescribed mass per unit area, the design pressure is to be determined by using a vertical acceleration equal to 1g.

- (c) steel plating forming the tops of covers is not less in thickness than 1% of the spacing of stiffeners or 6 mm if that be greater; and
- (d) an appropriate corrosion margin is incorporated.

Securing arrangements

- (6) The means for securing and maintaining weathertightness by other means than gaskets and clamping shall be to the satisfaction of the Administration.

MCA Guidance

The means for securing and maintaining weathertightness will be decided on a case by case basis by the Assigning Authority following IACS Recommendation 14 (see above). [MGN 579 Table 2]

- (7) Hatch covers which rest on coamings shall be located in their closed position by means capable of withstanding horizontally acting loads in any sea conditions.

Regulation 17 Machinery space openings

- (1) Machinery space openings in position 1 or 2 shall be properly framed and efficiently enclosed by steel casings of ample strength, and where the casings are not protected by other structures their strength shall be specially considered. Access openings in such casings shall be fitted with doors complying with the requirements of regulation 12(1), the sills of which shall be at least 600 mm above the deck if in position 1, and at least 380 mm above the deck if in position 2. Other openings in such casings shall be fitted with equivalent covers, permanently attached in their proper positions.
- (2) Where machinery casings are not protected by other structures, double doors (i.e. inner and outer doors complying with the requirements of regulation 12(1)) shall be required for ships assigned freeboards less than those based on table 28.2 of regulation 28. An inner sill of 230 mm in conjunction with the outer sill of 600 mm shall be provided.
- (3) Coamings of any fiddley, funnel or machinery space ventilator in an exposed position on the freeboard deck or superstructure deck shall be as high above the deck as is reasonable and practicable. In general, ventilators necessary to continuously supply the machinery space shall have coamings of sufficient height to comply with regulation 19(3), without having to fit weathertight closing appliances. Ventilators necessary to continuously supply the emergency generator room, if this is considered buoyant in the stability calculation or protecting opening leading below, shall have coamings of sufficient height to comply with regulation 19(3), without having to fit weathertight closing appliances.
- (4) Where due to ship size and arrangement this is not practicable, lesser heights for machinery space and emergency generator room ventilator coamings, fitted with weathertight closing appliances in accordance with regulation 19(4), may be permitted by the Administration in combination with other suitable arrangements to ensure an uninterrupted, adequate supply of ventilation to these spaces.

MCA Guidance

This will be decided on a case-by-case basis by the Assigning Authority. A lower height may be approved provided that the Surveyor is satisfied that the closing appliances and other relevant circumstance justify it. [MGN 579 Table 2]

In general, ventilators necessary to continuously supply the machinery space and, on demand, immediately supply the emergency generator room should have coamings which comply with this regulation without having to fit weathertight closing appliances. [LL 3.7.3.7].

- (5) Fiddley openings shall be fitted with strong covers of steel or other equivalent material permanently attached in their proper positions and capable of being secured weathertight.

Regulation 18

Miscellaneous openings in freeboard and superstructure decks

- (1) Manholes and flush scuttles in position 1 or 2 or within superstructures other than enclosed superstructures shall be closed by substantial covers capable of being made watertight. Unless secured by closely spaced bolts, the covers shall be permanently attached.
- (2) Openings in freeboard decks other than hatchways, machinery space openings, manholes and flush scuttles shall be protected by an enclosed superstructure, or by a deckhouse or companionway of equivalent strength and weathertightness. Similarly, any such opening in an exposed superstructure deck, in the top of a deckhouse on the freeboard deck which gives access to a space below the freeboard deck or a space within an enclosed superstructure shall be protected by an efficient deckhouse or companionway. Doorways in such companionways or deckhouses that lead or give access to stairways leading below, shall be fitted with doors in accordance with regulation 12(1). Alternatively, if stairways within a deckhouse are enclosed within properly constructed companionways fitted with doors complying with regulation 12(1), the external door need not be weathertight.

IACS interpretation LL. 8 Rev.1

Miscellaneous openings in freeboard and superstructure decks

(Note: para. 1(b) of LL.8 now forms the last sentence of regulation 18(2) & para. 2 now forms regulations 18(5) – (7)).

Only those doorways in deckhouses leading to or giving access to companionways leading below, need to be fitted with doors in accordance with Regulation 12.

Where an opening in a superstructure deck or in the top of a deckhouse on the freeboard deck which gives access to space below the freeboard deck or to a space within an enclosed superstructure and is protected by a deckhouse, then it is considered that only those side scuttles fitted in spaces which give direct access to an open stairway need be fitted with deadlights in accordance with Regulation 23. A cabin is considered to provide adequate protection against the minimal amount of water which will enter through a broken sidescuttle glass fitted on the second tier.

- (3) Openings in the top of a deckhouse on a raised quarterdeck or superstructure of less than standard height, having a height equal to or greater than the standard quarterdeck height, shall be provided with an acceptable means of closing but need not be protected by an efficient deckhouse or companionway as defined in the regulation, provided that the height of the deckhouse is at least the standard height of a superstructure. Openings in the top of the deck house on a deck house of less than a standard superstructure height may be treated in a similar manner.
- (4) In position 1 the height above the deck of sills to the doorways in companionways shall be at least 600 mm. In position 2 it shall be at least 380 mm.
- (5) Where access is provided from the deck above as an alternative to access from the freeboard deck in accordance with regulation 3(10)(b), then the height of sills into a bridge or poop shall be 380 mm. The same shall apply to deckhouses on the freeboard deck.

(6) Where access is not provided from above, the height of the sills to doorways in deckhouses on the freeboard deck shall be 600 mm.

(7) Where the closing appliances of access openings in superstructures and deckhouses are not in accordance with regulation 12(1), interior deck openings shall be considered exposed (i.e. situated in the open deck).

**Regulation 19
Ventilators**

(1) Ventilators in position 1 or 2 to spaces below freeboard deck or decks of enclosed superstructures shall have coamings of steel or other equivalent material, substantially constructed and efficiently connected to the deck. Ventilators in position 1 shall have coamings of a height of at least 900 mm above the deck; in position 2 the coamings shall be of a height at least 760 mm above the deck. Where the coaming of any ventilator exceeds 900 mm in height it shall be specially supported.

(2) Ventilators passing through superstructures other than enclosed superstructures shall have substantially constructed coamings of steel or other equivalent material at the freeboard deck.

(3) Ventilators in position 1 the coamings of which extend to more than 4.5 m above the deck, and in position 2 the coamings of which extend to more than 2.3 m above the deck, need not be fitted with closing arrangements unless specifically required by the Administration.

MCA Guidance

This will be decided on a case-by-case basis by the Assigning Authority. Closing appliances need not be fitted unless the fitting of such an appliance is considered necessary by the Assigning Authority in order to provide adequate protection. [MGN 579 Table 2]

(4) Except as provided in paragraph (3), ventilator openings shall be provided with weathertight closing appliances of steel or other equivalent material. In ships of not more than 100 m in length the closing appliances shall be permanently attached; where not so provided in other ships, they shall be conveniently stowed near the ventilators to which they are to be fitted.

IACS interpretation LL. 52 Rev. 1

Weathertight closing appliances for ventilators
(Note: First para. of LL.52 now included in regulation 19(4).)

Wood plugs and canvas covers are not acceptable in positions 1 and 2.

(5) In exposed locations, the height of coamings may be increased to the satisfaction of the Administration.

MCA Guidance

Where the coaming for any ventilator referred to in regulation 19(1) is situated in a position in which it will be specially exposed to weather and sea, the height of the coaming should be increased by such an amount as is necessary to provide adequate protection having regard to its position. This will be decided on a case by case basis by the Assigning Authority. [MGN 579, and MSN1752 9(1)(b)]

<u>IACS interpretation LL. 36 Rev.2</u> Minimum wall thickness of ventilator pipes (See also regulations 20 and 22)
<p>For ventilator pipes covered by regulation 19 the following minimum wall thicknesses are recommended:</p> <p>(a) For venting pipes other than those specified under (b):</p> <p>.1 For pipes having external diameter equal to or less than 155 mm thickness should not be less than 4.5 mm</p> <p>.2 For pipes having external diameter equal to or more than 230 mm thickness should not be less than 6 mm</p> <p>Intermediate sizes should be determined by linear interpolation.</p> <p>(b) For venting pipes in position 1 and 2 leading to spaces below the freeboard deck or to spaces within enclosed superstructures:</p> <p>.1 For pipes having external diameter equal to or less than 80 mm thickness should not be less than 6 mm</p> <p>.2 For pipes having external diameter equal to or more than 165 mm thickness should not be less than 8.5 mm</p> <p>Intermediate sizes should be determined by linear interpolation.</p>

Regulation 20
Air pipes

- (1) Where air pipes to ballast and other tanks extend above the freeboard or superstructure decks, the exposed parts of the pipes shall be of substantial construction; the height from the deck to the point where water may have access below shall be at least 760 mm on the freeboard deck and 450 mm on the superstructure deck.
- (2) Where these heights may interfere with the working of the ship, a lower height may be approved, provided that the Administration is satisfied that the closing arrangements and other circumstances justify a lower height.

<u>MCA Guidance</u>
<p>The heights may be reduced if:</p> <p>a) the working of the ship would be unreasonably impaired if those heights were adhered to; and</p> <p>b) the closing arrangements will ensure that the lower height is adequately compensated.</p> <p>This will be decided on a case by case basis by the Secretary of State. [MGN 579, and MSN1752 10(4)]</p>

- (3) Air pipes shall be provided with automatic closing devices.
- (4) Pressure-vacuum valves (PV valves) may be accepted on tankers.

<u>IACS interpretation LL.36 Rev. 2</u> Minimum wall thickness of air pipes (See also regulation 19)
<p>The recommended minimum wall thicknesses etc. are the same as for ventilator pipes (see regulation 19, above).</p>

<p><u>Interpretation</u> (Ref. 2005 Load Line Consolidated Edition, page 210) Air pipes led through the side of superstructures</p>
<p>In cases where air pipes are led through the side of superstructures, it is recommended that the height of their openings be more than 2.3 m above the summer load waterline.</p>

<p><u>IACS interpretation LL.49 (Rev. 1)</u> Air pipe closing devices</p>
<p>This interpretation is not intended to be applied to existing ships.</p> <p>The means of closing air pipes should be weathertight and of an automatic type if the openings of the air pipes to which the devices are fitted would be submerged at an angle of heel of less than 40° (or any lesser angle which may be needed to suit stability requirements) when the ship is floating at its summer load line draught.</p> <p>Wooden plugs and trailing canvas covers should not be accepted as closing devices for air pipes in positions 1 and 2.</p>

<p><u>Unified interpretation</u> (Ref. MSC.1/Circ.1535/Rev.2, dated May 9, 2022) Air pipes</p>
<p>Where air pipes to ballast and other tanks extend above:</p> <ol style="list-style-type: none"> .1 the freeboard deck; or .2 other exposed decks* lower than two standard heights of superstructure above the freeboard deck, <p>the exposed parts of the pipes should be of substantial construction, and the height from the deck to the point where water may have access below should be at least:</p> <ol style="list-style-type: none"> .1 760 mm on the freeboard deck or other exposed decks* lower than one standard height of superstructure above the freeboard deck; and .2 450 mm on other exposed decks* lower than two standard heights of superstructure above freeboard deck. <p>Note: Flush bolted access covers, which are of substantial construction and are secured by gaskets and closely spaced bolts to maintain water tightness, are not subject to the minimum sill height requirements.</p> <p>* "Exposed decks" include top decks of superstructures, deckhouses, companionways and other similar deck structures.</p>

Regulation 21
Cargo ports and other similar openings

- (1) Cargo ports and other similar openings in the sides of ships below the freeboard deck shall be fitted with doors so designed as to ensure the same watertightness and structural integrity as the surrounding shell plating. Unless otherwise granted by the Administration, these opening shall open outwards. The number of such openings shall be the minimum compatible with the design and proper working of the ship.

<p><u>MCA Guidance</u></p>
<p>This will be decided on a case-by-case basis by the Secretary of State, but variation will only be permitted in exceptional circumstances. The UK will only permit inward opening doors in specific circumstances of practical need and only if satisfied that an equivalent level of safety to an outward-</p>

opening door is achieved. Where, in exceptional circumstances, the doors are permitted to open inwards, the framing of the door panel and the securing arrangements of the door will be specifically considered. [MGN 579 Table 2]

Interpretation

(Ref. 2005 Load Line Consolidated Edition, page 211)

Cargo ports and other similar openings

In a ship in which the lower deck has been designated as the freeboard deck, the means of closing openings in the shell plating below the weather deck but above the freeboard deck should be so designed as to ensure integrity against the sea commensurate with the surrounding shell plating, having regard to the position of the opening in relation to the waterline. In such a ship the following principles apply:

- .1 the effectiveness of closing appliances fitted at cargo ports and other similar openings in the shell of a ship depends on regular observations and maintenance;
- .2 hose tests are a practical means of verifying the weathertightness or watertightness of such closing appliances; and
- .3 consideration should be given to the fitting of alarms giving warning of leakage in way of doors in exposed positions.

- (2) Unless otherwise permitted by the Administration, the lower edge of openings referred to in paragraph (1) shall not be below a line drawn parallel to the freeboard deck at side, which is at its lowest point at least 230 mm above the upper edge of the uppermost load line.

MCA Guidance

This will be decided on a case-by-case basis by the Secretary of State, but variation will only be permitted in exceptional circumstances. [MGN 579 Table 2 & MSN 1752 11(3)]

- (3) Where it is permitted to arrange cargo ports and other similar openings with their lower edge below the line specified in paragraph (2), additional features shall be fitted to maintain the watertight integrity.
- (4) The fitting of a second door of equivalent strength and watertightness is one acceptable arrangement. A leakage detection device shall be provided in the compartment between the two doors. Drainage of this compartment to the bilges, controlled by a readily accessible screw down valve, shall be arranged. The outer door shall open outwards.
- (5) Arrangements for bow doors and their inner doors, side doors and stern doors and their securings shall be in compliance with the requirements of a recognised organization, or with the applicable national standards of the Administration which provide an equivalent level of safety.

MCA Guidance

The UK accepts IACS Unified interpretation SC 220 (previously LL.32) (see below), which relates to vehicle ferries, ro-ro ships and others ships of a similar type, for this purpose. This will be determined by the Assigning Authority. [MGN 579 Table 2]

IACS interpretation SC220

(previously LL.32)

Special requirements for vehicle ferries, ro-ro ships and other ships of similar type

- (a) Stern, bow and side doors of large dimensions, when manual devices would not be readily accessible, should normally be secured by means of power systems. Alternative means of securing should also be provided for emergency use in case of failure of the power systems.

(b) In ro-ro passenger ships, constructed before 1 July 1997, all access doors or hatchways to spaces below the ro-ro deck, which may be used at sea, should have sills or coamings not less than 380 mm in height above the ro-ro deck, and should be provided with doors or covers considered weather-tight in relation to their position, refer to SOLAS regulation II-1/20-2 (94/95 Amendments).

For ro-ro passenger ships constructed on or after 1 July 1997 but before 1 January 2009, refer to SOLAS regulation II-1/20-2 (94/95 Amendments).

The ro-ro deck, referred to in the preceding paragraph is the deck above which the stern, bow or side doors are fitted, or the first deck above the load waterline.

Regulation 22 **Scuppers, inlets and discharges**

- (1) (a) Discharges led through the shell either from spaces below the freeboard deck or from within superstructures and deckhouses on the freeboard deck fitted with doors complying with the requirements of regulation 12 shall, except as provided in paragraph (2), be fitted with efficient and accessible means for preventing water from passing inboard. Normally each separate discharge shall have one automatic non-return valve with a positive means of closing it from a position above the freeboard deck. Where the inboard end of the discharge pipe is located at least 0.01L above the Summer Load Line, the discharge may have two automatic non-return valves without positive means of closing. Where that vertical distance exceeds 0.02L, a single automatic non-return valve without positive means of closing may be accepted. The means for operating the positive action valve shall be readily accessible and provided with an indicator showing whether the valve is open or closed.
- (b) One automatic non-return valve and one sluice valve controlled from above the freeboard deck instead of one automatic non-return valve with a positive means of closing from a position above the freeboard deck, is acceptable.
- (c) Where two automatic non-return valves are required, the inboard valve shall always be accessible for examination under service conditions (i.e., the inboard valve shall be above the level of the Tropical Load Line). If this is not practicable, the inboard valve need not be located above the Tropical Load Line, provided that a locally controlled sluice valve is fitted between the two automatic non-return valves.
- (d) Where sanitary discharges and scuppers lead overboard through the shell in way of machinery spaces, a locally operated positive closing valve at the shell, together with a non-return valve inboard, is acceptable. The controls of the valves shall be in an easily accessible position.
- (e) The position of the inboard end of discharges shall be related to the Summer Timber Load Line when a timber freeboard is assigned.
- (f) The requirements for non-return valves are applicable only to those discharges which remain open during the normal operation of a ship. For discharges which are to be kept closed at sea, a single screw down valve operated from the deck is acceptable.
- (g) Table 22.1 provides the acceptable arrangements of scuppers, inlets and discharges. [See MSC.491(104)].

Discharges coming from enclosed spaces below the freeboard deck or on the freeboard deck				Discharges coming from other spaces	
General requirement Reg. 22(1) where inboard end $\leq 0.01L$ above SWL	Discharges through machinery space	Alternatives (Reg. 22(1)) where inboard end		Outboard end > 450 mm below FB deck or ≤ 600 mm above SWL Reg. 22(4)	Otherwise Reg. 22(5)
		> 0.01L above SWL	> 0.02L above SWL		
Superstructure or deckhouse deck					
FB deck	FB deck	FB deck	FB deck	FB deck	FB deck
SWL	SWL	SWL	SWL	SWL	SWL
Symbols: inboard end of pipes outboard end of pipes pipes terminating on the open deck Non-return valve without positive means of closing Non-return valve with positive means of closing controlled locally valve controlled locally remote control normal thickness substantial thickness					

Table 22.1

(2) Scuppers led through the shell from enclosed superstructures used for the carriage of cargo shall be permitted only where the edge of the freeboard deck is not immersed when the ship heels 5° either way. In other cases the drainage shall be led inboard in accordance with the requirements of the International Convention for the Safety of Life at Sea in force.

(3) In manned machinery spaces, main and auxiliary sea inlets and discharges in connection with the operation of machinery may be controlled locally. The controls shall be readily accessible and shall be provided with indicators showing whether the valves are open or closed.

(4) Scuppers and discharge pipes originating at any level and penetrating the shell either more than 450 mm below the freeboard deck or less than 600 mm above the Summer Load Line shall be provided with a non-return valve at the shell. This valve, unless required by paragraph (1), may be omitted if the piping is of substantial thickness (see paragraph (7) below). [Res. MSC.223(82)]

(5) Scuppers leading from superstructures or deckhouses not fitted with doors complying with the requirements of regulation 12 shall be led overboard.

(6) All shell fittings and the valves required by this regulation shall be of steel, bronze or other approved ductile material. Valves of ordinary cast iron or similar material are not acceptable. All pipes to which this regulation refers shall be of steel or other equivalent material to the satisfaction of the Administration.

(7) Scupper and discharge pipes:

(a) For scupper and discharge pipes, where substantial thickness is not required:

(i) for pipes having an external diameter equal to or less than 155 mm, the thickness shall not be less than 4.5 mm;

(ii) for pipes having an external diameter equal to or more than 230 mm, the thickness shall not be less than 6 mm.

Intermediate sizes shall be determined by linear interpolation.

(b) For scupper and discharge pipes, where substantial thickness is required:

(i) for pipes having an external diameter equal to or less than 80 mm, the thickness shall not be less than 7 mm;

(ii) for pipes having an external diameter of 180 mm, the thickness shall not be less than 10 mm;

(iii) for pipes having an external diameter equal to or more than 220 mm, the thickness shall not be less than 12.5 mm.

Intermediate sizes shall be determined by linear interpolation.

Regulation 22-1 Garbage chutes

(1) Two gate valves controlled from the working deck of the chute instead of the non-return valve with a positive means of closing from a position above the freeboard deck which comply with the following requirements are acceptable:

(a) the lower gate valve shall be controlled from a position above the freeboard deck. An interlock system between the two valves shall be arranged;

(b) the inboard end shall be located above the waterline formed by an 8.5° heel to port or starboard at a draft corresponding to the assigned summer freeboard, but not less than 1,000 mm above the summer waterline. Where the inboard end exceeds 0.01L above

the summer waterline, valve control from the freeboard deck is not required, provided the inboard gate valve is always accessible under service conditions; and

- (c) alternatively, the upper and lower gate valves may be replaced by a hinged weathertight cover at the inboard end of the chute together with a discharge flap. The cover and flap shall be arranged with an interlock so that the discharge flap cannot be operated until the hopper cover is closed.

(2) The entire chute, including the cover, shall be constructed of material of substantial thickness.

(3) The controls for the gate valves and/or hinged covers shall be clearly marked: "Keep closed when not in use".

(4) Where the inboard end of the chute is below the freeboard deck of a passenger ship or the equilibrium waterlines of a cargo ship to which damage stability requirements apply, then:

- (a) the inboard end hinged cover/valve shall be watertight;
- (b) the valve shall be a screw-down non-return valve fitted in an easily accessible position above the deepest load line; and
- (c) the screw-down non-return valve shall be controlled from a position above the bulkhead deck and provided with open/closed indicators. The valve control shall be clearly marked: "Keep closed when not in use".

Regulation 22-2

Spurling pipes and cable lockers See also MSN 622

(1) Spurling pipes and cable lockers shall be watertight up to the deck exposed to weather.

