RULES FOR HIGH SPEED CRAFT

GUIDANCE FOR HIGH SPEED CRAFT

Rules for High Speed Craft 2008 AMENDMENT NO.1
Guidance for High Speed Craft 2008 AMENDMENT NO.1

Rule No.16 / Notice No.12 27th February 2008
Resolved by Technical Committee on 30th November 2007
Approved by Board of Directors on 25th December 2007

ClassNK
NIPPON KAIJI KYOKAI

RULES FOR HIGH SPEED CRAFT

RULES

2008 AMENDMENT NO.1

Rule No.16 27th February 2008

Resolved by Technical Committee on 30th November 2007

Approved by Board of Directors on 25th December 2007

Rule No.16 27th February 2008
AMENDMENT TO THE RULES FOR HIGH SPEED CRAFT

"Rules for high speed craft" has been partly amended as follows:

Amendment 1-1

Part 1 GENERAL RULES

Chapter 2 DEFINITIONS

2.1 General

Paragraph 2.1.1 has been amended as follows.

2.1.1 Application

The definitions of terms which appear in this Rule are to be as specified in this Chapter and **Part A of the Rules for the Survey and Construction of Steel Ships**, unless otherwise specified elsewhere.

Paragraph 2.1.16 has been amended as follows.

2.1.16 Freeboard Deck

1 The freeboard deck is normally the uppermost continuous deck. However, in cases where openings without permanent closing appliances exist on the exposed part of the uppermost continuous deck or where openings without permanent watertight closing appliances exist on the side of the craft below that deck, the freeboard deck is the continuous deck below the deck.

2 In a craft having a discontinuous freeboard deck (e.g. a stepped freeboard deck), ~~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 is to be determined as follows.

(1) Where a recess in the freeboard deck extends to the sides of the ship and is in excess of 1 *m* 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.

(2) Where a recess in the freeboard deck does not extend to the sides of the ship or is not in excess of 1 *m* in length, the upper part of the deck is taken as the freeboard deck.

(3) Recesses not extending from side to side in the deck designated as the freeboard deck in accordance with the provisions of **-3** below the exposed deck may be disregarded, provided all openings in the exposed deck are fitted with weathertight closing appliances.

3 Where a craft has multidecks even one of which is recognized as freeboard deck defined above **-1** or **-2**, and the load line is marked corresponding to freeboard assigned in accordance with the requirements in **Part 12** of this Rule by assuming that the actual lower deck is taken as freeboard deck, freeboard deck may be the lower deck. In this case, the lower deck is to be continuous at least between the machinery space and peak bulkheads and continuous athwartships. Within cargo spaces, the deck is to be of suitably framed decks or stringers having adequate width and continuous in a fore and aft direction at the ship sides and

transversely at each watertight bulkhead that extends to the upper deck. Where the lower deck is stepped, the lowest line of the deck and the continuation of that line parallel to upper part of the deck is taken as freeboard deck.

Paragraph 2.1.19 has been amended as follows.

2.1.19 Superstructure

The superstructure is the decked structure on the freeboard deck, extending from side to side of the craft or having its side walls at the position not farther than $0.04B_f$ from the side of the craft. Superstructures are classified as follows.

(1) A bridge is a superstructure which does not extend to either the forward or after perpendicular.

(2) 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 after perpendicular.

(3) 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.

(4) A full superstructure is a superstructure which, as a minimum, extends from the forward to the after perpendicular.

2.1.20 Enclosed Superstructure

Sub-paragraph (3) has been amended as follows.

The enclosed superstructure is the superstructure complying with the following conditions:

(1) Access openings in the end bulkheads of the superstructure are provided with doors complying with the requirements in **2.4.4, Part 7** of this Rule.

(2) All other openings in side or end bulkheads of the superstructure are provided with efficient weathertight means of closing.

(3) ~~Access means, which are available at all times where bulkhead openings are closed, are provided~~ A means of access for the crew to reach machinery and other working spaces within a bridge or poop starting from any point on the uppermost complete exposed deck or higher is available at all times even when bulkhead openings are closed.

Part 7 EQUIPMENT AND PAINTING

Chapter 2 HATCHWAYS, MACHINARY SPACE OPENINGS AND OTHER DECK OPENINGS

2.3 Closing Means for Access Opening in Superstructure End Bulkheads

2.3.1 Closing Means for Access Openings

Sub-paragraph -2 has been amended as follows.

1 The doors to be provided on the access openings in the end bulkheads of enclosed superstructures are to be in accordance with the requirements in **(1)** through **(5)**:

(1) The doors are to be made of suitable materials having equivalent strength to those of the bulkheads to and to be permanently and rigidly fitted up to the bulkheads.

(2) The doors are to be rigidly constructed, to be of equivalent strength to that of the intact bulkhead and to be weathertight when closed.

(3) The means for securing weathertightness are to consist of gaskets and clamping devices or other equivalent devices and to be permanently fitted up to the bulkheads or door itself.

(4) The doors are to be operated from both sides of the bulkheads.

(5) Hinged doors are, as a rule, to open outward.

2

(1) The height of sills of access openings above upper surface of deck specified in preceding **-1** is not less than the minimum height specified in **Table 7.2.1-1** or **Table 7.2.1-2** according to the length and the operating area of the craft except where higher sills may be required when deemed necessary by the Society.

(2) In principle, portable sills are not permitted.

3 Notwithstanding the operational areas of the craft, the minimum height of sills of access openings above the upper surface of deck for the craft which is engaged in international voyage is not to be less than that required for "Others" specified in **Table 7.2.1-1** or **Table 7.2.1-2**.

2.5 Companionways and Other Deck Openings

2.5.2 Companionways

Paragraph -5 has been renumbered to -6 and paragraph -5 has been added as follows.

1 Access openings in the freeboard deck are to be protected by enclosed superstructures, or by deckhouses or companionways of equivalent strength and weathertightness.

2 Access openings in exposed superstructure decks or in the top of deckhouses on the freeboard deck which give access to a space below the freeboard deck or a space within an enclosed superstructure are to be protected by efficient deckhouses or companionways.

3 Doorways in deckhouses or companionways such as specified in preceding **-1** and **-2** are to be provided with doors complying with the requirements in **2.3.1-1** of this chapter. Where, however, companionways are to be enclosed with boundary wall fitted with closing means complying with the requirements in **2.3.1-1** of this chapter, the external doors needs not to be weathertight.

4 The height of sills of doorways in deckhouses or companionways such as specified in preceding **-1** through **-3** above upper surface of deck is not less than the minimum height specified in **Table 7.2.1-1** or **Table 7.2.1-2** according to the length and the operating area of the craft.

5 Where the access openings in superstructures and deckhouses which protect access openings to spaces below the freeboard deck do not have closing appliances in accordance with the requirements of **2.3.1-1.**, the openings to spaces below the freeboard deck are to be considered exposed.

~~5~~**6** Notwithstanding the operational areas of the craft, the minimum height of sills of doorways in deckhouse or companionways above the upper surface of deck for the craft which is engaged in international voyage is not to be less than that required for "Others" specified in **Table 7.2.1-1** or **Table 7.2.1-2**.

Chapter 3 BULWARKS, GUARDRAILS, FREEING ARRANGEMENTS, CARGO PORTS AND OTHER SIMILAR OPENINGS, SIDE SCUTTLES, VENTILATORS AND GANGWAYS

3.1 Bulwarks and Guardrails

Paragraph 3.1.1 has been amended as follows.

3.1.1 General

1 Efficient guardrails or bulwarks are to be provided ~~on all exposed parts of the freeboard and superstructure decks and the top of similar deckhouses~~ around all exposed decks. ~~Where it is impracticable to provide guardrails or bulwarks, handrails or grabrails are to be provided.~~

2 Guardrails specified in **-1** above are to comply with the followings:

(1) Fixed, removable or hinged stanchions are to be fitted about 1.5 *m* apart. Removable or hinged stanchions are to be capable of being locked in the upright position.