(2) Where means of access are provided, they shall be closed by a substantial cover and secured by closely spaced bolts.

(3) Spurling pipes through which anchor cables are led shall be provided with permanently attached closing appliances to minimize water ingress.

Regulation 23

Side scuttles, windows and skylights

(1) Side scuttles and windows, together with their glasses, deadlights and storm covers*, if fitted, shall be of an approved design and substantial construction. Non-metallic frames are not acceptable.

MCA Guidance

The UK accepts side scuttles built to BS ISO 1751:2012.

[MGN 579 Table 2]

(2) Side scuttles are defined as being round or oval openings with an area not exceeding 0.16 m². Round or oval openings having areas exceeding 0.16 m² shall be treated as windows.

(3) Windows are defined as being rectangular openings generally, having a radius at each corner relative to the window size and round or oval openings with an area exceeding 0.16 m².

* Deadlights are fitted to the inside of windows and side scuttles, while storm covers are fitted to the outside of windows, where accessible, and may be hinged or portable.

- (4) Side scuttles to the following spaces shall be fitted with hinged inside deadlights:
- (a) spaces below freeboard deck;
 - (b) spaces within the first tier of enclosed superstructures; and
 - (c) first tier deckhouses on the freeboard deck protecting openings leading below or considered buoyant in stability calculations.

Deadlights shall be capable of being closed and secured watertight if fitted below the freeboard deck and weathertight if fitted above.

(5) Side scuttles shall not be fitted in such a position that their sills are below a line drawn parallel to the freeboard deck at side and having its lowest point 2.5% of the breadth (B), or 500 mm, whichever is the greatest distance, above the Summer Load Line (or Timber Summer Load Line if assigned).

(6) If the required damage stability calculations indicate that the side scuttles would become immersed at any intermediate stage of flooding or the final equilibrium waterline, they shall be of the non-opening type.

(7) Windows shall not be fitted in the following locations:

- (a) below the freeboard deck;
- (b) in the first tier end bulkheads or sides of enclosed superstructures; or
- (c) in first tier deckhouses that are considered buoyant in the stability calculations.

(8) Side scuttles and windows at the side shell in the second tier shall be provided with hinged inside deadlights capable of being closed and secured weathertight if the superstructure protects direct access to an opening leading below or is considered buoyant in the stability calculations.

(9) Side scuttles and windows in side bulkheads set inboard from the side shell in the second tier which protect direct access below to spaces listed in paragraph (4) shall be provided with either hinged inside deadlights or, where they are accessible, permanently attached external storm covers which are capable of being closed and secured weathertight.

(10) Cabin bulkheads and doors in the second tier and above separating side scuttles and windows from a direct access leading below or the second tier considered buoyant in the stability calculations may be accepted in place of deadlights or storm covers fitted to the side scuttles and windows.

(11) Deckhouses situated on a raised quarter deck or on the deck of a superstructure of less than standard height may be regarded as being in the second tier as far as the requirements for deadlights are concerned, provided that the height of the raised quarter deck or superstructure is equal to or greater than the standard quarter deck height.

(12) Fixed or opening skylights shall have a glass thickness appropriate to their size and position as required for side scuttles and windows. Skylight glasses in any position shall be protected from mechanical damage and, where fitted in position 1 or 2, shall be provided with permanently attached deadlights or storm covers.

Regulation 24 Freeing ports

(1) (a) Where bulwarks on the weather portions of freeboard or superstructure decks form wells, ample provision shall be made for rapidly freeing the decks of water and for draining them.

(b) Except as provided in paragraphs (1)(c) and (2), the minimum freeing port area (A) on each side of the ship for each well on the freeboard deck shall be that given by the following formulae in cases where the sheer in way of the well is standard or greater than standard.

The minimum area for each well on superstructure decks shall be one-half of the area given by the following formulae:

Where the length of bulwark (l) in the well is 20 m or less:

$$A = 0.7 + 0.035 l \text{ m}^2;$$

Where l exceeds 20 m:

$$A = 0.07 l \text{ m}^2.$$

l need in no case be taken as greater than $0.7L$.

If the bulwark is more than 1.2 m in average height, the required area shall be increased by 0.004 m^2 per metre of length of well for each 0.1 m difference in height. If the bulwark is less than 0.9 m in average height, the required area may be decreased by 0.004 m^2 per m of length of well for each 0.1 m difference in height.

(c) In ships with no sheer, the area calculated according to paragraph (b) shall be increased by 50%. Where the sheer is less than the standard, the percentage shall be obtained by linear interpolation.

(d) On a flush deck ship with a deckhouse amidships having a breadth at least 80% of the beam of the ship and the passageways along the side of the ship not exceeding 1.5 m in width, two wells are formed. Each shall be given the required freeing port area based upon the length of each well.

(e) Where a screen bulkhead is fitted completely across the ship at the forward end of a midship deckhouse, the exposed deck is divided into two wells and there is no limitation on the breadth of the deckhouse.

(f) Wells on raised quarterdecks shall be treated as being on freeboard decks.

(g) Gutter bars greater than 300 mm in height fitted around the weather decks of tankers in way of cargo manifolds and cargo piping shall be treated as bulwarks. Freeing ports shall be arranged in accordance with this regulation. Closures attached to the freeing ports for use during loading and discharge operations are to be arranged in such a way that jamming cannot occur while at sea.

<p><u>IACS interpretation LL.59 Rev.1</u> (ref. LL.3/Circ.194) Cargo manifold gutter bars – freeing arrangements and intact stability (regulation 24(1)(g) and regulation (26))</p>
<p>Where gutter bars are installed on the weather decks of tankers in way of cargo manifolds and are extended aft as far as the after house front for the purpose of containing cargo spills on deck during loading and discharge operations, the free surface effects caused by containment of a cargo spill during liquid transfer operations or of boarding seas while underway require consideration with respect to the vessel's available margin of positive initial stability (GMo).</p> <p>Where the gutter bars installed are greater than 300 mm in height, they are to be treated as bulwarks according to the Load Line Convention with freeing ports arranged in accordance with Regulation 24 and effective closures provided for use during loading and discharge operations. Attached closures are to be arranged in such a way that jamming cannot occur while at sea, ensuring that the freeing ports will remain fully effective.</p> <p>On ships without deck camber, or where the height of the installed gutter bars exceeds the camber, and for tankers having cargo tanks exceeding 60% of the vessel's maximum beam at midships regardless of gutter bar height, gutter bars should not be accepted without an assessment of the initial stability (GMo) for compliance with the relevant intact stability requirement taking into account the free surface effect caused by liquids contained by the gutter bars.</p>

(2) Where a ship fitted with a trunk does not comply with the requirements of regulation 36(1)(e) or where continuous or substantially continuous hatchway side coamings are fitted between detached superstructures, the minimum area of the freeing port openings shall be calculated from the following table:

Breadth of hatchway or trunk in relation to the breadth of ship	Area of freeing ports in relation to the total area of the bulwarks
40% or less	20%
75% or more	10%

The area of freeing ports at intermediate breadths shall be obtained by linear interpolation.

(3) The effectiveness of the freeing area in bulwarks required by paragraph (1) depends on the free flow area across the deck of a ship.

The free flow area on deck is the net area of gaps between hatchways, and between hatchways and superstructures and deckhouses up to the actual height of the bulwark.

The freeing port area in bulwarks shall be assessed in relation to the net free flow area as follows:

- (a) If the free flow area is not less than the freeing area calculated from paragraph (2) as if the hatchway coamings were continuous, then the minimum freeing port area calculated from paragraph (1) shall be deemed sufficient.
- (b) If the free flow area is equal to, or less than the area calculated from paragraph (1), the minimum freeing area in the bulwarks shall be determined from paragraph (2).
- (c) If the free flow area is smaller than calculated from paragraph (2), but greater than calculated from paragraph (1), the minimum freeing area in the bulwark shall be determined from the following formula:

$$F = F_1 + F_2 - f_p \text{ m}^2$$

where:

F_1 is the minimum freeing area calculated from paragraph (1);

F_2 is the minimum freeing area calculated from paragraph (2); and

f_p is the total net area of passages and gaps between hatch ends and superstructures or deckhouses up to the actual height of bulwark.

(4) In ships having superstructures on the freeboard deck or superstructure decks, which are open at either or both ends to wells formed by bulwarks on the open decks, adequate provision for freeing the open spaces within the superstructures shall be provided. The minimum freeing port area on each side of the ship for the open superstructure (A_s) and for the open well (A_w), shall be calculated in accordance with the following procedure:

- (a) Determine the total well length (l_t) equal to the sum of the length of the open deck enclosed by bulwarks (l_w) and the length of the common space within the open superstructure (l_s).
- (b) To determine A_s :
 - (i) calculate the freeing port area (A) required for an open well of length l_t in accordance with paragraph (1) with standard height bulwark assumed;
 - (ii) multiply by a factor of 1.5 to correct for the absence of sheer, if applicable, in accordance with paragraph (1)(c);
 - (iii) multiply by the factor (b_o/l_t) to adjust the freeing port area for the breadth (b_o) of the openings in the end bulkhead of the enclosed superstructure;

- (iv) to adjust the freeing port area for that part of the entire length of the well which is enclosed by the open superstructure, multiply by the factor:

$$1 - (l_w / l_t)^2$$

where l_w and l_t are defined in paragraph (4)(a);

- (v) to adjust the freeing port area for the distance of the well deck above the freeboard deck, for decks located more than $0.5 h_s$ above the freeboard deck, multiply by the factor :

$$0.5 (h_s/h_w)$$

where h_w is the distance of the well deck above the freeboard deck and h_s is one standard superstructure height.

- (c) To determine A_w :

- (i) the freeing port area for the open well (A_w) shall be calculated in accordance with paragraph (b)(i), using l_w to calculate a nominal freeing port area (A'), and then adjusted for the actual height of the bulwark (h_b) by the application of one of the following area corrections, whichever is applicable:

for bulwarks greater than 1.2 m in height:

$$A_c = l_w ((h_b - 1.2)/0.10)(0.004) \text{ m}^2;$$

for bulwarks less than 0.9 m in height:

$$A_c = l_w ((h_b - 0.9)/0.10)(0.004) \text{ m}^2;$$

for bulwarks between 1.2 m and 0.9 m in height there is no correction (i.e. $A_c = 0$);

- (ii) the corrected freeing port area ($A_w = A' + A_c$) shall then be adjusted for absence of sheer, if applicable, and height above freeboard deck as in paragraphs (b)(ii) and (b)(v), using h_s and h_w .

- (d) The resulting freeing port areas for the open superstructure (A_s) and for the open well (A_w) shall be provided along each side of the open space covered by the open superstructure and each side of the open well, respectively.

- (e) The above relationships are summarised by the following equations, assuming l_t , the sum of l_w and l_s , is greater than 20 m:

freeing port area A_w for the open well:

$$A_w = (0.07 l_w + A_c) (\text{sheer correction}) (0.5 h_s / h_w);$$

freeing port area A_s for the open superstructure:

$$A_s = (0.07 l_t) (\text{sheer correction}) (b_o / l_t (1 - (l_w / l_t)^2) (0.5 h_s / h_w);$$

where l_t is 20 m or less, the basic freeing port area is $A = 0.7 + 0.035 l_t$ in accordance with paragraph (1).

- (5) The lower edges of freeing ports shall be as near the deck as practicable. Two-thirds of the freeing port area required shall be provided in the half of the well nearest the lowest point of the sheer

curve. One third of the freeing port area required shall be evenly spread along the remaining length of the well. With zero or little sheer on the exposed freeboard deck or an exposed superstructure deck the freeing port area shall be evenly spread along the length of the well.

(6) All freeing port openings in the bulwarks shall be protected by rails or bars spaced approximately 230 mm apart. If shutters are fitted to freeing ports, ample clearance shall be provided to prevent jamming. Hinges shall have pins or bearings of non-corrodible material. Shutters shall not be fitted with securing appliances.

**Regulation 25
Protection of the crew**

(1) The deckhouses used for the accommodation of the crew shall be constructed to an acceptable level of strength.

(2) Guard rails or bulwarks shall be fitted around all exposed decks. The height of the bulwarks or guard rails shall be at least 1 m from the deck, provided that where this height would interfere with the normal operation of the ship, a lesser height may be approved, if the Administration is satisfied that adequate protection is provided.

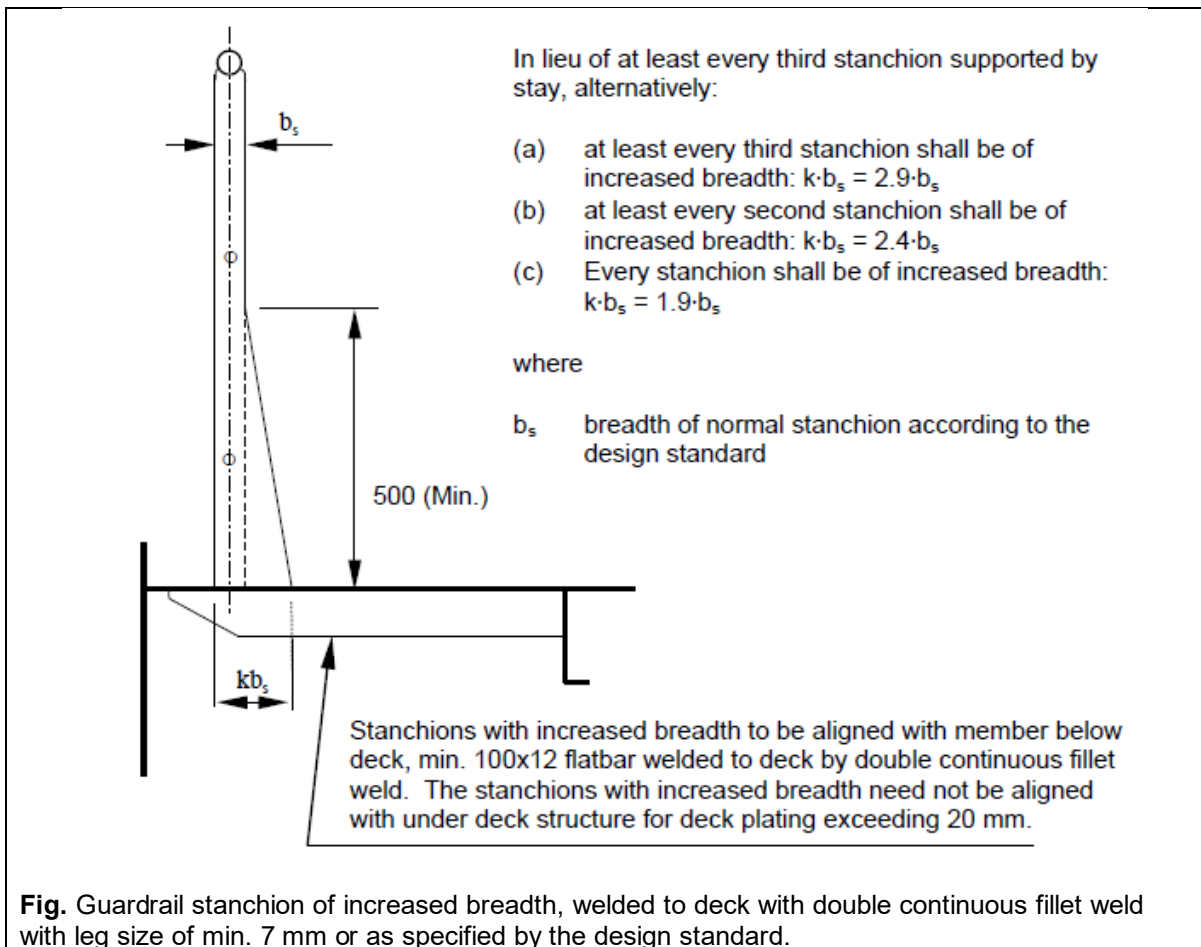
<u>MCA Guidance</u>
Requests for fitting bulwarks or guard rails of lesser height will be dealt with on a case by case basis by the Secretary of State. [MGN 579 Table 2]

<u>IACS interpretation LL.14 (corr.1 Oct. 2015)</u>
A guard rail should also be required for first tier deckhouses and for superstructures' ends.

(3) Guard rails fitted on superstructure and freeboard decks shall have at least three courses. The opening below the lowest course of the guard rails shall not exceed 230 mm. The other courses shall be not more than 380 mm apart. In the case of ships with rounded gunwales the guard rail supports shall be placed on the flat of the deck. In other locations, guardrails with at least two courses shall be fitted. Guard rails shall comply with the following provisions:

- (a) fixed, removable or hinged stanchions shall be fitted about 1.5 m apart. Removable or hinged stanchions shall be capable of being locked in the upright position;
- (b) at least every third stanchion shall be supported by a bracket or stay;

<u>IACS interpretation LL.47 Rev. 3</u> (ref. LL.3/Circ.208 Annex 2) Regulation 25(3)(b)
As alternate arrangements, flat steel stanchions shall be of increased breadth as given in the figure below, and aligned with a structural member below deck unless the deck plating thickness exceeds 20 mm.



(c) where necessary for the normal operation of the ship, steel wire ropes may be accepted in lieu of guard rails. Wires shall be made taut by means of turnbuckles; and

(d) where necessary for the normal operation of the ship, chains fitted between two fixed stanchions and/or bulwarks are acceptable in lieu of guard rails.

(4) Satisfactory means for safe passage required by regulation 25-1 (in the form of guard rails, lifelines, gangways or underdeck passages, etc.) shall be provided for the protection of the crew in getting to and from their quarters, the machinery space and any other spaces used in the essential operation of the ship.

(5) Deck cargo carried on any ship shall be so stowed that any opening which is in way of the cargo and which gives access to and from the crew's quarters, the machinery space and all other parts used in the essential operation of the ship can be closed and secured against water ingress. Protection for the crew in the form of guard rails or lifelines shall be provided above the deck cargo if there is no convenient passage on or below the deck of the ship.

Regulation 25-1
Means for safe passage of crew

(1) The safe passage of crew shall be provided by at least one of the means prescribed in table 25-1.1 below:

(2) Acceptable arrangements referred to in table 25-1.1 are defined as follows:

- (a) A well-lighted and ventilated under-deck passageway (with a clear opening of at least 0.8 m wide and 2 m high), as close as practicable to the freeboard deck, connecting and providing access to the locations in question.
- (b) A permanent and efficiently constructed gangway, fitted at or above the level of the superstructure deck, on or as near as practicable to the centre line of the ship, providing a continuous platform at least 0.6 m in width and a non-slip surface and with guard rails extending on each side throughout its length. Guard rails shall be at least 1 m high with three courses and constructed as required in regulation 25(3). A foot-stop shall be provided.
- (c) A permanent walkway at least 0.6 m in width, fitted at freeboard deck level and consisting of two rows of guard rails with stanchions spaced not more than 3 m. The number of courses of rails and their spacing shall be in accordance with regulation 25(3). On type 'B' ships, hatchway coamings not less than 0.6 m in height may be accepted as forming one side of the walkway, provided that two rows of guard rails are fitted between the hatchways.
- (d) A wire rope lifeline not less than 10 mm in diameter, supported by stanchions not more than 10 m apart, or a single hand rail or wire rope attached to hatch coamings, continued and supported between hatchways.
- (e) A permanent gangway that is:
 - (i) located at or above the level of the superstructure deck;
 - (ii) located on or as near as practicable to the centre line of the ship;
 - (iii) located so as not to hinder easy access across the working areas of the deck;
 - (iv) providing a continuous platform at least 1 m in width;
 - (v) constructed of fire resistant and non-slip material;
 - (vi) fitted with guard rails extending on each side throughout its length; guard rails shall be at least 1 m high with courses as required by regulation 25(3) and supported by stanchions spaced not more than 1.5 m apart;
 - (vii) provided with a foot-stop on each side;
 - (viii) having openings, with ladders where appropriate, to and from the deck. Openings shall not be more than 40 m apart; and
 - (ix) having shelters set in way of the gangway at intervals not exceeding 45 m if the length of the exposed deck to be traversed exceeds 70 m. Every such shelter shall be capable of accommodating at least one person and be so constructed as to afford weather protection on the forward, port and starboard sides.
- (f) A permanent walkway located at the freeboard deck level, on or as near as practicable to the centre line of the ship, having the same specifications as those for a permanent gangway listed in (e), except for foot-stops. On type 'B' ships (certified for the carriage of liquids in bulk) with a combined height of hatch coaming and fitted hatch cover of not less than 1 m in height, the hatchway coamings may be accepted as forming one side of the walkway, provided that two rows of guard rails are fitted between the hatchways.