(2) At least every third stanchion is to be supported by a bracket or stay. Alternatively, measures deemed appropriate by the Society are to be taken.

(3) Where necessary for the normal operation of the ship, steel wire ropes may be accepted in lieu of guardrails. The wires are to be made taut by means of turnbuckles.

(4) Where necessary for the normal operation of the ship, chains fitted between two fixed stanchions and/or bulwarks are acceptable in lieu of guardrails.

Paragraph 3.1.2 has been amended as follows.

3.1.2 Dimensions

1 The height of bulwarks or guardrails specified in **3.1.1** is to be at least 1 *metre* from the upper

surface of deck, provided that where this height would interfere with the normal operation of the craft, a less height may be permitted where the Society is satisfied that adequate protection is provided.

2 The clearance below the lowest course of guardrails on superstructure and freeboard decks is not exceed 230 *mm*. ~~The clearance between~~ and those for the other courses ~~is~~ are not to be exceed 380 *mm*.

3 Guardrails fitted on superstructures and freeboard decks are to have at least three courses. In other locations, guardrails are to have at least two courses.

3.2 Freeing Arrangements

3.2.2 Freeing Port Area

Paragraph -2 has been renumbered to -3 and paragraph -2 has been added as follows.

1 The freeing port area on each side of the craft for each well on the freeboard and raised quarter decks is not to be less than that obtained from the following formulae. The area for each well on superstructure decks other than raised quarter deck is not to be less than one-half of that obtained from the formulae.

Where l is not more than 20 *metres*:

$0.7 + 0.035l + a \quad (m^2)$

Where l is more than 20 *metres*:

$0.07l + a \quad (m^2)$

where:

l : Length of bulwark, but need not be taken as greater than $0.7L_f$ (*m*).

a : As obtained from the following formulae.

Where h is more than 1.2 *metres* : 0.04 l (h-1.2) (m^2)

Where h is not more than 1.2 *metres*, but not less than 0.9 *metres* : 0 (m^2)

Where h is less than 0.9 *metres* : -0.04 l (0.9-h) (m^2)

h :Average height of bulwarks above the deck (*m*).

2 In ships either without sheer or with less sheer than the standard, the minimum freeing port area obtained from the formulae in **-1** is to be increased by multiplying with the factor obtained from the following formula:

$$1.5 - \frac{S}{2S_0}$$

S : Average of actual sheer (*mm*).

S_0 : Average of the standard sheer according to the requirements in **Part V** (*mm*).

~~2~~3 Where a craft is provided with a trunk or a hatch side coaming which is continuous or substantially continuous between detached superstructures, the area of freeing port opening is not to be less than that given by **Table 7.3.1**.

Paragraph 3.2.3 has been ammended as follows.

3.2.3 Arrangement of Freeing Ports

~~Throughout the length of bulwark, the freeing ports are to be arranged as uniformly as~~

~~practicable.~~

1 Two-thirds of the freeing port area required by **3.2.2** is to be provided in the half of the well near the lowest point of the sheer curve, and the remaining one-third is to be evenly spread along the remaining length of the well.

2 The freeing ports are to have well rounded corners and their lower edges are to be as near the deck as practicable.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 1 April 2008.

2. Notwithstanding the amendments to the Rules, the current requirements may apply to ships for which the date of contract for construction* is before the effective date.
*"contract for construction" is defined in IACS Procedural Requirement(PR) No.29 (Rev.4).

IACS PR No.29 (Rev.4)

1. The date of "contract for construction" of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.

2. The date of "contract for construction" of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder.
For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a "series of vessels" if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:
(1) such alterations do not affect matters related to classification, or
(2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.
The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.

3. If a contract for construction is later amended to include additional vessels or additional options, the date of "contract for construction" for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a "new contract" to which **1.** and **2.** above apply.