Type of ship	Locations of access in ship	Assigned summer freeboard	Acceptable arrangements according to type of freeboard assigned***			
			Type 'A'	Type 'B-100'	Type 'B-60'	Type 'B' and 'B+'
All ships other than oil tankers*, chemical tankers* and gas carriers*	1.1 Access to midships quarters	≤3,000 mm	(a) (b) (e)	(a) (b) (e)	(a) (b) (c)(i) (e) (f)(i)	(a) (b) (c)(i) (c)(ii) (d)(i) (d)(ii) (d)(iii) (e) (f)(i) (f)(ii) (f)(iv)
	1.1.1 Between poop and bridge, or	>3,000 mm	(a) (b) (e)	(a) (b) (e)	(a) (b) (c)(i) (c)(ii) (e) (f)(i) (f)(ii)	
	1.1.2 Between poop and deckhouse containing living accommodation or navigating equipment or both					
	1.2 Access to ends	≤3,000 mm	(a) (b) (c)(i) (e) (f)(i)	(a) (b) (c)(i) (c)(ii) (e) (f)(i) (f)(ii)	(a) (b) (c)(i) (c)(ii) (e) (f)(i) (f)(ii)	
1.2.1 Between poop and bow (if there is no bridge)	>3,000 mm	(a) (b) (c)(i) (d)(i) (e) (f)(i)	(a) (b) (c)(i) (c)(ii) (d)(i) (d)(ii) (e) (f)(i) (f)(ii)	(a) (b) (c)(i) (c)(ii) (c)(iv) (d)(i) (d)(ii) (d)(iii) (e) (f)(i) (f)(ii) (f)(iv)		
1.2.2 Between bridge and bow, or						
1.2.3 Between a deckhouse containing living accommodation or navigating equipment, or both, and bow, or						
1.2.4 In the case of a flush deck ship, between crew accommodation and the forward and after ends of ship.						
Oil tankers*, chemical tankers* and gas carriers*	2.1 Access to bow	≤(Af + Hs)**	Type A			
	2.1.1 Between poop and bow or		(a) (e) (f)(i) (f)(v)			
	2.1.2 Between a deckhouse containing living accommodation or navigating equipment, or both, and bow, or	>(Af + Hs)**	(a) (e) (f)(i) (f)(ii)			
2.1.3 In the case of a flush deck ship, between crew accommodation and the forward ends of ship.						
2.2 Access to after end	In the case of a flush deck ship, between crew accommodation and the after end of ship	As required in 1.2.4 for other types of ships				

Table 25-1.1

* Oil tankers, chemical tankers and gas carriers as defined in regulations II-1/2.12, VII/8.2 and VII/11.2, respectively, of the International Convention for the Safety of Life at Sea, 1974, in force.

** Af: the minimum summer freeboard calculated as type 'A' ship regardless of the type freeboard actually assigned.

Hs: the standard height of superstructure as defined in regulation 33.

*** Arrangements (a)-(f) are described in paragraph (2) below. Locations (i)-(v) are described in paragraph (3) below.

IACS interpretation LL.50 Rev. 5

Now included in regulation 25-1 except for the following

Note: Deviations from some or all of the requirements in Table 25-1.1 or alternative arrangements for such cases as ships with very high gangways (i.e. certain gas carriers) may be allowed subject to case-by-case agreement with the Administration.

For oil tankers, as defined in SOLAS regulation II-1/2.12, chemical tankers as defined in SOLAS regulation VII/8.2 or gas carriers as defined in SOLAS regulation VII/11.2, constructed before 1st July 1998, existing arrangements which complied with (b) or (c) may be accepted in lieu of (e) or (f) provided such existing arrangements are fitted with shelters and means of access to and from the deck as required for the arrangements (e) or (f) as defined below.

(3) Permitted transverse locations for arrangements in paragraphs (2)(c), (d) and (f) above, where appropriate:

- (i) at or near the centre line of the ship; or fitted on hatchways at or near the centre line of the ship;
- (ii) fitted on each side of the ship;
- (iii) fitted on one side of the ship, provision being made for fitting on either side;
- (iv) fitted on one side of the ship only;
- (v) fitted on each side of the hatchways, as near to the centre line as practicable.

(4) (a) Where wire ropes are fitted, turnbuckles shall be provided to ensure their tautness.

(b) Where necessary for the normal operation of the ship, steel wire ropes may be accepted in lieu of guard rails.

(c) Where necessary for the normal operation of the ship, chains fitted between two fixed stanchions are acceptable in lieu of guard rails.

(d) Where stanchions are fitted, every third stanchion shall be supported by a bracket or stay.

(e) Removable or hinged stanchions shall be capable of being locked in the upright position.

(f) A means of passage over obstructions such as pipes or other fittings of a permanent nature, shall be provided.

(g) Generally, the width of the gangway or deck-level walkway should not exceed 1.5 m.

(5) For tankers less than 100 m in length, the minimum width of the gangway platform or deck-level walkway fitted in accordance with paragraphs (2)(e) or (f) above, respectively, may be reduced to 0.6 m.

Regulation 26

Special conditions of assignment for type 'A' ships

Machinery casings

(1) Machinery casings on type 'A' ships, as defined in regulation 27, shall be protected by one of the following arrangements:

- (a) an enclosed poop or bridge of at least standard height; or
- (b) a deckhouse of equal height and equivalent strength.

Regulation 17(2) also applies (see page 208 of 2005 Consolidated edition)

(2) Machinery casings may, however, be exposed if there are no openings giving direct access from the freeboard deck to the machinery space. A door complying with the requirements of regulation 12 is acceptable in the machinery casing, provided that it leads to a space or passageway which is as strongly constructed as the casing and is separated from the stairway to the engine-room by a second weathertight door of steel or other equivalent material.

Gangway and access

(3) A fore and aft permanent gangway, constructed in accordance with the provisions of regulation 25-1(2)(e), shall be fitted on type 'A' ships at the level of the superstructure deck between the poop and the midship bridge or deckhouse where fitted. The arrangement contained in regulation 25-1(2)(a) is considered an equivalent means of access to carry out the purpose of the gangway.

(4) Safe access from the gangway level shall be available between separate crew accommodations and also between crew accommodations and the machinery space.

Hatchways

(5) Exposed hatchways on the freeboard and forecastle decks or on the tops of expansion trunks on type 'A' ships shall be provided with efficient watertight covers of steel or other equivalent material.

Freeing arrangements

(6) Type 'A' ships with bulwarks shall have open rails fitted for at least half the length of the weather deck or other equivalent freeing arrangements. A freeing port area, in the lower part of the bulwarks, of 33% of the total area of the bulwarks, is an acceptable equivalent freeing arrangement. The upper edge of the sheer strake shall be kept as low as practicable.

(7) Where superstructures are connected by trunks, open rails shall be fitted for the whole length of the exposed parts of the freeboard deck.

IACS interpretation LL.59 Rev.1
(ref. LL.3/Circ.194)
Cargo manifold gutter bars – freeing arrangements and intact stability
(regulation 24(1)(g) and regulation (26))

See regulation 24(1)(g) for full details.

CHAPTER III FREEBOARDS

Regulation 27 Types of ships

(1) For the purposes of freeboard computation, ships shall be divided into type 'A' and type 'B'.

Type 'A' ships

(2) A type 'A' ship is one which:

- (a) is designed to carry only liquid cargoes in bulk;
- (b) has a high integrity of the exposed deck with only small access openings to cargo compartments, closed by watertight gasketed covers of steel or equivalent material; and
- (c) has low permeability of loaded cargo compartments.

(3) A type 'A' ship, if over 150 m in length, to which a freeboard less than type 'B' has been assigned, when loaded in accordance with the requirements of paragraph (11), shall be able to withstand the flooding of any compartment or compartments, with an assumed permeability of 0.95,

consequent upon the damage assumptions specified in paragraph (12), and shall remain afloat in a satisfactory condition of equilibrium, as specified in paragraph (13). In such a ship, the machinery space shall be treated as a floodable compartment, but with a permeability of 0.85.

<p>Unified interpretation LL.75 Rev.1 (ref. LL.3/Circ.194) Types of ship (regulation 27(3) and regulation (27)(8)(d))</p>
<p>The permeability assumed in the damage stability calculation for the flooding of any store space should be 0.95</p>

(4) A type 'A' ship shall be assigned a freeboard not less than that based on table 28.1.

Type 'B' ships

(5) All ships which do not come within the provisions regarding type 'A' ships in paragraphs (2) and (3) shall be considered as type 'B' ships.

(6) Type 'B' ships, which in position 1 have hatch covers which are permitted by the Administration to comply with the requirements of regulation 15 (other than paragraph (6)) or which are fitted with securing arrangements accepted under the provisions of regulation 16(6), shall be assigned freeboards based upon the values given in table 28.2, increased by the values given in table 27.1:

Table 27.1 - Freeboard increase over tabular freeboard for type 'B' ships, for ships with hatch covers complying with the provisions of regulation 15 (other than paragraph (6))

Length of ship (m)	Freeboard increase (mm)	Length of ship (m)	Freeboard increase (mm)	Length of ship (m)	Freeboard increase (mm)
108 and below	50	139	175	170	290
109	52	140	181	171	292
110	55	141	186	172	294
111	57	142	191	173	297
112	59	143	196	174	299
113	62	144	201	175	301
114	64	145	206	176	304
115	68	146	210	177	306
116	70	147	215	178	308
117	73	148	219	179	311
118	76	149	224	180	313
119	80	150	228	181	315
120	84	151	232	182	318
121	87	152	236	183	320
122	91	153	240	184	322
123	95	154	244	185	325
124	99	155	247	186	327
125	103	156	251	187	329
126	108	157	254	188	332
127	112	158	258	189	334
128	116	159	261	190	336
129	121	160	264	191	339
130	126	161	267	192	341
131	131	162	270	193	343
132	136	163	273	194	346
133	142	164	275	195	348
134	147	165	278	196	350
135	153	166	280	197	353
136	159	167	283	198	355
137	164	168	285	199	357
138	170	169	287	200	358

Freeboards at intermediate lengths of ship shall be obtained by linear interpolation. Ships above 200 m in length shall be dealt with by the Administration.

(7) Type 'B' ships, which in position 1 have hatchways fitted with hatch covers complying with the requirements of regulation 16(2) through (5), shall, except as provided in paragraphs (8) to (13) inclusive, be assigned freeboards based on table 28.2.

(8) Any type 'B' ship of over 100 m in length may be assigned freeboards less than those required under paragraph (7), provided that, in relation to the amount of reduction granted, the Administration is satisfied that:

- (a) the measures provided for the protection of the crew are adequate;
- (b) the freeing arrangements are adequate;
- (c) the covers in position 1 and 2 comply with the provisions of regulation 16(1) through (5) and (7); and

<p><u>IACS interpretation LL.6 Rev. 3</u> Hatchways closed by weathertight covers of steel or other equivalent material fitted with gaskets and clamping devices (see also regulation 16)</p>
<p>No extra strengthening is recommended for hatchway covers on ships which are assigned freeboards less than those based on Table B, except for flush hatchway covers which are fitted on the freeboard deck forward of the quarter length, in which case the section modulus and the moment of inertia should be increased 15% over that required by Regulation 16.</p>

- (d) the ship, when loaded in accordance with the requirements of paragraph (11), shall be able to withstand the flooding of any compartment or compartments, with an assumed permeability of 0.95, consequent upon the damage assumptions specified in paragraph (12), and shall remain afloat in a satisfactory condition of equilibrium, as specified in paragraph (13). In such a ship, if over 150 m in length, the machinery space shall be treated as a floodable compartment, but with a permeability of 0.85.

<p><u>Unified interpretation LL.75 Rev.1</u> (ref. LL.3/Circ.194) Types of ship (regulation 27(3) and regulation (27)(8)(d))</p>
<p>The permeability assumed in the damage stability calculation for the flooding of any store space should be 0.95</p>

(9) In calculating the freeboards for type 'B' ships which comply with the requirements of paragraphs (8), (11), (12) and (13), the values from table 28.2 shall not be reduced by more than 60% of the difference between the tabular values in tables 28.1 and 28.2 for the appropriate ship lengths.

(10) (a) The reduction in tabular freeboard allowed under paragraph (9) may be increased up to the total difference between the values in table 28.1 and those in table 28.2 on condition that the ship complies with the requirements of:

- (i) regulation 26, other than paragraph (5), as if it were a type 'A' ship;
- (ii) paragraphs (8), (11) and (13); and

- (iii) paragraph (12), provided that throughout the length of the ship any one transverse bulkhead will be assumed to be damaged, such that two adjacent fore and aft compartments shall be flooded simultaneously, except that such damage will not apply to the boundary bulkheads of a machinery space.
- (b) In such a ship, if over 150 m in length, the machinery space shall be treated as a floodable compartment, but with a permeability of 0.85.

Initial condition of loading

- (11) The initial condition of loading before flooding shall be determined as follows:
 - (a) The ship is loaded to its **Summer Load Line** on an imaginary even keel.
 - (b) When calculating the vertical centre of gravity, the following principles apply:
 - (i) homogeneous cargo is carried;
 - (ii) all cargo compartments, except those referred to under **subparagraph (iii)**, but including compartments intended to be partially filled, shall be considered fully loaded except that in the case of fluid cargoes each compartment shall be treated as 98% full;
 - (iii) if the ship is intended to operate at its **Summer Load Line** with empty compartments, such compartments shall be considered empty, provided the height of the centre of gravity so calculated is not less than as calculated under **subparagraph (ii)**;
 - (iv) 50% of the **individual ship's** total capacity of **all** tanks and spaces fitted to contain **each type of consumables liquids** and stores is allowed for. It shall be assumed that for each type of liquid at least one transverse pair or a single centreline tank has maximum free surface, and the tank or combination of tanks to be taken into account shall be those where the effect of free surfaces is the greatest; in each tank the centre of gravity of the contents shall be taken at the centre of volume of the tank. The remaining tanks shall be assumed either completely empty or completely filled, and the distribution of consumable liquids between these tanks shall be effected so as to obtain the greatest possible height above the keel for the centre of gravity; [**See MSC.345(91)**]
 - (v) **Ballast water tanks shall normally be considered to be empty and no free surface correction shall be made for them. [See MSC.345(91)]**
 - ~~(vi) At an angle of heel of not more than 5° in each compartment containing liquids, as prescribed in **subparagraph (ii)**, except that in the case of compartments containing consumable fluids, as prescribed in **subparagraph (iv)**, the maximum free surface effect shall be taken into account. Alternatively, the actual free surface effects may be used, provided the methods of calculation are acceptable to the Administration;~~
 - (vi) **Alternative treatment for free surface may be considered when developing the final condition for application of damage specified in regulation 27(12):**
 - (aa) **Method 1 (appropriate to virtual corrections). The virtual centre of gravity for the initial condition is determined as follows:**
 - i. the loading condition shall be developed in accordance with paragraphs (i) to (iv);
 - ii. the correction for the free surfaces is added to the vertical centre of gravity;

- iii. one virtual initial condition with all compartments empty is generated on summer load line draught with level trim, using the vertical centre of gravity from the above loading condition; and
 - iv. the damage cases will be checked for compliance with the damage stability criteria using the above initial condition.
- (bb) Method 2 (appropriate to the use of actual free surface moments according to the assumed tank fillings for damage case). The virtual centre of gravity for the initial condition is determined as follows:
- i. the loading condition shall be developed in accordance with paragraphs (i) to (iv);
 - ii. one virtual initial condition for each damage case with liquid-filled compartments may be generated on summer load line draught with level trim, using the initial virtual condition with filled compartments generated on summer load line draught with level trim. Using the vertical centre of gravity and free surface correction from the above loading condition separate calculations for each damage case are performed, only the liquid-filled compartments to be damaged are left empty before damage; and
 - iii. the damage cases will be checked for compliance with the damage stability criteria using above initial conditions (one initial condition for each damage case). [See MSC.345(91)]
- (vii) weights shall be calculated on the basis of the following values for specific gravities:
- | | |
|-----------------|-------|
| salt water | 1.025 |
| fresh water | 1.000 |
| oil fuel | 0.950 |
| diesel oil | 0.900 |
| lubricating oil | 0.900 |

Damage assumptions

- (12) The following principles regarding the character of the assumed damage apply:
- (a) The vertical extent of damage in all cases is assumed to be from the base line upwards without limit.
 - (b) The transverse extent of damage is equal to $B/5$ or 11.5 m, whichever is the lesser, measured inboard from the side of the ship perpendicularly to the centreline at the level of the Summer Load Line.
 - (c) If damage of a lesser extent than specified in subparagraphs (a) and (b) results in a more severe condition, such lesser extent shall be assumed.
 - (d) Except where otherwise required by paragraph (10)(a), the flooding shall be confined to a single compartment between adjacent transverse bulkheads, provided that the inner longitudinal boundary of the compartment is not in a position within the transverse extent of assumed damage. Transverse boundary bulkheads of wing tanks, which do not extend over the full breadth of the ship shall be assumed not to be damaged, provided that they extend beyond the transverse extent of assumed damage prescribed in subparagraph (b).

If in a transverse bulkhead there are steps or recesses of not more than 3 m in length, located within the transverse extent of assumed damage as defined in subparagraph (b), such transverse bulkhead may be considered intact and the adjacent compartment may be floodable singly. If, however, within the transverse extent of assumed damage there is a step or recess of more than 3 m in length in a transverse bulkhead, the two compartments adjacent to this bulkhead shall be considered as flooded. The step formed by the afterpeak bulkhead and the afterpeak tank top shall not be regarded as a step for the purpose of this regulation.

- (e) Where a main transverse bulkhead is located within the transverse extent of assumed damage and is stepped in way of a double bottom or side tank by more than 3 m, the double bottom or side tanks adjacent to the stepped portion of the main transverse bulkhead shall be considered as flooded simultaneously. If this side tank has openings into one or several holds, such as grain feeding holes, such hold or holds shall be considered as flooded simultaneously. Similarly, in a ship designed for the carriage of fluid cargoes, if a side tank has openings into adjacent compartments, such adjacent compartments shall be considered as empty and as being flooded simultaneously. This provision is applicable even where such openings are fitted with closing appliances, except in the case of sluice valves fitted in bulkheads between tanks and where the valves are controlled from the deck. Manhole covers with closely spaced bolts are considered equivalent to the unpierced bulkhead, except in the case of openings in topside tanks making the topside tanks common to the holds.
- (f) Where the flooding of any two adjacent fore and aft compartments is envisaged, main transverse watertight bulkheads shall be spaced at least $1/3 L^{2/3}$ or 14.5 m, whichever is the lesser, in order to be considered effective. Where transverse bulkheads are spaced at a lesser distance, one or more of these bulkheads shall be assumed as non-existent in order to achieve the minimum spacing between bulkheads.

<p><u>Unified interpretation LL.69 Rev.1</u> (ref. LL.3/Circ.162) Treatment of the volume of the forecastle, which is located over the foremost cargo hold for damage stability calculation (regulation 27(12))</p>
<p>In the case where the forecastle overlaps the foremost cargo hold, provided the forecastle bulkhead is not more than 3 metres aft of the forward bulkhead of the hold and the deck forming the step in way is watertight, then the bulkhead should be considered as continuous and not subject to damage.</p>

Condition of equilibrium

- (13) The condition of equilibrium after flooding shall be regarded as satisfactory provided:
- (a) The final waterline after flooding, taking into account sinkage, heel and trim, is below the lower edge of any opening through which progressive downflooding may take place. Such openings shall include air pipes, ventilators (even if they comply with regulation 19(4)) and openings which are closed by means of weathertight doors (even if they comply with regulation 12) or hatch covers (even if they comply with regulation 16(1) through (5)), and may exclude those openings closed by means of manhole covers and flush scuttles (which comply with regulation 18), cargo hatch covers of the type described in regulation 27(2), remotely operated sliding watertight doors, **hinged watertight access doors with open/closed indication locally and at the navigation bridge, of the quick-acting or single-action type that are normally closed at sea, hinged watertight doors that are permanently closed at sea** and sidescuttles of the non-opening type (which comply with regulation 23). **However, in** the case of doors separating a main machinery space from a steering gear compartment,

watertight doors may be of a hinged, quick-acting type kept closed at sea whilst not in use, provided also that the lower sill of such doors is above the Summer Load Line. [See MSC.491(104)].

- (b) If pipes, ducts or tunnels are situated within the assumed extent of damage penetration as defined in paragraph (12)(b), arrangements shall be made so that progressive flooding cannot thereby extend to compartments other than those assumed to be floodable in the calculation for each case of damage.
- (c) The angle of heel due to unsymmetrical flooding does not exceed 15°. If no part of the deck is immersed, an angle of heel of up to 17° may be accepted.
- (d) The metacentric height in the flooded condition is positive.
- (e) When any part of the deck outside the compartment assumed flooded in a particular case of damage is immersed, or in any case where the margin of stability in the flooded condition may be considered doubtful, the residual stability is to be investigated. It may be regarded as sufficient if the righting lever curve has a minimum range of 20° beyond the position of equilibrium with a maximum righting lever of at least 0.1 m within this range. The area under the righting lever curve within this range shall be not less than 0.0175 m.rad. The Administration shall give consideration to the potential hazard presented by protected or unprotected openings which may become temporarily immersed within the range of residual stability.

<u>Unified interpretation</u> (Ref. MSC.1/Circ.1535/Rev.2, dated May 9, 2022) Regulation 27(13)(e) Unprotected Openings
Unprotected openings include ventilators (complying with regulation 19(4) of the International Convention on Load Lines, 1966) that for operational reasons have to remain open to supply air to the engine room, <i>or</i> emergency generator room <i>or</i> closed ro-ro and vehicle spaces (if the same is considered buoyant in the stability calculation or protecting openings leading below) for the effective operation of the ship. <i>Where it is not technically feasible to treat some closed ro-ro and vehicle space ventilators as unprotected openings, Administrations may allow an alternative arrangement that provides an equivalent level of safety.</i>
This was amended <i>as shown</i> (ref. SDC 6/9/2 Annex page 1) and approved at MSC 105.

- (f) The Administration is satisfied that the stability is sufficient during intermediate stages of flooding.

<u>MCA Guidance</u>
This is a judgment which will be made based on the expertise of the individual surveyor tasked with the role of assessing the stability of the ship. [MGN 579 Table 2]

- (g) Compliance with the residual stability criteria specified in paragraphs (a), (c), (d) and (e) above is not required to be demonstrated in service loading conditions using a stability instrument, stability software or other approved method. [See MSC.345(91)]

Ships without means of propulsion

(14) A lighter, barge or other ship without independent means of propulsion shall be assigned a freeboard in accordance with the provisions of these regulations. Barges which meet the requirements of paragraphs (2) and (3) may be assigned type 'A' freeboards:

- (a) The Administration should especially consider the stability of barges with cargo on the weather deck. Deck cargo can only be carried on barges to which the ordinary type 'B' freeboard is assigned.
- (b) However, in the case of barges which are unmanned, the requirements of regulations 25, 26(3), 26(4) and 39 shall not apply.
- (c) Such unmanned barges which have on the freeboard deck only small access openings closed by watertight gasketed covers of steel or equivalent material may be assigned a freeboard 25% less than those calculated in accordance with these regulations.