4. If a contract for construction is amended to change the ship type, the date of "contract for construction" of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Notes:
1. This Procedural Requirement applies to all IACS Members and Associates.
2. This Procedural Requirement is effective for ships "contracted for construction" on or after 1 January 2005.
3. Revision 2 of this Procedural Requirement is effective for ships "contracted for construction" on or after 1 April 2006.
4. Revision 3 of this Procedural Requirement was approved on 5 January 2007 with immediate effect.
5. Revision 4 of this Procedural Requirement was adopted on 21 June 2007 with immediate effect.

Amendment 1-2

Part 1 GENERAL RULES

Chapter 1 GENERAL

1.1 General

Paragraph 1.1.1 has been amended as follows.

1.1.1 Application

1 The survey, construction, installation, material and equipment of the high speed craft (hereinafter referred to as "craft" in the Rules) to be registered in accordance with the **Regulations for the Classification and Registry of Ships** and to be defined in **2.1.2, Part 1** of the Rules are to be as prescribed in the Rules notwithstanding the requirements prescribed in the Rules for the Survey and Construction of Steel Ships unless otherwise specified elsewhere in each Parts of the Rules.

2 The survey, construction, installation, material and equipment of the craft which is excluded from the definition of the high speed craft in **2.1.2** of this Part are to be deemed appropriate by the Society.

3 Notwithstanding preceding **-1**, craft flying specified nationality are to comply with the requirements in other Rules of NIPPON KAIJI KYOKAI (hereinafter referred to as "the Society" in the Rules).

4 The Rules applies to the craft defined in **2.1.2** of this Part and engaged in the restricted voyages as follows :

(1) passenger craft which do not proceed in the course of their voyage more than 4 *hours* at ~~operational speed~~ 90% of the maximum speed from a place of refuge when fully laden ; and

(2) cargo craft which do not proceed in the course of their voyage more than 8 *hours* at ~~operational speed~~ 90% of the maximum speed from a place of refuge when fully laden.

5 The high speed craft not engaged on international voyage and that comply with the requirements of *IMO Resolution MSC.*97(73) *THE INTERNATIONAL CODE OF SAFETY FOR HIGH SPEED CRAFT*, as may be amended, are to be deemed to be in compliance with the requirements stipulated in **Part 3** to **Part 13** of this Rules regardless of any of the requirements given in the Rules. However the matters not stipulated in the Code are to be according to the requirements of the Rules.

Chapter 2 DEFINITIONS

2.1 General

Paragraph 2.1.9 has been deleted as follows and Paragraphs 2.1.10 to 2.1.52 have been renumbered 2.1.9 to 2.1.51 respectively.

~~**2.1.9 Operational Speed**~~
~~Operating speed is 90% of the maximum speed.~~

Paragraph 2.1.33 has been amended as follows.

2.1.33 Machinery Space

Machinery spaces are spaces containing internal combustion engines ~~with~~ either used for main propulsion or having an aggregate total power output of more than 110 kW, generators, oil fuel units, propulsion machinery, major electrical machinery and similar spaces and trunks to such spaces.

Paragraph 2.1.37 has been amended as follows.

2.1.37 Special Category Spaces

Special category spaces are those enclosed spaces intended for the carriage of motor vehicles with fuel in their tanks for their own propulsion, into and from which such vehicles can be driven and to which passengers have access, including spaces intended for the carriage of cargo vehicles. Special category spaces may be accommodated on more than one deck provided that the total overall clear height for vehicles does not exceed 10m.

Paragraph 2.1.40 has been amended as follows.

2.1.40 Service Spaces

Service space are those spaces used for pantries containing food warming equipment but no cooking facilities with exposed heating surfaces, lockers, sales shops, store-rooms and enclosed baggage rooms. Such spaces containing no cooking appliances may contain the following.

(1) coffee automats, toasters, dish washers, microwave ovens, water boilers and similar appliances, each of them with a maximum power of 5 kW

(2) electrically heated cooking plates and hot plates for keeping food warm, each of them with a maximum power of 2 kW and a surface temperature not above 150℃

Paragraph 2.1.52 has been added as follows.

2.1.52 Ro-ro Spaces

Ro-ro spaces are spaces not normally subdivided in any way and normally extending to either a substantial length or the entire length of the craft in which motor vehicles with fuel in their tanks for their own propulsion and/or goods (packaged or in bulk, in or on rail or road cars, vehicles (including road or rail tankers), trailers, containers, pallets, demountable tanks or in or on similar stowage units or other receptacles) can be loaded and unloaded, normally in a horizontal direction.

Part 7 EQUIPMENT AND PAINTING

Chapter 1 EQUIPMENT

1.1 Anchors, Chain Cables and Ropes

1.1.6 Miscellaneous

Sub-paragraphs -4 to -6 have been added as follows.

1 All craft are to be provided with suitable appliances for handling of anchors.

2 Chain cable and wire ropes are to be stored in chain lockers or on the drums. The inboard end of a chain cable is to be secured to the hull through a strong eye plate by means of shackle or other equivalent means.

3 Bower anchors are to be located on the suitable position to prevent any damage on hull structures in the cases of anchoring operation. If necessary, anchor bell mouths are to be fitted for this purpose.

4 The arrangements for anchoring, towing and berthing and the local craft structure and the design of the anchor, towing and berthing arrangements and the local craft structure are to be such that risks to persons carrying out anchoring, towing or berthing procedures are kept to a minimum.

5 All anchoring equipment, towing bitts, mooring bollards, fairleads, cleats and eyebolts are to be so constructed and attached to the hull that, in use up to design loads, the watertight integrity of the craft will not be impaired.

6 Under any operating load up to the breaking strength of the anchor cable or mooring lines, the loads on the bitts, bollards, etc., is not to result in any damage to the hull structure that will impair its watertight integrity. A strength margin of at least 20% above the resultant load based on the minimum specified breaking strength of the relevant cable or warp shall be required.

Part 8 BUOYANCY, STABILITY AND SUBDIVISION

Chapter 1 GENERAL

1.1 General

Sub-paragraph 1.1.3(1) has been amended as follows.

1.1.3 Definitions

For the purpose of this and other chapters, unless expressly defined otherwise, the following definitions apply :

(1) "Down flooding point" means any opening ~~through which flooding of the spaces which comprise the reserve buoyancy could take place while the craft is in the intact or damaged condition, and heels to an angle past the angle of equilibrium~~, irrespective of size, that would permit passage of water through a water/weathertight structure (e.g., opening windows), however excludes any opening kept closed to an appropriate standard of water/weathertightness at all times other than when required for access or for operation of portable submersible bilge pumps in an emergency (e.g., non-opening windows of similar strength and weathertight integrity to the structure in which they are installed).

(2) "Fully submerged foil" means a foil having no lift components piercing the surface of the water in the foil borne mode.

(3) "Multihull craft" means a craft which in any normally achievable operating trim or heel angle, has a rigid hull structure which penetrates the surface of the sea over more than one discrete area.

(4) "Permeability" of a space means the percentage of the volume of that space which can be occupied by water.

(5) "Skirt" means a downwardly-extending, flexible structure used to contain or divide an air cushion.

(6) "Watertight" in relation to a structure means capable of preventing the passage of water through the structure in any direction under the head of water likely to occur in the intact or damaged condition.

(7) "Weathertight" means that water will not penetrate into the craft in any wind and wave conditions up to those specified as critical design conditions.

Paragraph 1.1.4 has been added as follows.

1.1.4 Equivalent method

Other means of demonstrating compliance with the requirements of this part may be accepted, provided that the method chosen can be shown to provide an equivalent level of safety. Such methods may include:

(1) Mathematical simulation of dynamic behaviour

(2) Scale model testing

(3) Full-scale trials

1.6 Buoyancy and Stability in the Displacement Mode Following Damage

Paragraph 1.6.5 has been amended as follows.