IACS interpretation LL.34 Corr.1
Freeboards for lighters and barges
(regulation 27(14))

In applying Regulation 27(14) to deck cargo barges only a Type B freeboard should be assigned, even if the barges possess the same integrity of exposed decks and equivalent safety against flooding as normal tank barges. A Type A freeboard can be assigned only to liquid cargo barges. Furthermore deck cargo should be carried only on barges to which Type B freeboard is assigned.

IACS interpretation LL.42 Rev.1
Access openings on barges
(regulation 27(14)(c))

In applying Regulation 27(14)(c) only those openings which are less than 1.5 m² in area should be considered as "small access openings".

Access plates should be considered as being equivalent to an intact deck on unmanned barges, provided they are secured by closely spaced bolts, are properly gasketed and, for all practical purposes, have equivalent structural integrity and tightness as an intact deck.

Regulation 28
Freeboard tables

Type 'A' ships

- (1) The tabular freeboard for type 'A' ships shall be determined from table 28.1:

Table 28.1 - Freeboard table for type 'A' ships

Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)
24	200	78	814	132	1667
25	208	79	828	133	1684
26	217	80	841	134	1702
27	225	81	855	135	1719
28	233	82	869	136	1736
29	242	83	883	137	1753
30	250	84	897	138	1770
31	258	85	911	139	1787
32	267	86	926	140	1803
33	275	87	940	141	1820
34	283	88	955	142	1837
35	292	89	969	143	1853
36	300	90	984	144	1870
37	308	91	999	145	1886
38	316	92	1014	146	1903
39	325	93	1029	147	1919
40	334	94	1044	148	1935
41	344	95	1059	149	1952
42	354	96	1074	150	1968
43	364	97	1089	151	1984
44	374	98	1105	152	2000
45	385	99	1120	153	2016
46	396	100	1135	154	2032
47	408	101	1151	155	2048
48	420	102	1166	156	2064
49	432	103	1181	157	2080
50	443	104	1196	158	2096
51	455	105	1212	159	2111
52	467	106	1228	160	2126
53	478	107	1244	161	2141
54	490	108	1260	162	2155
55	503	109	1276	163	2169
56	516	110	1293	164	2184
57	530	111	1309	165	2198
58	544	112	1326	166	2212
59	559	113	1342	167	2226
60	573	114	1359	168	2240
61	587	115	1376	169	2254
62	600	116	1392	170	2268
63	613	117	1409	171	2281
64	626	118	1426	172	2294
65	639	119	1442	173	2307
66	653	120	1459	174	2320
67	666	121	1476	175	2332
68	680	122	1494	176	2345
69	693	123	1511	177	2357
70	706	124	1528	178	2369
71	720	125	1546	179	2381
72	733	126	1563	180	2393
73	746	127	1580	181	2405
74	760	128	1598	182	2416
75	773	129	1615	183	2428
76	786	130	1632	184	2440
77	800	131	1650	185	2451

Table 28.1 (continued)

Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)
186	2463	240	2946	294	3237
187	2474	241	2953	295	3241
188	2486	242	2959	296	3246
189	2497	243	2966	297	3250
190	2508	244	2973	298	3254
191	2519	245	2979	299	3258
192	2530	246	2986	300	3262
193	2541	247	2993	301	3266
194	2552	248	3000	302	3270
195	2562	249	3006	303	3274
196	2572	250	3012	304	3278
197	2582	251	3018	305	3281
198	2592	252	3024	306	3285
199	2602	253	3030	307	3288
200	2612	254	3036	308	3292
201	2622	255	3042	309	3295
202	2632	256	3048	310	3298
203	2641	257	3048	311	3302
204	2650	258	3054	312	3305
205	2659	259	3060	313	3308
206	2669	260	3066	314	3312
207	2678	261	3072	315	3315
208	2687	262	3078	316	3318
209	2696	263	3084	317	3322
210	2705	264	3089	318	3325
211	2714	265	3095	319	3328
212	2723	266	3101	320	3331
213	2732	267	3106	321	3334
214	2741	268	3112	322	3337
215	2749	269	3117	323	3339
216	2758	270	3123	324	3341
217	2767	271	3128	325	3345
218	2775	272	3133	326	3347
219	2784	273	3138	327	3350
220	2792	274	3143	328	3353
221	2801	275	3148	329	3355
222	2809	276	3153	330	3358
223	2817	277	3158	331	3361
224	2825	278	3163	332	3363
225	2833	279	3172	333	3366
226	2841	280	3176	334	3368
227	2849	281	3181	335	3371
228	2857	282	3185	336	3373
229	2865	283	3189	337	3375
230	2872	284	3194	338	3378
231	2880	285	3198	339	3380
232	2888	286	3202	340	3382
233	2895	287	3207	341	3385
234	2903	288	3211	342	3387
235	2910	289	3215	343	3389
236	2918	290	3220	344	3392
237	2925	291	3224	345	3394
238	2932	292	3228	346	3396
239	2939	293	3233	347	3399

Table 28.1 (continued)

Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)
348	3401	354	3414	360	3425
349	3403	355	3416	361	3427
350	3406	356	3418	362	3428
351	3408	357	3420	363	3430
352	3410	358	3422	364	3432
353	3412	359	3423	365	3433

Freeboards at intermediate lengths of ship shall be obtained by linear interpolation.
Ships above 365 m in length shall be dealt with by the Administration.

MCA Guidance

In regulation 28(1), Freeboard Table for Type 'A' Ships, the UK accepts IACS Unified Interpretation LL.18 Rev.1 (see below). [MGN 579 Table 2]

IACS interpretation LL.18 Rev.1
Freeboard Tables for Type A ships
(regulation 28(1))

(i) Freeboards for Type A ships with lengths between 365 m and 400 m should be determined by the following formula:

$$f = 221 + 16.10L - 0.02L^2$$

where f is the freeboard in millimetres

L is the length as defined in Regulation 3(1).

(ii) Freeboards for Type A ships with lengths of 400 m and above should be the constant value, 3460 millimetres.

Type 'B' ships

(2) The tabular freeboard for type 'B' ships shall be determined from table 28.2:

Table 28.2 - Freeboard table for type 'B' ships

Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)
24	200	78	850	132	1940
25	208	79	868	133	1959
26	217	80	887	134	1979
27	225	81	905	135	2000
28	233	82	923	136	2021
29	242	83	942	137	2043
30	250	84	960	138	2065
31	258	85	978	139	2087
32	267	86	996	140	2109
33	275	87	1015	141	2130
34	283	88	1034	142	2151
35	292	89	1054	143	2171
36	300	90	1075	144	2190
37	308	91	1096	145	2209
38	316	92	1116	146	2229
39	325	93	1135	147	2250
40	334	94	1154	148	2271
41	344	95	1172	149	2293
42	354	96	1190	150	2315
43	364	97	1209	151	2334
44	374	98	1229	152	2354
45	385	99	1250	153	2375
46	396	100	1271	154	2396
47	408	101	1293	155	2418
48	420	102	1315	156	2440
49	432	103	1337	157	2460
50	443	104	1359	158	2480
51	455	105	1380	159	2500
52	467	106	1401	160	2520
53	478	107	1421	161	2540
54	490	108	1440	162	2560
55	503	109	1459	163	2580
56	516	110	1479	164	2600
57	530	111	1500	165	2620
58	544	112	1521	166	2640
59	559	113	1543	167	2660
60	573	114	1565	168	2680
61	587	115	1587	169	2698
62	601	116	1609	170	2716
63	615	117	1630	171	2735
64	629	118	1651	172	2754
65	644	119	1671	173	2774
66	659	120	1690	174	2795
67	674	121	1709	175	2815
68	689	122	1729	176	2835
69	705	123	1750	177	2855
70	721	124	1771	178	2875
71	738	125	1793	179	2895
72	754	126	1815	180	2915
73	769	127	1837	181	2933
74	784	128	1859	182	2952
75	800	129	1880	183	2970
76	816	130	1901	184	2988
77	833	131	1921	185	3007

Table 28.2 (continued)

Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)
186	3025	240	3880	294	4560
187	3044	241	3893	295	4572
188	3062	242	3906	296	4583
189	3080	243	3920	297	4595
190	3098	244	3934	298	4607
191	3116	245	3949	299	4618
192	3134	246	3965	300	4630
193	3151	247	3978	301	4642
194	3167	248	3992	302	4654
195	3185	249	4005	303	4665
196	3202	250	4018	304	4676
197	3219	251	4032	305	4686
198	3235	252	4045	306	4695
199	3249	253	4058	307	4704
200	3264	254	4072	308	4714
201	3280	255	4085	309	4725
202	3296	256	4098	310	4736
203	3313	257	4112	311	4748
204	3330	258	4125	312	4757
205	3347	259	4139	313	4768
206	3363	260	4152	314	4779
207	3380	261	4165	315	4790
208	3397	262	4177	316	4801
209	3413	263	4189	317	4812
210	3430	264	4201	318	4823
211	3445	265	4214	319	4834
212	3460	266	4227	320	4844
213	3475	267	4240	321	4855
214	3490	268	4252	322	4866
215	3505	269	4264	323	4878
216	3520	270	4276	324	4890
217	3537	271	4289	325	4899
218	3554	272	4302	326	4909
219	3570	273	4315	327	4920
220	3586	274	4327	328	4931
221	3601	275	4339	329	4943
222	3615	276	4350	330	4955
223	3630	277	4362	331	4965
224	3645	278	4372	332	4975
225	3660	279	4385	333	4985
226	3675	280	4397	334	4995
227	3690	281	4408	335	5005
228	3705	282	4420	336	5015
229	3720	283	4432	337	5025
230	3735	284	4443	338	5035
231	3750	285	4455	339	5045
232	3765	286	4467	340	5055
233	3780	287	4478	341	5065
234	3795	288	4490	342	5075
235	3808	289	4502	343	5086
236	3821	290	4513	344	5097
237	3835	291	4525	345	5108
238	3849	292	4537	346	5119
239	3864	293	4548	347	5130

Table 28.2 (continued)

Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)
348	5140	354	5200	360	5260
349	5150	355	5210	361	5268
350	5160	356	5220	362	5276
351	5170	357	5230	363	5285
352	5180	358	5240	364	5294
353	5190	359	5240	365	5303

Freeboards at intermediate lengths of ship shall be obtained by linear interpolation. Ships above 365 m in length shall be dealt with by the Administration.

<u>MCA Guidance</u>
In regulation 28(2), Freeboard Table for Type 'B' Ships, the UK accepts IACS Unified Interpretation LL.18 Rev.1 (see below). [MGN 579 Table 2]

<u>IACS interpretation LL.18 Rev.1</u> Freeboard Tables for Type B ships (regulation 28(2))
(i) Freeboards for Type B ships with lengths between 365 m and 400 m should be determined by the following formula: $f = -587 + 23L - 0.0188L^2$ where f is the freeboard in millimetres L is the length as defined in Regulation 3(1).
(ii) Freeboards for Type B ships with lengths of 400 m and above should be the constant value, 5605 millimetres.

Regulation 29
Correction to the freeboard for ships under 100 m in length

The tabular freeboard for a type 'B' ship of between 24 m and 100 m in length having enclosed superstructures with an effective length of up to 35% of the length of the ship shall be increased by:

$$7.5 (100 - L) \left(0.35 - \frac{E_1}{L}\right) \text{ (mm)}$$

where L is the length of the ship in m; and

E_1 is the effective length E of superstructure in m as defined in regulation 35, but excluding the length of trunks.

<u>IACS interpretation LL.41 Rev.1</u> Trunks (regulation 29); See also regulations 31, 35, 36, 37 and 38
Where the length of a trunk, corrected for breadth and height as may be appropriate, can be included in the effective length used for calculating the correction for superstructures in accordance with Regulation 37, it should not be taken into account for calculating the total length S for the purpose of sheer correction according to regulation 38(13).
The effective length of superstructures (E) which is used for calculating the freeboard correction according to Regulation 29 should be determined excluding the length of trunks.

The inclusion of a trunk in the calculation of freeboard need not prohibit the fitting of openings in the bulkheads of adjacent superstructures such as poops, bridges or forecastles provided there is no direct communication between the superstructure and the trunk.

The sides of a trunk included in the calculation of freeboard should be intact. Sidescuttles of the non-opening type and bolted manhole covers may be allowed.

Regulation 30 Correction for block coefficient

Where the block coefficient (C_b) exceeds 0.68, the tabular freeboard specified in regulation 28 as modified, if applicable, by regulations 27(8), 27(10) and 29 shall be multiplied by the factor:

$$\frac{C_b + 0.68}{1.36}$$

The block coefficient is not to be taken greater than 1.0.

Regulation 31 Correction for depth

(1) Where D exceeds $\frac{L}{15}$ the freeboard shall be increased by $(D - \frac{L}{15})R$ mm, where R is $\frac{L}{0.48}$ at lengths less than 120 m and 250 at 120 m length and above.

(2) Where D is less than $\frac{L}{15}$ no reduction shall be made, except in a ship with an enclosed superstructure covering at least 0.6L amidships, with a complete trunk, or combination of detached enclosed superstructures and trunks which extend all fore and aft, where the freeboard shall be reduced at the rate prescribed in paragraph (1).

(3) Where the height of the superstructure or trunk is less than the corresponding standard height, the calculated reduction shall be corrected in the ratio of the height of the actual superstructure or trunk to the applicable standard height, as defined in regulation 33.

IACS interpretation LL.41 Rev.1

Trunks

(regulation 31);

See also regulations 29, 35, 36, 37 and 38

For full text see under regulation 29.

Regulation 32 Correction for position of deck line

Where the actual depth to the upper edge of the deck line is greater or less than D , the difference between the depths shall be added to or deducted from the freeboard.

Regulation 32-1 Correction for recess in freeboard deck

(1) Where a recess is arranged in the freeboard deck, and it does not extend to the sides of the ship, the freeboard calculated without regard to the recess shall be corrected for the consequent loss of buoyancy. The correction shall be equal to the value obtained by dividing the volume of the recess by the waterplane area of the ship at 85% of the least moulded depth (see figure 32-1.1).

(2) The correction shall be an addition to the freeboard obtained after all other corrections have been applied, except bow height correction.

(3) Where the freeboard, corrected for lost buoyancy as above, is greater than the minimum geometric freeboard determined on the basis of a moulded depth measured to the bottom of the recess, the latter value may be used.

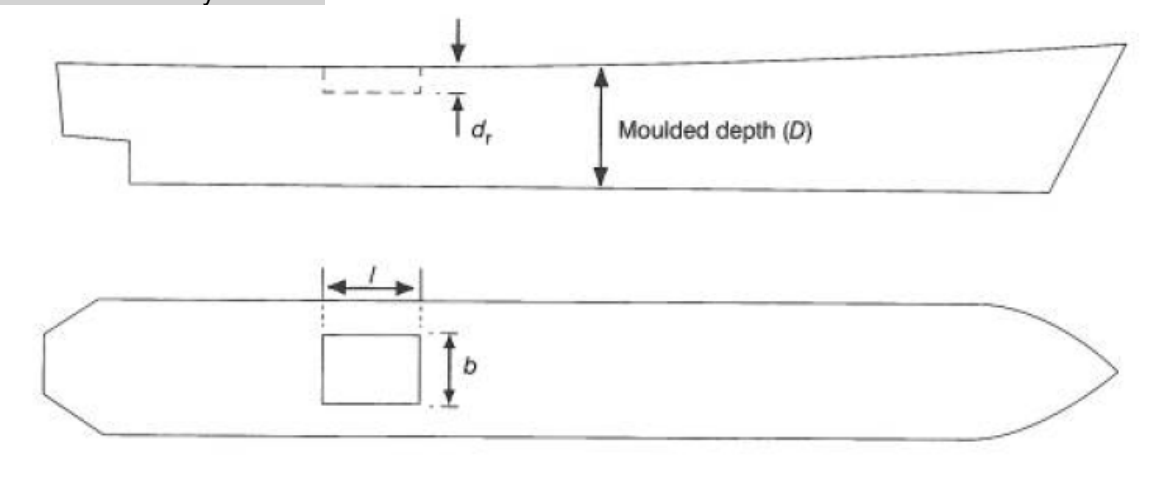


Figure 32-1.1

Correction is the addition to freeboard equal to:

$$\frac{l \times b \times d_r}{\text{WP Area at } 0.85D}$$

Regulation 33
Standard height of superstructure

The standard height of a superstructure shall be as given in the following table:

L (m)	Standard height (m)	
	Raised quarterdeck	All other superstructures
30 or less	0.9	1.8
75	1.2	1.8
125 or more	1.8	2.3

Figure 33.1

The standard heights at intermediate lengths of the ship shall be obtained by linear interpolation.

Regulation 34
Length of superstructure

(1) Except as provided in paragraph (2), the length of a superstructure (S) shall be the mean length of the parts of the superstructure which lie within the length (L).

Where a superstructure bulkhead is recessed, the effective length of the superstructure shall be reduced by an amount equal to the area of the recess in plan view divided by the breadth of the superstructure at the mid-length of the recess. Where the recess is unsymmetrical about the centreline, the largest portion of the recess shall be considered as applying to both sides of the ship. A recess need not be decked over.

IACS interpretation LL.15
(ref. LL.3/Circ.162 paragraph 1)
Length of superstructure
regulation 34(1)

Where a cargo hatchway, complying with the requirements of regulation 16 and having a coaming height that extends above the level of the superstructure deck, is fitted in the recess and covering the whole area of the recess, the hatchway may be taken into account as forming a part of the superstructure, and the effective length of the superstructure need not be reduced by the amount equivalent in area to the area of the recess.

The hatchway coaming height should be in accordance with Regulation 16(1), measured from the superstructure deck level.

(2) Where the end bulkhead of an enclosed superstructure extends in a fair convex curve beyond its intersection with the superstructure sides, the length of the superstructure may be increased on the basis of an equivalent plane bulkhead. This increase shall be two-thirds of the fore and aft extent of the curvature. The maximum curvature which may be taken into account in determining this increase is one-half the breadth of the superstructure at the point of intersection of the curved end of the superstructure with its side.

Where there is an extension to a superstructure, which extension has a breadth on each side of the centre line at least 30% of the breadth of the ship, the effective length of the superstructure may be increased by considering an equivalent superstructure bulkhead in the form of a parabola. This parabola shall extend from the extension at the centreline and pass through the junction of the actual superstructure bulkhead with the sides of the extension and extend to the sides of the ship. This parabola shall be completely contained within the boundary of the superstructure and its extensions.

If the superstructure is set-in from the side, up to the limit allowed under regulation 3(10), the equivalent bulkhead should be calculated on the basis of the actual breadth of the superstructure (and not the breadth of the ship).

(3) Superstructures which have sloped end bulkheads shall be dealt with in the following manner:

- (a) When the height of superstructure, clear of the slope, is equal to or smaller than the standard height, length S is to be obtained as shown in figure 34.1.
- (b) When the height is greater than the standard, length S is to be obtained as shown in figure 34.2.
- (c) The foregoing will apply only when the slope, related to the base line, is 15° or greater. Where the slope is less than 15°, the configuration shall be treated as sheer.

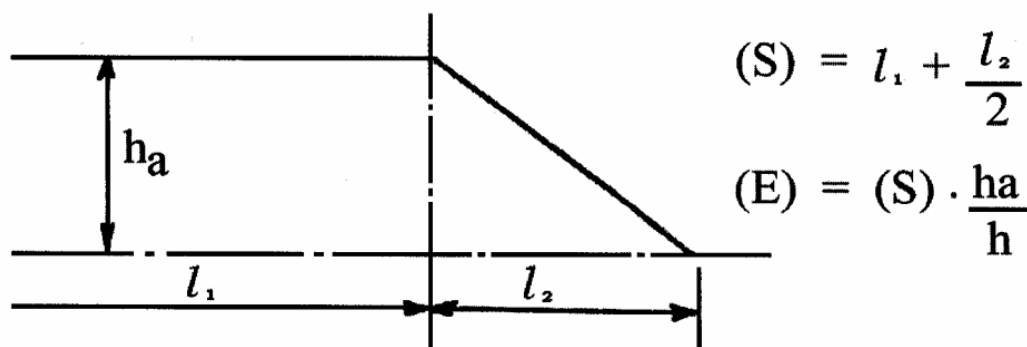


Figure 34.1 Height of superstructure equal to or smaller than the standard height h

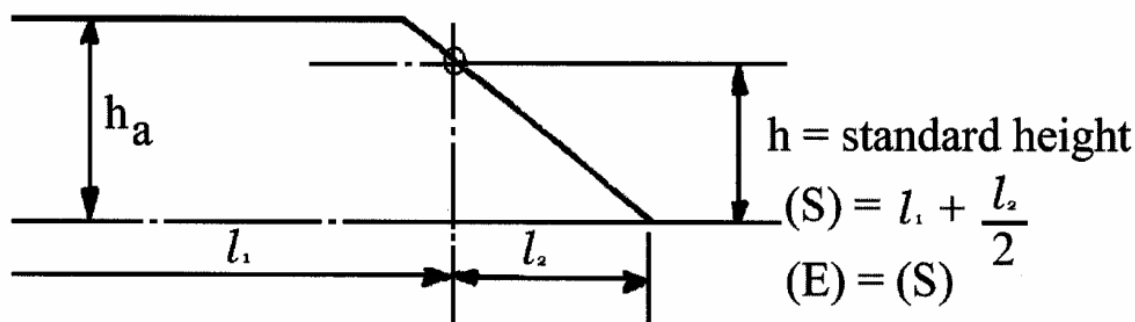


Figure 34.2 - Height of superstructure greater than the standard height

Regulation 35
Effective length of superstructure

(1) Except as provided for in paragraph (2), the effective length (E) of an enclosed superstructure of standard height shall be its length.