1.6.5 Damage Assumptions

The ~~following~~ assumed extent of damages ~~are~~ is to be ~~assumed anywhere on the side and bottom of the craft~~ according to **(1)** to **(5)**:

(1) The assumed maximum extent of side damage is to be in accordance with **Table 8.1.2** and following **(a)** to **(c)**.

(a) Where side plating is inclined, the damages above the design waterline are to be assumed to have the shape of a parallelepiped (Refer to **Fig. 8.1.1)**. The inboard face at its mid-length is to be tangential to, or otherwise touching in a least 2 places, the surface corresponding to the specified transverse extent of penetration. (Refer to **Fig.8.1.2** and **Fig.8.1.3**)

(b) Side damage may not to be transversely penetrate a greater distance than the extent of $0.2\nabla^{1/3}$ at the design waterline, except where a lesser extent is provided for in **Table 8.1.2**. $\nabla (m^3)$ is volume of displacement corresponding to the design water line.

(c) If considering a multihull, the periphery of the craft is considered to only be the surface of the shell encompassed by the outboard surface of the outermost hull at any given section.

(2) The assumed maximum extent of bottom damage is to be in accordance with **Table 8.1.3** and following **(a)** and **(b)**.

(a) The shape of damage is to be assumed to be rectangular in the transverse plane. (Refer to **Fig.8.1.4**)

(b) If considering a multihull craft , an obstruction at or below the design waterline of up to 7*m* width is to be considered in determining the number of hulls damaged at any one time.

(3) Extent of bottom damage in areas vulnerable to raking damage is to be in accordance with **Table 8.1.4** and **Fig.8.1.5**. However these requirements may not need to apply at that same time as that stipulated in **(1)** or **(2)** above. The shape of damage is to be according to **(2)(a)** above.

(4) Extent of bow and stern damage is to be in accordance with **Table 8.1.5**.

~~(3)~~(5) Any damage of a lesser extent than that postulated in **(1)** ~~and~~ to ~~**(2)**~~**(4)** above, as applicable, which would result in a more severe condition, is to be also investigated. ~~The shape of the damage is to be a parallelepiped.~~

Table 8.1.2 has been amended as follows.

Table 8.1.2 Extent of Side Damage

Direction	Extent of Damage
Longitudinal extent	~~0.1*L*, 3*m*+0.03*L*~~ $0.75\nabla^{1/3}$, $(3m+0.225\nabla^{1/3})$ or 11*m*, whichever is the least.
Transverse extent	~~0.2*B*, 0.05*L* or 5*m*, whichever is the least.~~ $0.2\nabla^{1/3}$ However, where the craft is fitted with inflated skirts or with non-buoyant side structures, the transverse extent of penetration are to be at least ~~0.12 of the width of~~ $0.12\nabla^{1/3}$ into the main buoyancy hull or tank structure
Vertical extent	the full ~~depth of the craft.~~ vertical extent of the craft

Note

∇ : volume of displacement(m^3) corresponding to the design water line

Table 8.1.3 has been amended as follows.

Table 8.1.3 Extent of Bottom Damage

Direction	Extent of Damage
Longitudinal extent	~~0.1*L*, 3*m*+0.03*L*~~ $0.75\nabla^{1/3}$, $(3m+0.225\nabla^{1/3})$ or 11*m*, whichever is the least.
~~Transverse~~Athwarth ships girth extent	~~the full breadth of the bottom of the craft or 7*m*, whichever is the less, as shown in **Fig. 8.1.1.**~~ the athwartships girth of damage is to be $0.2\nabla^{1/3}$
~~Vertical~~Normal extent to the shell	~~0.02*B* or 0.5*m* whichever is the less~~ the depth of penetration normal to the shell is to be $0.02\nabla^{1/3}$

Note

∇ : volume of displacement(m^3) corresponding to the design water line

Table 8.1.4 has been added as follows.