(2) In all cases where an enclosed superstructure of standard height is set-in from the sides of the ship as permitted in regulation 3(10), the effective length shall be the length modified by the ratio of b/B_s , where:

b is the breadth of the superstructure at the middle of its length; and

B_s is the breadth of the ship at the middle of the length of the superstructure.

Where a superstructure is set-in for a part of its length, this modification shall be applied only to the set-in part.

(3) Where the height of an enclosed superstructure is less than the standard height, the effective length shall be its length reduced in the ratio of the actual height to the standard height. Where the height exceeds the standard, no increase shall be made to the effective length of the superstructure (see figures 34.1 and 34.2).

Where the height, clear of the slope, of a superstructure which has sloped end bulkheads is less than the standard height, its effective length E shall be its length S as obtained from figure 34.1, reduced in the ratio of the actual height to the standard height.

Where a poop or forecastle of less than standard height is fitted on a ship with excessive sheer but without any superstructure within 0.2L amidships, credit may be given to the height of the poop or forecastle by increasing the actual height by the difference between the actual and the standard sheer profiles. The deduction for excess sheer in accordance with regulation 38(16) is not to be granted.

(4) The effective length of a raised quarter deck, if fitted with an intact front bulkhead, shall be its length up to a maximum of 0.6L. Where the bulkhead is not intact, the raised quarter deck shall be treated as a poop of less than standard height.

The maximum effective length of 0.6L of a raised quarterdeck is to be measured from the after perpendicular, even where a poop is fitted in conjunction with the raised quarterdeck.

IACS interpretation

Effective length of superstructure
(regulation 35(3) and (4));

See Load Line Consolidated Edition page 224

With particular regard to the length of raised quarter-deck in paragraphs (3) and (4) of this regulation, the following interpretation applies:

In a ship with a superstructure which extends over the whole length of the freeboard deck, the part of the superstructure from the after perpendicular up to a maximum of 0.6L may be treated as a raised quarter-deck. In this respect, if no watertight front bulkhead is fitted the bow may be considered to act as such.

The length limit imposed by paragraph (4) of this regulation for a raised quarter-deck of less than standard height applies to the length calculated as indicated in paragraph (3) of this regulation.

- (5) Superstructures which are not enclosed shall have no effective length.

IACS interpretation LL.41 Rev.1

Trunks

(regulation 35);

See also regulations 29, 31, 36, 37 and 38

For full text see under regulation 29.

Regulation 36
Trunks

- (1) A trunk or similar structure which does not extend to the sides of the ship shall be regarded as efficient on the following conditions:

- (a) the trunk is at least as strong as a superstructure;
- (b) the hatchways are in the trunk deck, the hatchway coamings and covers comply with the requirements of regulations 13 to 16 inclusive and the width of the trunk deck stringer provides a satisfactory gangway and sufficient lateral stiffness. However, small access openings with watertight covers may be permitted in the freeboard deck;
- (c) a permanent working platform fore and aft fitted with guard rails is provided by the trunk deck, or by detached trunks connected to superstructures by efficient permanent gangways;
- (d) ventilators are protected by the trunk, by watertight covers or by other equivalent means;
- (e) open rails are fitted on the weather parts of the freeboard deck in way of the trunk for at least half their length or, alternatively, freeing port area in the lower part of the bulwarks, subject to regulation 24(2), of 33% of the total area of the bulwarks is provided;
- (f) the machinery casings are protected by the trunk, by a superstructure of at least standard height, or by a deckhouse of the same height and of equivalent strength;
- (g) the breadth of the trunk is at least 60% of the breadth of the ship; and
- (h) where there is no superstructure, the length of the trunk is at least 0.6L.

- (2) The full length of an efficient trunk reduced in the ratio of its mean breadth to B shall be its effective length.

- (3) The standard height of a trunk is the standard height of a superstructure other than a raised quarter deck.

- (4) Where the height of a trunk is less than the standard height, its effective length shall be reduced in the ratio of the actual to the standard height. Where the height of hatchway coamings on the trunk deck is less than that required under regulation 14-1, a reduction from the actual height of trunk shall be made which corresponds to the difference between the actual and the required height of coaming.

(5) Where the trunk height is less than standard and the trunk hatch coamings are also of less than standard height, or omitted entirely, the reduction from the actual height of trunk on account of insufficient hatch coaming height shall be taken as the difference between 600 mm and the actual height of coaming, or 600 mm if no hatch coamings are fitted. Reduction in the actual height of trunk shall not be required in cases where only small hatches with less than standard height are fitted in the trunk deck for which dispensation from the requirement of standard coaming height may be given.

(6) Continuous hatchways may be treated as a trunk in the freeboard computation, provided the provisions of this paragraph are complied with in all respects.

The trunk deck stringer referred to in paragraph (1)(b) may be fitted outboard of the trunk side bulkhead in association with the following:

- (a) the stringer so formed is to provide a clear walkway of at least 450 mm in width on each side of the ship;
- (b) the stringer is to be of solid plate, efficiently supported and stiffened;
- (c) the stringer is to be as high above the freeboard deck as practicable. In the freeboard calculation, the trunk height is to be reduced by at least 600 mm or by the actual difference between the top of the trunk and the stringer, whichever is greater;
- (d) hatch cover securing appliances are to be accessible from the stringer or walkway; and
- (e) the breadth of the trunk is to be measured between the trunk side bulkheads.

(7) Where the trunk adjoining the superstructures such as poop, bridge or forecastle is included in the calculation of freeboard, openings shall not be arranged in that part of the bulkhead which is common for the trunk and superstructure. A relaxation may be made for small openings such as for piping, cable or manholes with covers attached by means of bolts.

(8) The sides of a trunk included in the calculation of freeboard shall be intact. Side scuttles of the non-opening type and bolted manhole covers may be allowed.

<p>IACS interpretation LL.41 Rev.1 Trunks (regulation 36); See also regulations 29, 31, 35, 37 and 38</p>
<p>For full text see under regulation 29.</p>

Regulation 37
Deduction for superstructures and trunks

(1) Where the effective length of superstructures and trunks is 1L, the deduction from the freeboard shall be 350 mm at 24 m length of ship, 860 mm at 85 m length and 1070 mm at 122 m length and above; deductions at intermediate lengths shall be obtained by linear interpolation.

(2) Where the total effective length of superstructures and trunks is less than 1L, the deduction shall be a percentage obtained from the following table:

Table 37.1 - Percentage of deduction for type 'A' and 'B' ships

	Total effective length of superstructures and trunks										
	0	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	1L
Percentage of deduction for all types of superstructure	0	7	14	21	31	41	52	63	75.3	87.7	100

Percentages at intermediate lengths of superstructures and trunks shall be obtained by linear interpolation.

Percentage of deduction for type 'B' ships

	Line	Total effective length of superstructures and trunks										
		0	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	1L
Ships with forecastle and without detached bridge	I	0	5	10	15	23.5	32	46	63	75.3	87.7	100
Ships with forecastle and detached bridge	II	0	6.3	12.7	19	27.5	36	46.2	63	75.3	87.7	100

Percentages at intermediate lengths of superstructures and trunks shall be obtained by linear interpolation.

(3) For ships of type 'B' where the effective length of a forecastle is less than 0.07L, no deduction is allowed.

(a) Where the effective length of a bridge is less than 0.2 L, the percentages shall be obtained by linear interpolation between lines I and II.

(b) Where the effective length of a forecastle is more than 0.4L, the percentages shall be obtained from line II.

(c) Where the effective length of a forecastle is less than 0.07L, the above percentages shall be reduced by:

$$\frac{5 \times (0.07L - f)}{0.07L}$$

where f is the effective length of the forecastle.

IACS interpretation LL.41 Rev.1
Trunks
(regulation 37);
See also regulations 29, 31, 35, 36 and 38

For full text see under regulation 29.

Unified interpretation
(Ref. MSC.1/Circ.1535/Rev.2, dated May 9, 2022)
Regulation 37(3) – Deduction for superstructures and trunks

For ships assigned a type "B" freeboard, including reduced type "B", if the effective length of a forecastle is less than 0.07 L, a superstructure deduction cannot be applied to the ship.

For example, if the ship has no forecastle, or the effective length of the forecastle is less than 0.07 L, and has other superstructure, no superstructure deduction is to be applied.

In case the ship has a full superstructure (one that extends from AP to FP, per regulation 3(10)(h) of Annex B of the 1988 Load Lines Protocol), the deduction for a superstructure may be applied in accordance with regulation 37(1) of Annex B of the 1988 Load Lines Protocol.

Regulation 38 Sheer

General

- (1) The sheer shall be measured from the deck at side to a line of reference drawn parallel to the keel through the sheer line amidships.
- (2) In ships designed with a rake of keel, the sheer shall be measured in relation to a reference line drawn parallel to the design load waterline.
- (3) In flush deck ships and in ships with detached superstructures the sheer shall be measured at the freeboard deck.
- (4) In ships with topsides of unusual form in which there is a step or break in the topsides, the sheer shall be considered in relation to the equivalent depth amidships.
- (5) In ships with a superstructure of standard height which extends over the whole length of the freeboard deck, the sheer shall be measured at the superstructure deck. Where the height exceeds the standard, the least difference (Z) between the actual and standard heights shall be added to each end ordinate. Similarly, the intermediate ordinates at distances of $1/6L$ and $1/3L$ from each perpendicular shall be increased by $0.444Z$ and $0.111Z$, respectively. Where there is an enclosed poop or forecastle superimposed on the superstructure, sheer credit shall be allowed for such a poop or forecastle, according to the method of paragraph (12) as shown in figure 38.1.

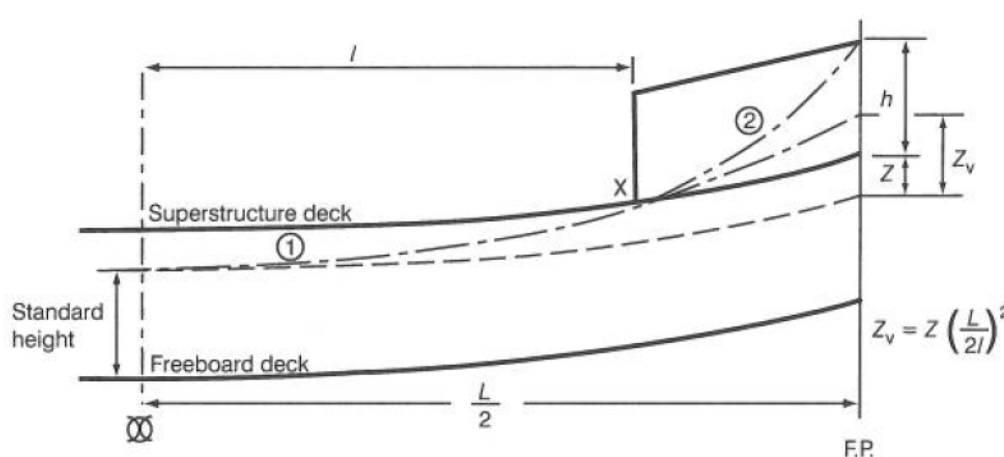


Figure 38.1

- (6) Where the deck of an enclosed superstructure has at least the same sheer as the exposed freeboard deck, the sheer of the enclosed portion of the freeboard deck shall not be taken into account.
- (7) Where an enclosed poop or forecastle is of standard height with greater sheer than that of the freeboard deck, or is of more than standard height, an addition to the sheer of the freeboard deck shall be made as provided in paragraph (12).

Where a poop or forecastle consists of two layers, the method shown in figure 38.2 shall be used.

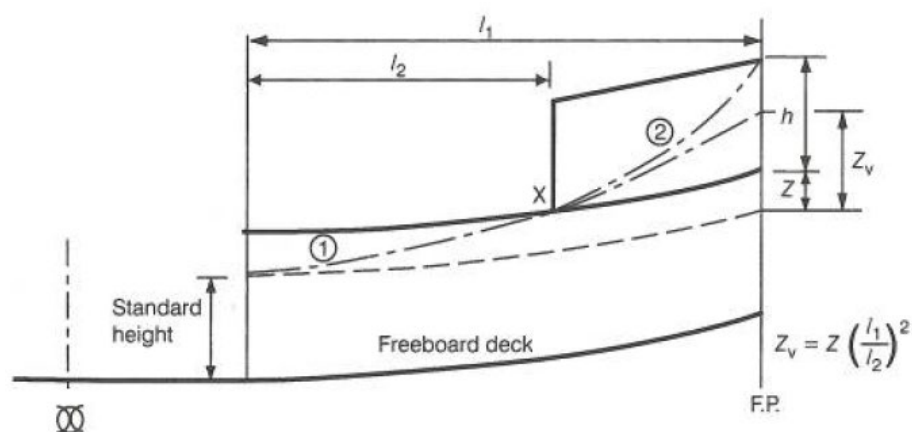


Figure 38.2

In figures 38.1 and 38.2, the following definitions apply:

Z is as defined in paragraph (5); and

Z_v is the end ordinate of a virtual standard parabolic curve taken through the point "X". If Z_v is greater than $(Z + h)$, the end ordinate shall be $(Z + h)$, in which case point "X" shall be disregarded and curve (2) not taken into account.

When the length of the first tier superstructure is greater than $0.5l$, the virtual standard parabolic curve shall commence at amidships as indicated in figure 38.1

Standard shear profile

(8) The ordinates of the standard shear profile are given in the following table:

Table 38.1 - Standard shear profile
(where L is in metres)

	Station	Ordinate (in mm)	Factor
After half	After perpendicular	$25 (L/3 + 10)$	1
	$1/6 L$ from A.P.	$11.1 (L/3 + 10)$	3
	$1/3 L$ from A.P.	$2.8 (L/3 + 10)$	3
	Amidships	0	1
Forward half	Amidships	0	1
	$1/3 L$ from F.P.	$5.6 (L/3 + 10)$	3
	$1/6 L$ from F.P.	$22.2 (L/3 + 10)$	3
	Forward perpendicular	$50 (L/3 + 10)$	1

Measurement of variation from standard shear profile

(9) Where the shear profile differs from the standard, the four ordinates of each profile in the forward or after half shall be multiplied by the appropriate factors given in the above table of ordinates. The difference between the sums of the respective products and those of the standard divided by 8 measures the deficiency or excess of shear in the forward or after half. The arithmetical mean of the excess or deficiency in the forward and after halves measures the excess or deficiency of shear.

(10) Where the after half of the sheer profile is greater than the standard and the forward half is less than the standard, no credit shall be allowed for the part in excess and deficiency only shall be measured.

(11) Where the forward half of the sheer profile exceeds the standard, and the after portion of the sheer profile is not less than 75% of the standard, credit shall be allowed for the part in excess. Where the after part is less than 50% of the standard no credit shall be given for the excess sheer forward. Where the after sheer is between 50% and 75% of the standard, intermediate allowances may be granted for excess sheer forward.

(12) Where sheer credit is given for a poop or forecastle the following formula shall be used:

$$s = \frac{yL'}{3L}$$

where: s is the sheer credit, to be deducted from the deficiency, or added to the excess of sheer;

y is the difference between actual and standard height of superstructure at the after or forward perpendicular;

L' is the mean enclosed length of poop or forecastle up to a maximum length of 0.5 L ; and

L is the length of the ship as defined in regulation 3(1).

The above formula provides a curve in the form of a parabola tangent to the actual sheer curve at the freeboard deck and intersecting the end ordinate at a point below the superstructure deck a distance equal to the standard height of a superstructure. The superstructure deck shall not be less than standard height above this curve at any point. This curve shall be used in determining the sheer profile for forward and after halves of the ship.

(13) (a) Any excess in the height of a superstructure which does not extend to the after perpendicular cannot be regarded as contributing to the sheer allowance.

(b) Where the height of a superstructure is less than standard, the superstructure deck shall not be less than the minimum height of the superstructure above the virtual sheer curve at any point. For this purpose y shall be taken as the difference between the actual and minimum height of the superstructure at the after/forward perpendicular.

(c) For a raised quarterdeck credit may be given only when the height of this quarterdeck is greater than the standard height of 'other superstructures' as defined in regulation 33, and only for the amount by which the actual height of the raised quarterdeck exceeds that standard height.

(d) When a poop or a forecastle has sloping end bulkheads, the sheer credit may be allowed on account of excess height. The formula given in paragraph (12) shall be used, the values for y and L' being as shown in figure 38.3.

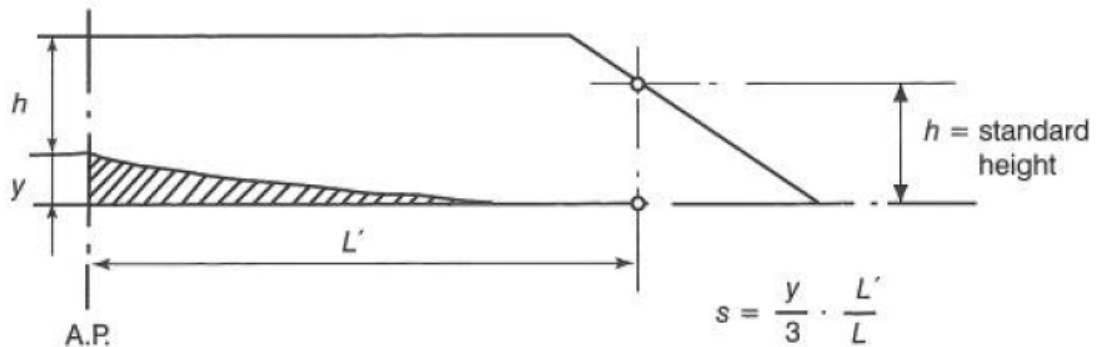


Figure 38.3 – Sheer credit s for excess height

Correction for variations from standard shear profile

(14) The correction for sheer shall be the deficiency or excess of sheer (see paragraphs (9) to (11) inclusive), multiplied by

$$0.75 - \frac{S_1}{2L}$$

where S_1 is the total length S of enclosed superstructures as defined in regulation 34 without trunks.

Addition for deficiency in sheer

(15) Where the sheer is less than the standard, the correction for deficiency in sheer (see paragraph (14)) shall be added to the freeboard.

Deduction for excess sheer

(16) In ships where an enclosed superstructure covers 0.1L before and 0.1L abaft amidships, the correction for excess of sheer as calculated under the provisions of paragraph (14) shall be deducted from the freeboard; in ships where no enclosed superstructure covers amidships, no deduction shall be made from the freeboard; where an enclosed superstructure covers less than 0.1L before and 0.1L abaft amidships, the deduction shall be obtained by linear interpolation. The maximum deduction for excess sheer shall be at the rate of 125 mm per 100 m of length.

In applying this paragraph, the height of the superstructure shall be related to its standard height. Where the height of the superstructure or raised quarterdeck is less than standard, the reduction shall be in the ratio of the actual to the standard height thereof.

IACS interpretation LL.41 Rev.1
Trunks
(regulation 38);
See also regulations 29, 31, 35, 36 and 37
For full text see under regulation 29.

Regulation 39
Minimum bow height and reserve buoyancy

(1) The bow height (F_b), defined as the vertical distance at the forward perpendicular between the waterline corresponding to the assigned summer freeboard and the designed trim and the top of the exposed deck at side, shall be not less than:

$$F_b = (6075(L/100) - 1875(L/100)^2 + 200(L/100)^3) \times (2.08 + 0.609C_b - 1.603C_{wf} - 0.0129(L/d_1))$$

where:

F_b is the calculated minimum bow height, in millimetres;

L is the length, as defined in regulation 3, in metres;

B is the moulded breadth, as defined in regulation 3, in metres;

d_1 is the draught at 85% of the **least moulded** depth D , in metres; [see MSC.223(82)]

C_b is the block coefficient, as defined in regulation 3;

C_{wf} is the waterplane area coefficient forward of $L/2$: $C_{wf} = A_{wf} / \{(L/2) \times B\}$;

A_{wf} is the waterplane area forward of $L/2$ at draught d_1 , in square metres.

For ships to which timber freeboards are assigned, the summer freeboard (and not the timber summer freeboard) is to be assumed when applying paragraph (1).

(2) Where the bow height required in paragraph (1) is obtained by sheer, the sheer shall extend for at least 15% of the length of the ship measured from the forward perpendicular. Where it is obtained by fitting a superstructure, such superstructure shall extend from the stem to a point at least $0.07L$ abaft the forward perpendicular, and shall be enclosed as defined in regulation 3(10).

(3) Ships which, to suit exceptional operational requirements, cannot meet the requirements of paragraphs (1) and (2) of this regulation may be given special consideration by the Administration.

MCA Guidance

This will be decided on a case-by-case basis by the Secretary of State. [MGN 579, Table 2]
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(4) (a) The sheer of the forecastle deck may be taken into account, even if the length of the forecastle is less than $0.15L$, but greater than $0.07L$, provided that the forecastle height is not less than one half of standard height of superstructure as defined in regulation 33 between $0.07L$ and the forward perpendicular.