Table 8.1.4 Extent of Bottom Damage in Areas not Vulnerable to Raking Damage

Direction	Extent of Damage
Longitudinal extent	55% of the length L, measured from the most forward point of the underwater buoyant volume of each hull
	a percentage of the length L, applied anywhere in the length of the craft, is as follows. Where *L* is 50m and over, equal to 35% for craft Where *L* is less than 50m, equal to $(L/2+10)$% for craft
Athwarth ships girth extent	The athwartships girth of damage is to be $0.1\nabla^{1/3}$
Normal extent to the shell	the depth of penetration normal to the shell is to be $0.04\nabla^{1/3}$ or 0.5*m*, whichever is lesser

Note

∇ : volume of displacement(m^3) corresponding to the design water line

The penetration or girth is to under no circumstances extend above the vertical extent of the vulnerable area as stipulated in **Fig.8.1.5**.

Table 8.1.5 has been added as follows.

Table 8.1.5 Extent of bow and stern damage

Damage Parts	Extent of Damage
Bow part	at the fore end, damage to the area defined as A_{bow}, the aft limit of which being a transverse vertical plane, provided that this area need not extend further aft from the forward extremity of the crafts watertight envelope than the longitudinal distance of side damage.
Stern part	at the aft end, damage to the area aft of a transverse vertical plane at a distance $0.2\nabla^{1/3}$ forward of the aft extremity of the watertight envelope of the hull.

Note

$A_{bow} = 0.0035AmfV$, however never less than $0.04A$

Where:

A_{bow} : the plan projected area (m^2) of craft energy-absorbing structure forward of the transverse plane

A : the plan projected area (m^2) of craft

m : material factor $0.95/M$

M : appropriate hull material factor as follows

(a) high-tensile steel : 1.3
(b) aluminium alloy : 1.0
(c) mild steel : 0.95
(d) fibre-reinforced plastics : 0.8

Where materials are mixed, the material factor is to be taken as a weighted mean, weighted according to the mass of material in the area defined by A_{bow}.

f : framing factor as follows

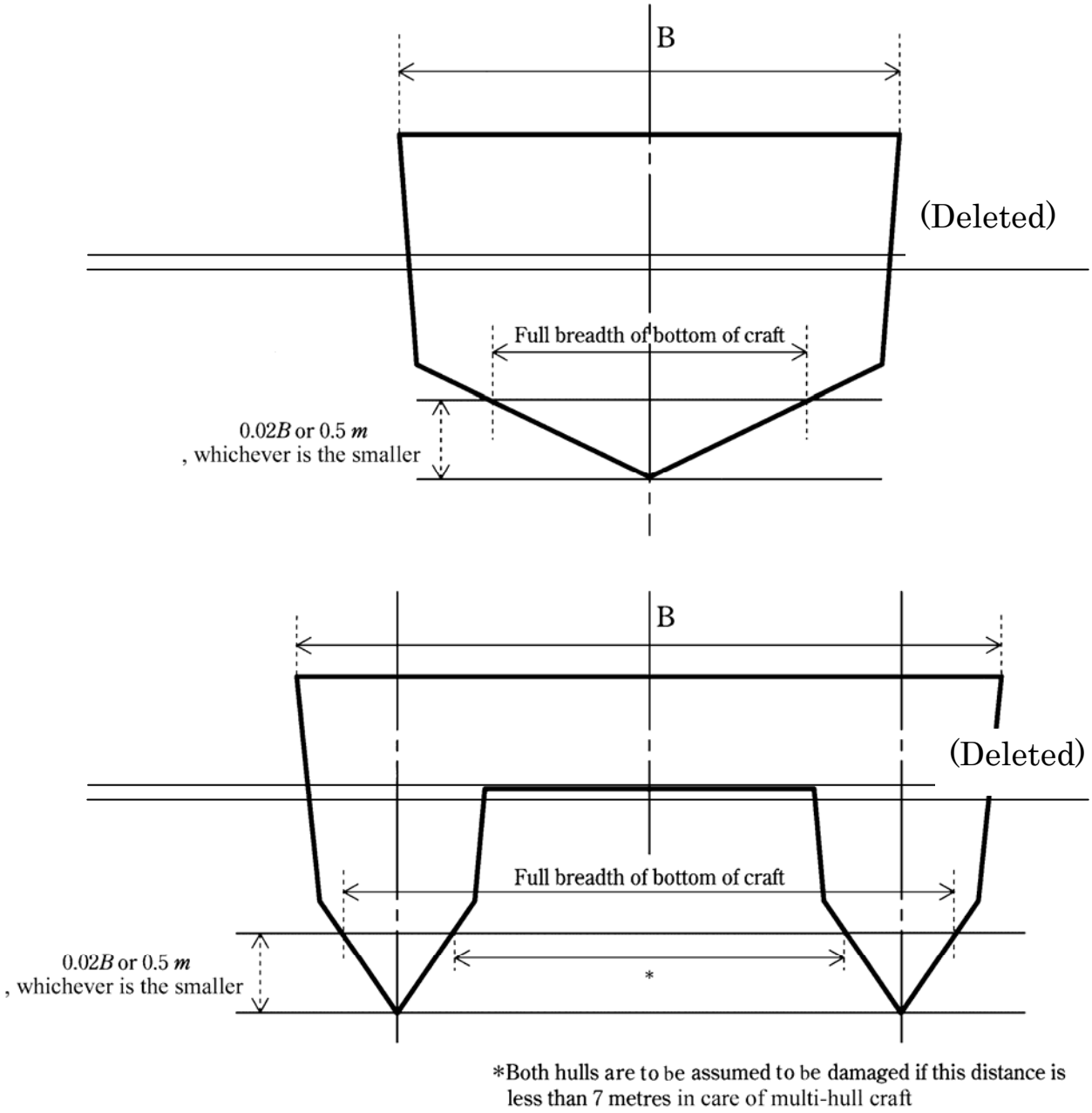
(a) longitudinal deck and shell stiffening : 0.8
(b) mixed longitudinal and transverse : 0.9
(c) transverse deck and shell stiffening : 1.0