(b) Where the forecastle height is less than one half of the standard height of superstructure, as defined in regulation 33, the credited bow height may be determined as follows:

(i) Where the freeboard deck has sheer extending from abaft $0.15L$, by a parabolic curve having its origin at $0.15L$ abaft the forward perpendicular at a height equal to the midship depth of the ship, extended through the point of intersection of forecastle bulkhead and deck, and up to a point at the forward perpendicular not higher than the level of the forecastle deck (as illustrated in figure 39.1). However, if the value of the height denoted h_t in figure 39.1 is smaller than the value of the height denoted h_b then h_t may be replaced by h_b in the available bow height.

(ii) Where the freeboard deck has sheer extending for less than $0.15L$ or has no sheer, by a line from the forecastle deck at side at $0.07L$ extended parallel to the base line to the forward perpendicular (as illustrated in figure 39.2).

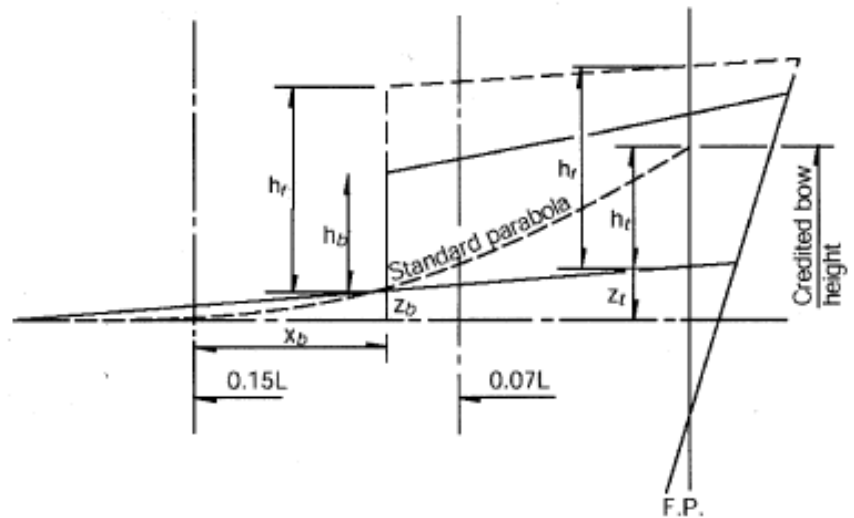


Figure 39.1

$$h_t = Z_b \frac{(0.15L)^2}{x_b} - Z_t$$

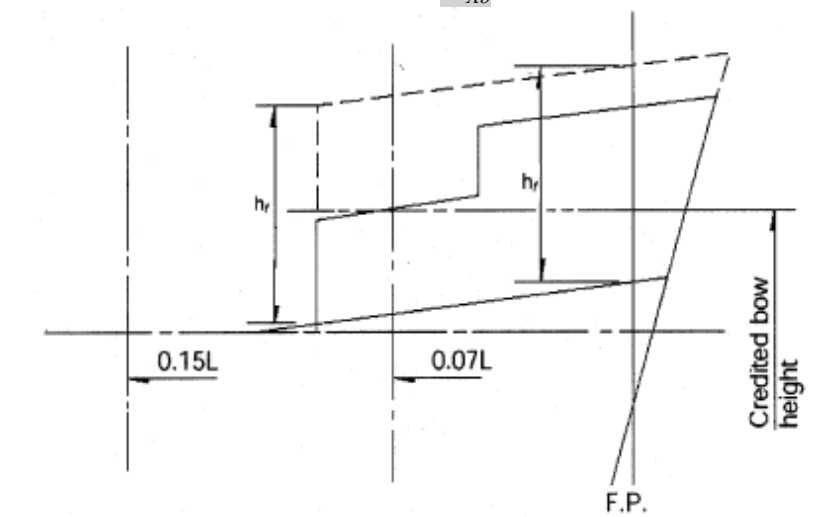


Figure 39.2

$$h_f = \text{Half standard height of superstructure as defined in regulation 33}$$

(5) All ships assigned a type 'B' freeboard, other than oil tankers*, chemical tankers* and gas carriers*, shall have additional reserve buoyancy in the fore end. Within the range of 0.15L abaft of the forward perpendicular, the sum of the projected area between the summer load waterline and the deck at side (A1 and A2 in figure 39.3) and the projected area of an enclosed superstructure, if fitted, (A3) shall not be less than:

$$(0.15F_{min} + 4(L/3 + 10))L/1000 \text{ (m}^2\text{)},$$

where: F_{min} is calculated by: $F_{min} = (F_0 \times f_1) + f_2$;

F_0 is the tabular freeboard, in millimetres, taken from table 28.2, corrected for regulation 27(9) or 27(10), as applicable;

f_1 is the correction for block coefficient given in regulation 30; and

f_2 is the correction for depth, in millimetres, given in regulation 31 .

* Oil tankers, chemical tankers and gas carriers are defined in the International Convention for the Safety of Life at Sea (SOLAS), 1974, regulations II-1/2.12, VII/8.2 and VII/11.2, respectively.

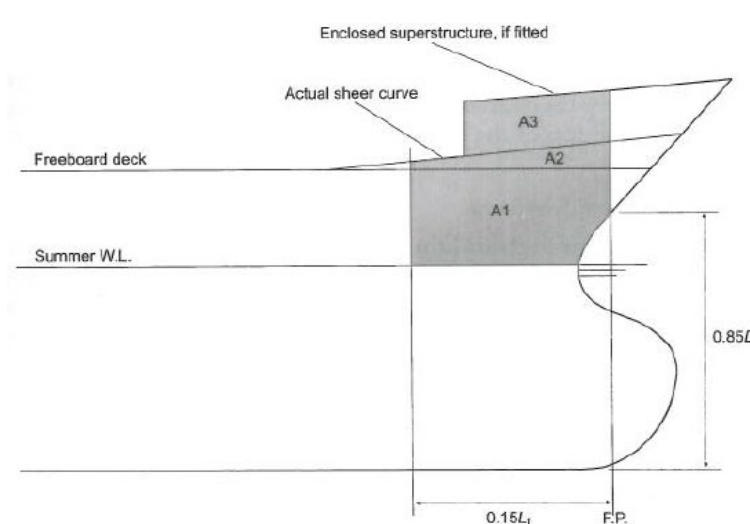


Figure 39.3

**Regulation 40
Minimum freeboards**

Summer freeboard

(1) The minimum freeboard in summer shall be the freeboard derived from the tables in regulation 28, as modified by the corrections in regulations 27, as applicable, 29, 30, 31, 32, 37, 38 and, if applicable, 39.

IACS interpretation LL.48/Rev.2
Also applies to the interpretation of moulded depth (regulations 3(5)(c) and (9))
For full text see under (regulation 3(5)(c))

IACS interpretation
Minimum freeboards
(regulation 40(1)); see also regulation 3(5)(c) and 3(9)
Ref: Load Line Consolidated Edition page 229

When the geometric freeboard calculated in accordance with paragraph (1) is less than the minimum freeboard allowed by paragraph (2) of this regulation, the corrections for winter freeboard and Winter North Atlantic freeboard should be added to the allowed minimum summer freeboard and not to the calculated value. Similarly, the allowance for fresh water should be a deduction from the allowed minimum freeboard.

(2) The freeboard in salt water, as calculated in accordance with paragraph (1), but without the correction for deck line, as provided by regulation 32, shall not be less than 50 mm. For ships having in position 1 hatchways with covers which do not comply with the requirements of regulation 16(1) through (5) or regulation 26, the freeboard shall be not less than 150 mm.

Tropical freeboard

(3) The minimum freeboard in the Tropical Zone shall be the freeboard obtained by a deduction from the summer freeboard of one forty-eighth of the summer draught measured from the top of the keel to the centre of the ring of the load line mark.

(4) The freeboard in salt water, as calculated in accordance with paragraph (3), but without the correction for deck line, as provided by regulation 32, shall not be less than 50 mm. For ships having in position 1 hatchways with covers which do not comply with the requirements of regulation 16(1) through (5) or regulation 26, the freeboard shall be not less than 150 mm.

Winter freeboard

(5) The minimum freeboard in winter shall be the freeboard obtained by an addition to the summer freeboard of one forty-eighth of summer draught, measured from the top of the keel to the centre of the ring of the load line mark.

Winter North Atlantic freeboard

(6) The minimum freeboard for ships of not more than 100 m in length which enter any part of the North Atlantic defined in regulation 52 (Annex II) during the winter seasonal period shall be the winter freeboard plus 50 mm. For other ships, the winter North Atlantic freeboard shall be the winter freeboard.

Fresh water freeboard

(7) The minimum freeboard in fresh water of unit density shall be obtained by deducting from the minimum freeboard in salt water:

$$\frac{\Delta}{40T} \quad (\text{cm})$$

where: Δ is the displacement in salt water in tonnes at the summer load waterline; and

T is the tonnes per centimetre immersion in salt water at the summer load waterline.

(8) Where the displacement at the summer load waterline cannot be certified, the deduction shall be one forty-eighth of summer draught, measured from the top of the keel to the centre of the ring of the load line mark.

CHAPTER IV SPECIAL REQUIREMENTS FOR SHIPS ASSIGNED TIMBER FREEBOARD

Regulation 41 Application of this chapter

Regulations 42 to 45 inclusive apply only to ships to which timber load lines are assigned.

Regulation 42 Definitions

(1) *Timber deck cargo.* The term "timber deck cargo" means a cargo of timber carried on an uncovered part of a freeboard deck. The term does not include wood pulp or similar cargo*.

(2) *Timber load line.* A timber deck cargo may be regarded as giving a ship a certain additional buoyancy and a greater degree of protection against the sea. For that reason, ships carrying a timber deck cargo may be granted a reduction of freeboard calculated according to the provisions of regulation 45 and marked on the ship's side in accordance with the provisions of regulations 6(3) and (4). However, in order that such special freeboard may be granted and used, the timber deck cargo shall comply with certain conditions which are laid down in regulation 44, and the ship itself shall also comply with certain conditions relating to its construction which are set out in regulation 43.

* Refer to the Code of Safe Practice for Ships Carrying Timber Deck Cargoes, adopted by the Organization by resolution A.715(17), as amended.

Regulation 43 Construction of the ship

Superstructure

(1) Ships shall have a forecastle of at least standard height and a length of at least 0.07L. In addition, if the ship is less than 100 m in length, a poop of at least standard height, or a raised quarterdeck with a deckhouse of at least the same total height shall be fitted aft.

Double bottom tanks

(2) Double bottom tanks, where fitted within the midship half-length of the ship, shall have adequate watertight longitudinal subdivision.

Bulwarks

(3) The ship shall be fitted either with permanent bulwarks at least 1 m in height, specially stiffened on the upper edge and supported by strong bulwark stays attached to the deck and provided with necessary freeing ports, or with efficient rails of the same height and of specially strong construction.

Regulation 44 Stowage

General

(1) Openings in the deck exposed to weather over which cargo is stowed shall be securely closed and battened down. The ventilators and air pipes shall be efficiently protected.

(2) Timber deck cargoes shall extend over at least the entire available length which is the total length of the well or wells between superstructures.

Where there is no limiting superstructure at the after end, the timber shall extend at least to the after end of the aftermost hatchway.

The timber deck cargo shall extend athwartships as close as possible to the ship's side, due allowance being made for obstructions such as guard rails, bulwark stays, uprights, pilot access, etc., provided that any gap thus created at the side of the ship shall not exceed a mean of 4% of the breadth. The timber shall be stowed as solidly as possible to at least the standard height of the superstructure other than any raised quarterdeck.

(3) On a ship within a seasonal winter zone in winter, the height of the deck cargo above the deck exposed to weather shall not exceed one third of the extreme breadth of the ship.

(4) The timber deck cargo shall be compactly stowed, lashed and secured. It shall not interfere in any way with the navigation and necessary work of the ship.

Uprights

(5) Uprights, when required by the nature of the timber, shall be of adequate strength considering the breadth of the ship; the strength of the uprights shall not exceed the strength of the bulwark and the spacing shall be suitable for the length and character of timber carried, but shall not exceed 3 m. Strong angles or metal sockets or equally efficient means shall be provided for securing the uprights.

Lashings

(6) Timber deck cargo shall be effectively secured throughout its length by a lashing system acceptable to the Administration for the character of the timber carried*.

* Refer to the Code of Safe Practice for Ships Carrying Timber Deck Cargoes, adopted by the Organization by resolution A.715(17), as amended.

<u>MCA Guidance</u>
<p>The UK position is that a ship complying with the IMO Code of Safe Practice for Ships carrying Timber Deck Cargos (Resolution A.715(17), as amended) is deemed compliant with the lashing requirements in this regulation. [MGN 579, Table 2]</p> <p>Deck cargo shall be so secured as to ensure, as far as practicable, that there will be no movements of that cargo relative to the ship in the worst sea and weather conditions which may normally be expected on the voyage; and lashings and all fittings used for their attachment shall be of adequate strength for that purpose. [MSN 1752 30(2)]</p>

Stability

(7) Provision shall be made for a safe margin of stability at all stages of the voyage, regard being given to additions of weight, such as those arising from absorption of water or icing, if applicable, and to losses of weight such as those arising from consumption of fuel and stores.

Protection of crew, access to machinery spaces, etc.

(8) In addition to the requirements of regulation 25(5), guard-rails or lifelines not more than 350 mm apart vertically shall be provided on each side of the cargo deck to a height of at least 1 m above the cargo.

In addition a lifeline, preferably wire rope set up taut with a stretching screw, shall be provided as near as practicable to the centreline of the ship. The stanchion supports to all guard-rails and lifelines shall be so spaced as to prevent undue sagging. Where the cargo is uneven, a safe walking surface of not less than 600 mm in width shall be fitted over the cargo and effectively secured beneath or adjacent to the lifeline.

(9) Where the requirements prescribed in paragraph (8) are impracticable, alternative arrangements satisfactory to the Administration shall be used.

<u>MCA Guidance</u>
<p>This will be decided on a case-by-case basis by the Secretary of State. [MGN 579, Table 2]</p>

Steering arrangements

(10) Steering arrangements shall be effectively protected from damage by cargo and, as far as practicable, shall be accessible. Efficient provision shall be made for steering in the event of a breakdown in the main steering arrangements.

Regulation 45 Computation for freeboard

(1) The minimum summer freeboards shall be computed in accordance with regulations 27(5), 27(6), 27(14), 28, 29, 30, 31, 32, 37 and 38, except that regulation 37 is modified by substituting the following percentages for those given in regulation 37:

Table 45.1

	Total effective length of superstructures and trunks										
	0	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	1.0L
Percentage of deduction for all types of superstructure	20	31	42	53	64	70	76	82	88	94	100

Percentages at intermediate lengths of superstructure shall be obtained by linear interpolation.

- (2) The Winter Timber Freeboard shall be obtained by adding to the Summer Timber Freeboard one thirty-sixth of the moulded summer timber draught.
- (3) The Winter North Atlantic Timber Freeboard shall be the same as the Winter North Atlantic Freeboard prescribed in regulation 40(6).
- (4) The Tropical Timber Freeboard shall be obtained by deducting from the Summer Timber Freeboard one forty-eighth of the moulded summer timber draught.
- (5) The Fresh Water Timber Freeboard shall be computed in accordance with regulation 40(7), based on the summer timber load waterline or with regulation 40(8), based on the summer timber draught measured from the top of the keel to the summer timber load line.
- (6) Timber freeboards may be assigned to ships with reduced type 'B' freeboards, provided the timber freeboards are calculated on the basis of the ordinary type 'B' freeboard.
- (7) The Timber Winter mark and/or the Timber Winter North Atlantic mark shall be placed at the same level as the reduced type 'B' Winter mark when the computed Timber Winter mark and/or the computed Timber Winter North Atlantic mark fall below the reduced type 'B' Winter mark.

ANNEX II ZONES, AREAS AND SEASONAL PERIODS

The zones and areas in this Annex are, in general, based on the following criteria:

SUMMER not more than 10% winds of force 8 Beaufort (34 knots) or more.

TROPICAL not more than 1% winds of force 8 Beaufort (34 knots) or more. Not more than one tropical storm in 10 years in an area of 5° square in any one separate calendar month.

In certain special areas, for practical reasons, some degree of relaxation has been found acceptable.

A chart is attached to this annex to illustrate the zones and areas defined below.

Regulation 46 Northern Winter Seasonal Zones and Area

(1) North Atlantic Winter Seasonal Zones I and II

- (a) The North Atlantic Winter Seasonal Zone I lies within the meridian of longitude 50°W from the coast of Greenland to latitude 45°N, thence the parallel of latitude 45°N to longitude 15°W, thence the meridian of longitude 15°W to latitude 60°N, thence the parallel of latitude 60°N to the Greenwich Meridian, thence this meridian northwards.

Seasonal periods:

WINTER: 16 October to 15 April
SUMMER: 16 April to 15 October

- (b) The North Atlantic Winter Seasonal Zone II lies within the meridian of longitude 68°30'W from the coast of the United States to latitude 40°N, thence the rhumb line to the point latitude 36°N, longitude 73°W, thence the parallel of latitude 36°N to longitude 25°W and thence the rhumb line to Cape Toriñana.

Excluded from this zone are the North Atlantic winter seasonal zone I, the North Atlantic Winter Seasonal Area and the Baltic Sea bounded by the parallel of latitude of the Skaw in the Skagerrak. The Shetland Islands are to be considered as being on the boundary of the North Atlantic Winter Seasonal Zones I and II.

Seasonal periods:

WINTER: 1 November to 31 March
SUMMER: 1 April to 31 October

(2) North Atlantic Winter Seasonal Area

The boundary of the North Atlantic Winter Seasonal Area is

the meridian of longitude 68°30'W from the coast of the United States to latitude 40°N, thence the rhumb line to the southernmost intersection of the meridian of longitude 61°W with the coast of Canada and thence the east coasts of Canada and the United States.

Seasonal periods:

For ships over 100 m in length:

WINTER : 16 December to 15 February
SUMMER : 16 February to 15 December

For ships of 100 m and under in length:

WINTER: 1 November to 31 March
SUMMER: 1 April to 31 October

(3) North Pacific Winter Seasonal Zone

The southern boundary of the North Pacific Winter Seasonal Zone is

the parallel of latitude 50°N from the east coast of the USSR to the west coast of Sakhalin, thence the west coast of Sakhalin to the southern extremity of Cape Kril'on, thence the rhumb line to Wakkanai, Hokkaido, Japan, thence the east and south coasts of Hokkaido to longitude 145°E, thence the meridian of longitude 145°E to latitude 35°N, thence the parallel of latitude 35°N to longitude 150°W and thence the rhumb line to the southern extremity of Dall Island, Alaska.

Seasonal periods:

WINTER: 16 October to 15 April
SUMMER: 16 April to 15 October

Regulation 47 Southern Winter Seasonal Zone

The northern boundary of the Southern Winter Seasonal Zone is

the rhumb line from the east coast of the American continent at Cape Tres Puntas to the point latitude 34°S, longitude 50°W, thence the parallel of latitude 34°S to longitude ~~47~~ 16°E, thence the rhumb line to the point latitude ~~35°40'~~ 36°S, longitude 20°E, thence the rhumb line to the point latitude 34°S, longitude ~~28~~ 30°E, thence along the rhumb line to the point latitude 35°30'S; longitude 118°E, and thence the rhumb line to Cape Grim on the north-west coast of Tasmania; thence along the north and east coasts of Tasmania to the southernmost point of Bruny Island, thence the rhumb line to Black Rock Point on Stewart Island, thence the rhumb line to the point latitude 47°S, longitude 170°E, thence along the rhumb line to the point latitude 33°S, longitude 170°W, and thence the parallel of latitude 33°S to the point latitude 33°S, longitude 79° W, thence the rhumb line to **the point latitude 41°S, longitude 75°W, thence the rhumb line to** Punta Corona lighthouse on Chiloe Island, latitude 41°47'S, longitude 73°53'W, thence along the north, east and south coasts of Chiloe Island to the point latitude 43°20'S, longitude 74°20'W to the parallel of latitude 45°45'S, including the inner zone of Chiloe channels from the meridian 74°20'W to the east. **[See MSC.329(90)]**

Seasonal periods:

WINTER: 16 April to 15 October
SUMMER: 16 October to 15 April

[The above regulation was further amended by Resolution A.1082(28) as shown below, which entered into force on February 28, 2018]

The northern boundary of the Southern Winter Seasonal Zone is

the rhumb line from the east coast of the American continent at Cape Tres Puntas to the point latitude 34°S, longitude 50°W, thence the parallel of latitude 34°S to longitude ~~47~~ 16°E, thence the rhumb line to the point latitude ~~35°40'~~ 36°S, longitude 20°E, thence the rhumb line to the point latitude 34°S, longitude ~~28~~ 30°E, thence along the rhumb line to the point latitude 35°30'S; longitude 118°E, and thence the rhumb line to Cape Grim on the north-west coast of Tasmania; thence along the north and east coasts of Tasmania to the southernmost point of Bruny Island, thence the rhumb line to Black Rock Point on Stewart Island, thence the rhumb line to the point latitude 47°S, longitude 170°E, thence along the rhumb line to the point latitude 33°S, longitude 170°W, and thence the parallel of latitude 33°S to

~~the west coast of the American continent. point latitude 33°S, longitude 79°W, thence the rhumb line to the point latitude 41°S, longitude 75°W, thence the rhumb line to Punta Corona lighthouse on Chiloe Island, latitude 41°47'S, longitude 73°53'W, thence along the north, east and south coasts of Chiloe Island to the point latitude 43°20'S, longitude 74°20'W to the parallel of latitude 45°45'S, including the inner zone of Chiloe channels from the meridian 74°20'W to the east.~~

Seasonal periods:

WINTER: 16 April to 15 October
SUMMER: 16 October to 15 April

**Regulation 48
Tropical Zone**

(1) Northern Boundary of the Tropical Zone

The northern boundary of the Tropical Zone is

the parallel of latitude 13°N from the east coast of the American continent to longitude 60°W, thence the rhumb line to the point latitude 10°N, longitude 58°W, thence the parallel of latitude 10°N to longitude 20°W, thence the meridian of longitude 20°W to latitude 30°N and thence the parallel of latitude 30°N to the west coast of Africa; from the east coast of Africa the parallel of latitude 8°N to longitude 70°E, thence the meridian of longitude 70°E to latitude 13°N, thence the parallel of latitude 13°N to the west coast of India; thence the south coast of India to latitude 10°30'N on the east coast of India, thence the rhumb line to the point latitude 9°N, longitude 82°E, thence the meridian of longitude 82°E to latitude 8°N, thence the parallel of latitude 8°N to the west coast of Malaysia, thence the coast of South-East Asia to the east coast of Vietnam at latitude 10°N, thence the parallel of latitude 10°N to longitude 145°E, thence the meridian of longitude 145°E to latitude 13°N and thence the parallel of latitude 13°N to the west coast of the American continent.

Saigon is to be considered as being on the boundary line of the Tropical Zone and the Seasonal Tropical Area.

(2) Southern Boundary of the Tropical Zone

The southern boundary of the Tropical Zone is

the rhumb line from the Port of Santos, Brazil, to the point where the meridian of longitude 40°W intersects the Tropic of Capricorn; thence the Tropic of Capricorn to the west coast of Africa; from the east coast of Africa the parallel of latitude 20°S to the west coast of Madagascar, thence the west and north coasts of Madagascar to longitude 50°E, thence the meridian of longitude 50°E to latitude 10°S, thence the parallel of latitude 10°S to longitude 98°E, thence the rhumb line to Port Darwin, Australia, thence the coasts of Australia and Wessel Island eastwards to Cape Wessel, thence the parallel of latitude 11°S to the west side of Cape York; from the east side of Cape York the parallel of latitude 11°S to longitude 150°W, thence the rhumb line to the point latitude 26°S, longitude 75°W, and thence the rhumb line to the point latitude 32°47'S, longitude 72°W, and thence to the parallel of latitude 32°47'S to the west coast of South America.

Valparaiso and Santos are to be considered as being on the boundary line of the Tropical and Summer Zones.

(3) Areas to be included in the Tropical Zone

The following areas are to be treated as included in the Tropical Zone:

- (a) The Suez Canal, the Red Sea and the Gulf of Aden, from Port Said to the meridian of longitude 45°E.

Aden and Berbera are to be considered as being on the boundary line of the Tropical Zone and the Seasonal Tropical Area.
- (b) The Persian Gulf to the meridian of longitude 59°E.
- (c) The area bounded by the parallel of latitude 22°S from the east coast of Australia to the Great Barrier Reef, thence the Great Barrier Reef to latitude 11°S. The northern boundary of the area is the southern boundary of the Tropical Zone.

**Regulation 49
Seasonal Tropical Areas**

The following are Seasonal Tropical Areas:

(1) In the North Atlantic

An area bounded

on the north by the rhumb line from Cape Catoche, Yucatan, to Cape San Antonio, Cuba, the north coast of Cuba to latitude 20°N and thence the parallel of latitude 20°N to longitude 20°W;

on the west by the coast of the American continent;

on the south and east by the northern boundary of the Tropical Zone.

Seasonal periods:

TROPICAL: 1 November to 15 July

SUMMER: 16 July to 31 October

(2) In the Arabian Sea

An area bounded

on the west by the coast of Africa, the meridian of longitude 45°E in the Gulf of Aden, the coast of South Arabia and the meridian of longitude 59°E in the Gulf of Oman;

on the north and east by the coasts of Pakistan and India;

on the south by the northern boundary of the Tropical Zone.

Seasonal periods:

TROPICAL: 1 September to 31 May

SUMMER: 1 June to 31 August

(3) In the Bay of Bengal

The Bay of Bengal north of the northern boundary of the Tropical Zone.

Seasonal periods:

TROPICAL: 1 December to 30 April

SUMMER: 1 May to 30 November

(4) In the South Indian Ocean

(a) An area bounded

on the north and west by the southern boundary of the Tropical Zone and the east coast of Madagascar;

on the south by the parallel of latitude 20°S;

on the east by the rhumb line from the point latitude 20°S, longitude 50°E, to the point latitude 15°S, longitude 51°30'E, and thence by the meridian of longitude 51°30'E to latitude 10°S.

Seasonal periods:

TROPICAL: 1 April to 30 November

SUMMER: 1 December to 31 March

(b) An area bounded

on the north by the southern boundary of the Tropical Zone;

on the east by the coast of Australia;

on the south by the parallel of latitude 15°S from longitude 51°30'E, to longitude 114°E and thence the meridian of longitude 114°E to the coast of Australia;

on the west by the meridian of longitude 51°30'E.

Seasonal periods:

TROPICAL: 1 May to 30 November

SUMMER: 1 December to 30 April

(5) In the China Sea

An area bounded

on the west and north by the coasts of Viet-Nam and China from latitude 10°N to Hong Kong;

on the east by the rhumb line from Hong Kong to the Port of Sual (Luzon Island) and the west coasts of the Islands of Luzon, Samar and Leyte to latitude 10°N;

on the south by the parallel of latitude 10°N.

Hong Kong and Sual are to be considered as being on the boundary of the Seasonal Tropical Area and Summer Zone

Seasonal periods:

TROPICAL: 21 January to 30 April

SUMMER: 1 May to 20 January

(6) In the North Pacific

(a) An area bounded

on the north by the parallel of latitude 25°N;

on the west by the meridian of longitude 160°E;

on the south by the parallel of latitude 13°N;

on the east by the meridian of longitude 130°W.

Seasonal periods:

TROPICAL: 1 April to 31 October

SUMMER: 1 November to 31 March

(b) An area bounded

on the north and east by the west coast of the American continent;

on the west by the meridian of longitude 123°W from the coast of the American continent to latitude 33°N and by the rhumb line from the point latitude 33°N, longitude 123°W, to the point latitude 13°N, longitude 105°W;

on the south by the parallel of latitude 13°N.

Seasonal periods:

TROPICAL: 1 March to 30 June and 1 November to 30 November

SUMMER: 1 July to 31 October and 1 December to 28/29 February

(7) In the South Pacific

(a) The Gulf of Carpentaria south of latitude 11°S.

Seasonal periods:

TROPICAL: 1 April to 30 November

SUMMER: 1 December to 31 March

(b) An area bounded

on the north and east by the southern boundary of the Tropical Zone;

on the south by the parallel of latitude of 24°S from the east coast of Australia to longitude 154°E, thence by the meridian of longitude 154°E to the Tropic of Capricorn and thence by the Tropic of Capricorn to longitude 150°W, thence by the meridian of longitude 150°W to latitude 20°S and thence by the parallel of latitude 20°S to the point where it intersects the southern boundary of the Tropical Zone; and

on the west by the boundaries of the area within the Great Barrier Reef included in the Tropical Zone and by the east coast of Australia.

Seasonal periods:

TROPICAL: 1 April to 30 November

SUMMER: 1 December to 31 March

**Regulation 50
Summer Zones**

The remaining areas constitute the Summer Zones.

However, for ships of 100 metres and under in length, the area bounded

on the north and west by the east coast of the United States;

on the east by the meridian of longitude 68°30'W from the coast of the United States to latitude 40°N and thence by the rhumb line to the point latitude 36°N, longitude 73° W;

on the south by the parallel of latitude 36°N

is a Winter Seasonal Area.

Seasonal periods:

WINTER: 1 November to 31 March

SUMMER: 1 April to 31 October

**Regulation 51
Enclosed Seas**

(1) Baltic Sea

This sea bounded by the parallel of latitude of The Skaw in the Skagerrak is included in the Summer Zones.

However, for ships of 100 m and under in length, it is a Winter Seasonal Area.

Seasonal periods:

WINTER: 1 November to 31 March

SUMMER: 1 April to 31 October

(2) Black Sea

This sea is included in the Summer Zones.

However, for ships of 100 m and under in length, the area north of latitude 44° N is a Winter Seasonal Area.

Seasonal periods:

WINTER: 1 December to 28/29 February

SUMMER: 1 March to 30 November

(3) Mediterranean

This sea is included in the Summer Zones.

However, for ships of 100 m and under in length, the area bounded

on the north and west by the coasts of France and Spain and the meridian of longitude 3° E from the coast of Spain to latitude 40° N;

on the south by the parallel of latitude 40° N from longitude 3° E to the west coast of Sardinia;

on the east by the west and north coasts of Sardinia from latitude 40° N to longitude 9° E, thence by the meridian of longitude 9° E to the south coast of Corsica, thence by the west and north coasts of Corsica to longitude 9° E and thence by the rhumb line to Cape Sicié

is a Winter Seasonal Area.

Seasonal periods:

WINTER: 16 December to 15 March
SUMMER: 16 March to 15 December

(4) Sea of Japan

This sea south of latitude 50° N is included in the Summer Zones.

However, for ships of 100 m and under in length, the area between the parallel of latitude 50° N and the rhumb line from the east coast of Korea at latitude 38° N to the west coast of Hokkaido, Japan, at latitude 43°12' N is a Winter Seasonal Area.

Seasonal periods:

WINTER: 1 December to 28/29 February
SUMMER: 1 March to 30 November

Regulation 52
The Winter North Atlantic Load Line

The part of the North Atlantic referred to in Regulation 40(6) (Annex I) comprises:

- (a) that part of the North Atlantic Winter Seasonal Zone II which lies between the meridians of 15°W and 50°W;
- (b) the whole of the North Atlantic Winter Seasonal Zone I, the Shetland Islands to be considered as being on the boundary.

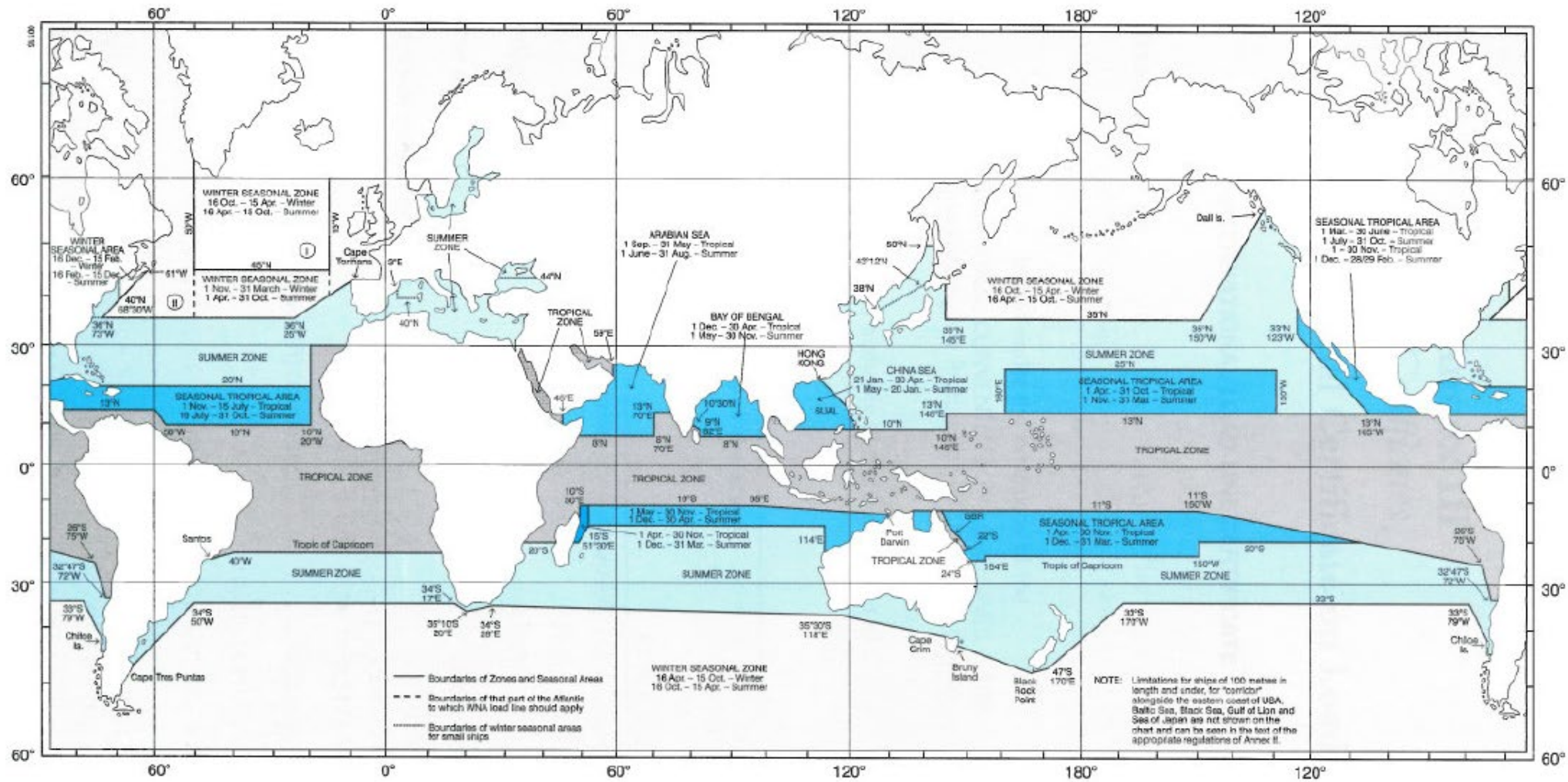


Chart of Zones and Seasonal Areas

**ANNEX III
CERTIFICATES**

Form of International Certificate on Load Lines

INTERNATIONAL LOAD LINE CERTIFICATE

(official seal)

(State)

Issued under the provisions of the
INTERNATIONAL CONVENTION ON LOAD LINES, 1966,
as modified by the Protocol of 1988 relating thereto

under the authority of the Government of

(name of the State)

by

(person or organization recognized)

Particulars of ship¹

Name of ship.....

Distinctive number or letters.....

Port of registry.....

Length (L) as defined in article 2(8) (in metres).....

IMO Number².....

¹ Alternatively, the particulars of the ship may be placed horizontally in boxes.

² In accordance with resolution A.600(15) — IMO Ship Identification Number Scheme, this information may be included voluntarily.

Freeboard assigned as:³

A new ship

An existing ship

Type of ship ³

Type 'A'
Type 'B'

Type 'B' with reduced freeboard
Type 'B' with increased freeboard

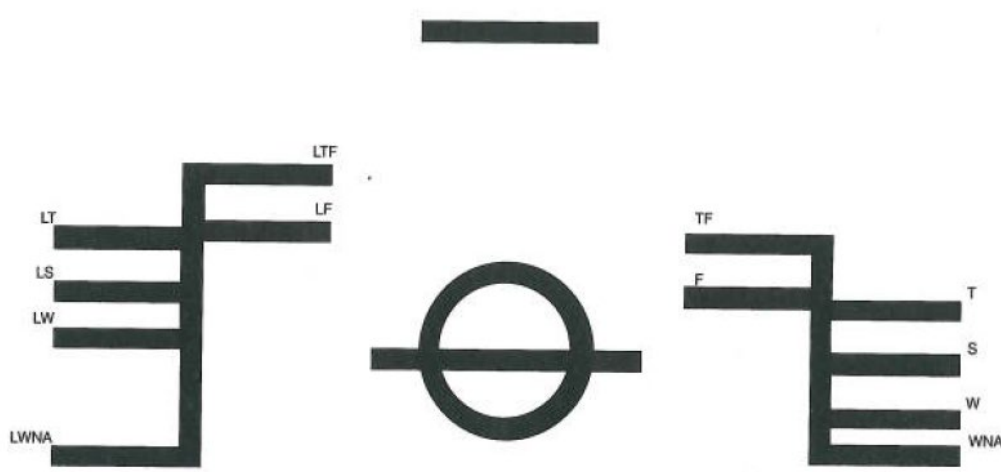
Freeboard from deck line⁴

Load line

Tropical	... mm (T)	... mm above (S)
Summer	... mm (S)	Upper edge of line through centre of ring
Winter	... mm (W)	... mm below (S)
Winter North Atlantic	... mm (WNA)	... mm below (S)
Timber tropical	... mm (LT)	... mm above (LS)
Timber summer	... mm (LS)	... mm above (S)
Timber winter	... mm (LW)	... mm below (LS)
Timber winter North Atlantic	... mm (LWNA)	... mm below (LS)

Allowance for fresh water for all freeboards other than timber mm. For timber freeboards mm.

The upper edge of the deck line from which these freeboards are measured is mm deck at side



³ Delete as appropriate.

⁴ Freeboards and load lines which are not applicable need not be entered on the certificate. Subdivision load lines may be entered on the certificate on a voluntary basis.

THIS IS TO CERTIFY:

- 1 That the ship has been surveyed in accordance with the requirements of article 14 of the Convention.
- 2 That the survey showed that the freeboards have been assigned and load lines shown above have been marked in accordance with the Convention.

This certificate is valid until⁵ subject to annual surveys in accordance with article 14(1)(c) of the Convention.

Completion date of the survey on which this certificate is based.....
(dd/mm/yyyy)⁶

Issued at.....
(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official
issuing the certificate)

(Seal or stamp of the authority, as appropriate)

- NOTES: 1 When a ship departs from a port situated on a river or inland waters, deeper loading shall be permitted corresponding to the weight of fuel and all other materials required for consumption between the point of departure and the sea.
- 2 When a ship is in fresh water of unit density the appropriate load line may be submerged by the amount of fresh water allowance shown above. Where the density is other than unity, an allowance shall be made proportional to the difference between 1.025 and the actual density.

⁵ Insert date of expiry as specified by the Administration in accordance with article 19(1) of the Convention. The day and month of this date correspond to the anniversary date as defined in article 2(9) of the Convention, unless amended in accordance with Article 19(8) of the Convention.

⁶ See resolution MSC.172(79) which entered into force on July 1, 2006

Endorsement for annual surveys

THIS IS TO CERTIFY that, at an annual survey required by article 14(1)(c) of the Convention, the ship was found to comply with the relevant requirements of the Convention.

Annual Survey: Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Annual Survey: Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Annual Survey: Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Annual Survey: Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Annual survey in accordance with article 19(8)(c)

THIS IS TO CERTIFY that, at an annual survey required by article 19(8)(c) of the Convention, the ship was found to comply with the relevant requirements of the Convention.

Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Endorsement to extend the certificate if valid for less than 5 years where article 19(3) applies

The ship complies with the relevant requirements of the Convention, and this certificate shall, in accordance with article 19(3) of the Convention, be accepted as valid until

Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Endorsement where the renewal survey has been completed and article 19(4) applies

The ship complies with the relevant requirements of the Convention, and this certificate shall, in accordance with article 19(4) of the Convention, be accepted as valid until

Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Endorsement to extend the validity of the certificate until reaching the port of survey or for a period of grace where article 19(5) or 19(6) applies

This certificate shall, in accordance with article 19(5)/ 19(6)³ of the Convention, be accepted as valid until

Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Endorsement for advancement of anniversary date where article 19(8) applies

In accordance with article 19(8) of the Convention, the new anniversary date is

.....

Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

In accordance with article 19(8) of the Convention, the new anniversary date is

.....

Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

³ Delete as appropriate.

Form of International Exemption Certificate on Load Lines

INTERNATIONAL LOAD LINE EXEMPTION CERTIFICATE

(official seal)

(State)

Issued under the provisions of the
INTERNATIONAL CONVENTION ON LOAD LINES, 1966,
as modified by the Protocol of 1988 relating thereto

under the authority of the Government of

_____ *(name of the State)*

by

_____ *(person or organization recognized)*

Particulars of ship¹

Name of ship.....

Distinctive number or letters.....

Port of registry.....

Length (L) as defined in article 2(8) (in metres).....

IMO Number².....

¹ Alternatively, the particulars of the ship may be placed horizontally in boxes.

² In accordance with resolution A.600(15) — IMO Ship Identification Number Scheme, this information may be included voluntarily.

THIS IS TO CERTIFY:

That the ship is exempted from the provisions of the Convention, under the authority conferred by article 6(2) / 6(4)³ of the Convention referred to above.

The provisions of the Convention from which the ship is exempted under article 6(2) are:

.....
.....
.....

The voyage for which exemption is granted under article 6(4) is:

From:

To:

Conditions, if any, on which the exemption is granted under either article 6(2) or article 6(4):

.....
.....
.....

This certificate is valid until⁴ subject to annual surveys in accordance with article 14(1)(c) of the Convention.⁵

Completion date of the survey on which this certificate is based.....
(dd/mm/yyyy)

Issued at.....
(Place of issue of certificate)

.....
(Date of issue)

.....
(Signature of authorized official issuing the certificate)

(Seal or stamp of the authority, as appropriate)

³ Delete as appropriate

⁴ Insert date of expiry as specified by the Administration in accordance with article 19(1) of the Convention. The day and month of this date correspond to the anniversary date as defined in article 2(9) of the Convention, unless amended in accordance with Article 19(8) of the Convention.

⁵ See resolution MSC.172(79) which entered into force on July 1, 2006

Endorsement for annual surveys

THIS IS TO CERTIFY that, at an annual survey required by article 14(1)(c) of the Convention, the ship was found to comply with the conditions under which this exemption was granted.

Annual Survey: Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Annual Survey: Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Annual Survey: Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Annual Survey: Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Annual survey in accordance with article 19(8)(c)

THIS IS TO CERTIFY that, at an annual survey required by article 19(8)(c) of the Convention, the ship was found to comply with the relevant requirements of the Convention.

Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Endorsement to extend the certificate if valid for less than 5 years where article 19(3) applies

The ship complies with the relevant requirements of the Convention, and this certificate shall, in accordance with article 19(3) of the Convention, be accepted as valid until

Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Endorsement where the renewal survey has been completed and article 19(4) applies

The ship complies with the relevant requirements of the Convention, and this certificate shall, in accordance with article 19(4) of the Convention, be accepted as valid until

Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Endorsement to extend the validity of the certificate until reaching the port of survey or for a period of grace where article 19(5) or 19(6) applies

This certificate shall, in accordance with article 19(5)/ 19(6)³ of the Convention, be accepted as valid until

Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

Endorsement for advancement of anniversary date where article 19(8) applies

In accordance with article 19(8) of the Convention, the new anniversary date is

.....

Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

In accordance with article 19(8) of the Convention, the new anniversary date is

.....

Signed
(Signature of authorized official)

Place

Date

(Seal or stamp of the authority, as appropriate)

³ Delete as appropriate.

**ANNEX IV
VERIFICATION OF COMPLIANCE**

**Regulation 53
Application**

Contracting Governments shall use the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in the present Convention.

**Regulation 54
Verification of compliance**

- (1) Every Contracting Government shall be subject to periodic audits by the Organization in accordance with the audit standard to verify compliance with and implementation of the present Convention.
- (2) The Secretary-General of the Organization shall have responsibility for administering the Audit Scheme, based on the guidelines developed by the Organization.
- (3) Every Contracting Government shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines developed by the Organization*.
- (4) Audit of all Contracting Governments shall be:
 - (a) based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization; and
 - (b) conducted at periodic intervals, taking into account the guidelines developed by the Organization. [See MSC.375(93)]

* Refer to the Framework and Procedures for the IMO Member State Audit Scheme, adopted by the Organization by resolution A.1067(28). [See Res. A.1083(28)]

FORM OF RECORD OF CONDITIONS OF ASSIGNMENT OF LOAD LINES

INTERNATIONAL CONVENTION ON LOAD LINES, 1966

RECORD OF CONDITIONS OF ASSIGNMENT

Name of ship

Port of registry

Nationality

Distinctive number or letters

Shipbuilders

Yard number

Date of construction/conversion

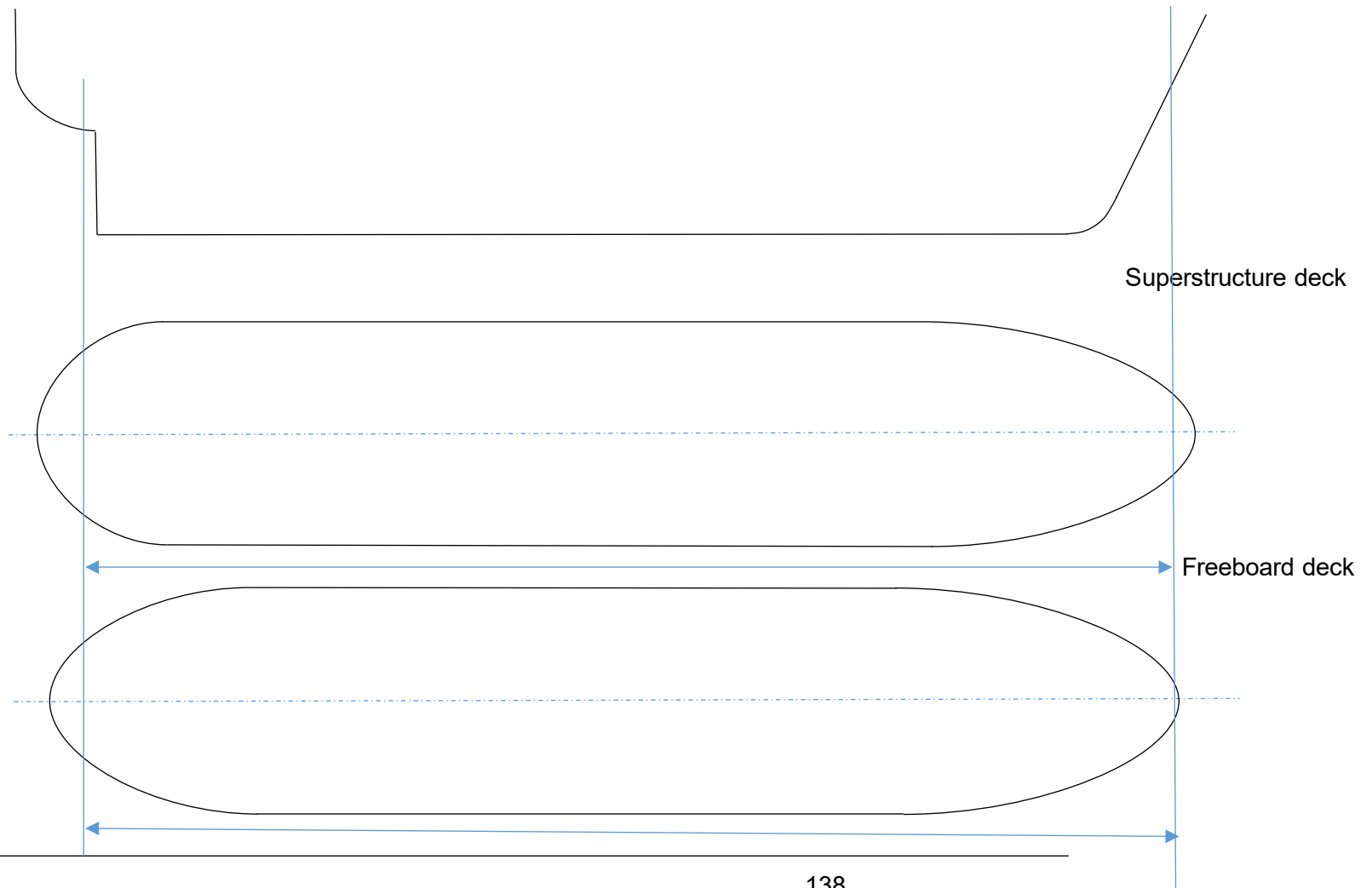
Freeboard assigned as a ship of Type

Classification

Date and place of initial survey

A plan of suitable size may be attached to this Report in preference to sketches on this page.

Disposition and dimensions of superstructures, trunks, deckhouses, machinery casings; extent of bulwarks, guard rails and wood sheathing on exposed deck, to be inserted in the diagrams and tables following; together with positions of hatchways, gangways and other means for the protection of the crew; cargo ports, bow and stern doors, sidescuttles, scuppers, ventilators, air pipes, companionways, and other items that would affect the seaworthiness of the ship.



Doorways in superstructures, exposed machinery casings and deckhouses protecting openings in freeboard and superstructure decks (Regulations 12, 17 and 18)

Location	Ref. No. on sketch or plan	Number and size of openings	Height of sills	Closing appliances	
				Type and material	Number of clips
In forecastle bulkhead					
In bridge forward bulkhead					
In bridge after bulkhead					
In raised quarter-deck bulkhead					
In poop bulkhead					
In exposed machinery casings on freeboard or raised quarter-decks					

Doorways in superstructures, exposed machinery casings and deckhouses protecting openings in freeboard and superstructure decks *(continued)*

Location	Ref. No. on sketch or plan	Number and size of openings	Height of sills	Closing appliances	
				Type and material	Number of clips
In exposed machinery casings on superstructure decks					
In machinery casings within superstructures or deckhouses on freeboard deck					
In deckhouses in Position 1 enclosing openings leading below freeboard deck					
In deckhouses in Position 2 enclosing openings leading within enclosed superstructures or below freeboard deck					
In exposed pump-room casings					

**Hatchways at positions 1 and 2 closed by portable covers and secured weathertight
by tarpaulins and battening devices (Regulation 15)**

Position and Reference No. on sketch or plan						
Dimensions of clear opening at top of coaming						
Height of coamings above deck						
	Number					
	Spacing					
	$b_1 \times t_r$					
	$D \times t_w$					
	$b_2 \times t_{r1}$					
	Bearing surface					
	Means of securing each beam					
PORTABLE COVERS	Material					
	Thickness					
	Direction fitted					
	Bearing surface					
Spacing of cleats						
TARPAULINS	No. of layers					
	Material					

**Hatchways at positions 1 and 2 closed by weathertight covers of steel (or other equivalent material)
fitted with gaskets and clamping devices (Regulation 16)**

Position and Reference No. on sketch or plan						
Dimensions of clear opening at top of coaming						
Height of coamings above deck						
Type of cover or patent name						
Material						

**Machinery space openings and miscellaneous openings in freeboard and
superstructure decks (Regulations 17 and 18)**

Position and Reference No. on sketch or plan						
Dimensions						
Height of coaming						
COVER { Material						
	How attached					
Number and spacing of toggles						
Position and Reference No. on sketch or plan						
Dimensions						
Height of coaming						
COVER { Material						
	How attached					
Number and spacing of toggles						

Ventilators on freeboard and superstructure decks (positions 1 and 2) (Regulation 19)

Deck on which fitted	Number fitted	Coaming		Type (State patent name if any)	Closing appliances
		Dimensions	Height		

Air pipes on freeboard and superstructure decks (Regulation 20)

Deck on which fitted	Number fitted	Coaming		Type (State patent name if any)	Closing appliances
		Dimensions	Height		

Cargo port and other similar openings (Regulation 21)

Position of port	Dimensions of opening	Distance of lower edge from freeboard deck	Securing devices	Remarks

Scuppers, inlets and discharges (Regulation 22)

State if scupper or discharge	Number	Pipe			From	Vertical distance above top of keel			Number, type and material of discharge valves	Position of controls
		Diameter	Thickness	Material		Discharge		Uppermost valve		
						Outlet in hull	Inboard end			

S – Scupper
D – Discharge

MS – Mild steel
CS – Cast steel
GM – Gun metal
Any other approved material to be designated

SD – Screw-down
ANR – Automatic non-return
SD ANR – Screw-down automatic non-return

Sidescuttles (Regulation 23)

Position	Number fitted	Clear glass size	Fixed or opening	Material		Type of glass and thickness	Standards used and Type No.
				Frame	Deadlight		

Indicate the vertical distance between the freeboard deck and the lower sill of the side-scuttle positioned at the greatest vertical distance below the freeboard deck

Freeing Ports (Regulation 24)

	Length of bulwark	Height of bulwark	Number and size of freeing ports each side	Total area each side	Required area each side
Freeboard deck after well					
Forward well					
Superstructure deck					

State fore and aft position of each freeing port in relation to superstructure end bulkheads

{

 After well
 Forward well

Particulars of shutters, bars or rails fitted to freeing ports

Height of lower edge of freeing port above deck

Protection of the crew (Regulations 25 and 26)

State particulars of bulwarks or guard rails
on freeboard and superstructure decks

State details of lifelines, walkways,
gangways or underdeck passageways
where required to be fitted

Timber deck cargo fittings (Regulations 44)

State particulars of uprights, sockets,
lashings, guard rails and lifelines.

Other special features

The conditions of assignment shown on this form are a record of the arrangements and fittings provided on the ship and are in accordance with the requirements of the relevant regulations of the International Convention on Load Lines, 1966.

.....

(Surveyor's signature)

.....

(Date)

APPENDIX 1

Information as to Stability for ships constructed before 1/7/2010 (ref. Schedule 6 Part I of MSN 1752). Ships constructed after 1 July 2010 must comply with the 2008 Intact Stability (IS) Code (ref. MSC.270(85)) which contains (in Part B, Regulation 3.6) recommendations on the form and content of the approved stability information to be provided to the master. (Ref: Regulation 10 of ILLC).

STABILITY INFORMATION

Information to be provided for the Master (for ships constructed before 1/7/2010)

The information relating to the stability of a ship to be provided for the master shall include the particulars specified below.

1. The ship's name, official number, port of registry, gross and register tonnages, principal dimensions, displacement, deadweight and draught to the Summer load line.
2. A profile view and, if necessary, plan views of the ship drawn to scale showing all compartments, tanks, storerooms and crew and passenger accommodation spaces, with their position relative to mid-ship.
3.
 - (1) The capacity and the longitudinal and vertical centre of gravity of every compartment available for the carriage of cargo, fuel, stores, feedwater, domestic or water ballast.
 - (2) In the case of a vehicle ferry, the vertical centre of gravity of compartments designated for the carriage of vehicles shall be based on the estimated centres of gravity of the vehicles and not on the volumetric centres of the compartments.
4.
 - (1) The estimated total weight and the longitudinal and vertical centre of gravity of each such total weight of –
 - (a) the passengers and their effects; and
 - (b) the crew and their effects.
 - (2) In estimating such centres of gravity, passengers and crew shall be assumed to be distributed about the ship in the spaces they will normally occupy, including the highest decks to which either or both have access.
5.
 - (1) The estimated weight and the disposition and centre of gravity of the maximum amount of deck cargo which the ship may reasonably be expected to carry on an exposed deck.
 - (2) In the case of deck cargo, the arrival condition shall include the weight of water likely to be absorbed by the cargo. (For timber deck cargo the weight of water absorbed shall be taken as 15 per cent of the weight when loaded.)
6. A diagram or scale showing –
 - (a) the load line mark and load lines with particulars of the corresponding freeboards; and
 - (b) the displacement, tonnes per centimetre immersion, and deadweight corresponding to a range of mean draughts extending between the waterline representing the deepest load line and the waterline of the ship in light condition.

7. (1) A diagram or tabular statement showing the hydrostatic particulars of the ship, including the heights of the transverse metacentre and the values of the moment to change trim one centimetre. These particulars shall be provided for a range of mean draughts extending at least between the waterline representing the deepest load line and the waterline of the ship in light condition.
- (2) Where a tabular statement is used to comply with subparagraph (1), the intervals between such draughts shall be sufficiently close to permit accurate interpolation.
- (3) In the case of ships having raked keels, the same datum for the heights of centres of buoyancy and metacentres shall be used as for the centres of gravity referred to in paragraphs 3, 4 and 5.
8. The effect on stability of free surface in each tank in the ship in which liquids may be carried, including an example to show how the metacentric height is to be corrected.
9. (1) A diagram or table showing cross curves of stability, covering the range of draughts referred to in paragraph 7(1).
- (2) The information shall indicate the height of the assumed axis from which the righting levers are measured and the trim which has been assumed.
- (3) In the case of ships having raked keels and where a datum other than the top of keel has been used, the position of the assumed axis shall be clearly defined.
- (4) Subject to subparagraph (5), only enclosed superstructures and efficient trunks as defined in paragraph 10 of Schedule 4 shall be taken into account in deriving such curves.
- (5) The following structures may be taken into account in deriving such curves if the Secretary of State is satisfied that their location, integrity and means of closure will contribute to the ship's stability –
- (a) superstructures located above the superstructure deck;
 - (b) deckhouses on or above the freeboard deck whether wholly or in part only;
 - (c) hatchway structures on or above the freeboard deck.
- (6) Subject to the approval of the Secretary of State in the case of a ship carrying timber deck cargo, the volume of the timber deck cargo, or a part thereof, may be taken into account in deriving a supplementary curve of stability appropriate to the ship when carrying such cargo.
- (7) An example shall be included to show how a curve of righting levers (GZ) may be obtained from the cross curves of stability.
- (8) In the case of a vehicle ferry or a similar ship having bow doors, ship-side doors or stern doors where the buoyancy of a superstructure is taken into account in the calculation of stability information, and the cross curves of stability are based upon the assumption that such doors are secured weathertight, there shall be a specific warning that such doors must be secured weathertight before the ship proceeds to sea.
10. (1) The diagram and statements referred to in subparagraph (2) shall be provided separately for each of the following conditions of the ship –
- (a) *light condition*. If the ship has permanent ballast, such diagram and statements shall be provided for the ship in light condition both with and without such ballast;

- (b) *ballast condition both on departure and on arrival.* It is to be assumed that on arrival oil fuel, fresh water, consumable stores and the like are reduced to 10 per cent of their capacity;
 - (c) *condition on departure and on arrival when loaded to the Summer load line with cargo filling all spaces available for cargo.* Cargo shall be taken to be homogeneous except where this is clearly inappropriate, for example, in cargo spaces which are intended to be used exclusively for the carriage of vehicles or of containers;
 - (d) *service loaded conditions both on departure and on arrival.*
- (2) (a) A profile diagram of the ship drawn to a suitable small scale showing the disposition of all components of the deadweight.
- (b) A statement showing the lightweight, the disposition and the total weights of all components of the deadweight, the displacement, the corresponding positions of the centre of gravity, the metacentre and also the metacentric height (GM).
- (c) A diagram showing the curve of righting levers (GZ). Where credit is given for the buoyancy of a timber deck cargo the curve of righting levers (GZ) must be drawn both with and without this credit.
- (d) A statement showing the elements of stability in the condition compared to the criteria laid down in Schedule 2 paragraph 2(2).
- (3) The metacentric height (GM) and the curve of righting levers (GZ) shall be corrected for liquid free surface.
- (4) Where there is a significant amount of trim in any of the conditions referred to in subparagraph (1) the metacentric height and the curve of righting levers (GZ) may be required to be determined from the trimmed waterline.
- (5) If in the view of the Assigning Authority the stability characteristics in either or both of the conditions referred to in subparagraph (1)(c) are not satisfactory, such conditions shall be marked accordingly and an appropriate warning to the master shall be inserted.
11. A statement of instructions on appropriate procedures to maintain adequate stability in each case where special procedures are applied such as partial or complete filling of spaces designated for cargo, fuel, fresh water or other purposes.
12. The report on the inclining test and of the calculation derived from it to obtain information of the light condition of the ship.

APPENDIX 2

Ships in Relation to which the Secretary of State's or the Assigning Authority's approval of the stability information is required

1. The ships referred to in regulation 32(3), (4)(a) and (5)(a) of the Regulations are as follows:
 - (a) an oil tanker over 100 metres in length;
 - (b) a bulk carrier, or an ore carrier, over 150 metres in length;
 - (c) a single deck bulk carrier over 100 metres in length but not exceeding 150 metres in length;
 - (d) a single deck dry cargo ship over 100 metres in length;
 - (e) a purpose built container ship over 125 metres in length;
 - (f) a column stabilised mobile offshore drilling unit; or
 - (g) a column stabilised mobile offshore support unit.

2. In paragraph 1 –

“mobile offshore drilling unit” means a ship capable of engaging in drilling operations for the exploration or exploitation of resources beneath the sea bed such as liquid or gaseous hydrocarbons, sulphur or salt;

“mobile offshore support unit” means a ship used in connection with the offshore petroleum industry to provide ancillary services such as accommodation, cranes or repair facilities; and

“column stabilised” means constructed with the main deck of the unit connected to its underwater hull or footings by columns or caissons.

APPENDIX 3

List of signatories to the Convention

Below is a list of the countries, as of March 2019, which are parties to the International Convention on Load Lines, 1966, which entered into force on 21 July 1968. Those countries which are also parties to the Protocol of 1988 relating to the 1966 Load Line Convention, as of March 2019, are indicated by an asterisk:

Albania	*Algeria
Angola	*Antigua and Barbuda
*Argentina	*Australia
Austria	*Azerbaijan
*Bahamas	*Bahrain
*Bangladesh	*Barbados
*Belarus	*Belgium
*Belize	Benin
Bolivia	Brazil
Brunei Darussalam	*Bulgaria
*Cambodia	Cameroon
*Canada	Cabo Verde
*Chile	*China
Colombia	Comoros
*Congo	
*Cook Islands	Cote d'Ivoire
*Croatia	*Cuba
*Cyprus	Czechia
*Democratic People's Republic of Korea	Democratic Republic of the Congo
*Denmark	Djibouti
*Dominica	Dominican Republic
*Ecuador	*Egypt
*Equatorial Guinea	*Eritrea
*Estonia	*Ethiopia
*Fiji	*Finland
*France	Gabon
Gambia	Georgia
*Germany	Ghana
*Greece	
*Grenada	Guatemala
Guinea	Guyana
Haiti	*Honduras
*Hungary	*Iceland
*India	Indonesia
*Iran (Islamic Republic of)	*Ireland
Israel	*Italy
*Jamaica	*Japan
*Jordan	*Kazakhstan
*Kenya	*Kiribati
Kuwait	
*Latvia	*Lebanon
*Liberia	*Libya
*Lithuania	*Luxembourg
Madagascar	*Malawi
*Malaysia	Maldives
*Malta	*Marshall Islands
Mauritania	*Mauritius
*Mexico	Moldova
Monaco	*Mongolia
*Montenegro	Morocco
Mozambique	Myanmar

*Namibia
*Netherlands
*New Zealand
*Nigeria
*Norway
*Pakistan
*Panama
*Peru
*Poland
Qatar
*Romania
*Russian Federation
*Saint Lucia
*Samoa
Saudi Arabia
Serbia
*Sierra Leone
*Slovakia
Solomon Islands
South Africa
Sri Lanka
Suriname
Switzerland
Thailand
*Tonga
*Tunisia
Turkmenistan
*Ukraine
*United Kingdom
*United States
*Vanuatu
*Vietnam
Zambia

Associate Members

*Hong Kong, China
*Faroe Islands

Nauru

*Nicaragua
*Niue
*Oman
*Palau
Papua New Guinea
*Philippines
*Portugal
*Republic of Korea

*Saint Kitts and Nevis
*Saint Vincent and the Grenadines
Sao Tome and Principe
*Senegal
*Seychelles
*Singapore
*Slovenia
Somalia
*Spain
Sudan
*Sweden
Syrian Arab Republic
Togo
*Trinidad and Tobago
*Turkey
*Tuvalu
*United Arab Emirates
United Republic of Tanzania
Uruguay
*Venezuela
*Yemen

Macao, China