V : 90% of maximum speed

∇ : volume of displacement(m^3) corresponding to the design water line

Fig 8.1.1 has been amended as follows.

Fig. 8.1.1 Transverse Extent of ~~Bottom~~Side Damage



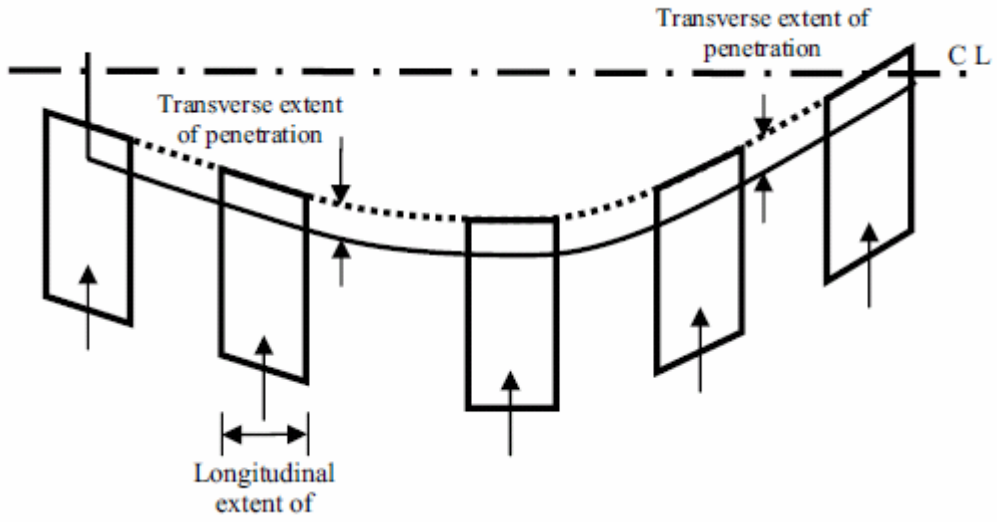


Fig 8.1.2 has been added as follows.

Fig. 8.1.2 Horizontal Extent of Side Damage

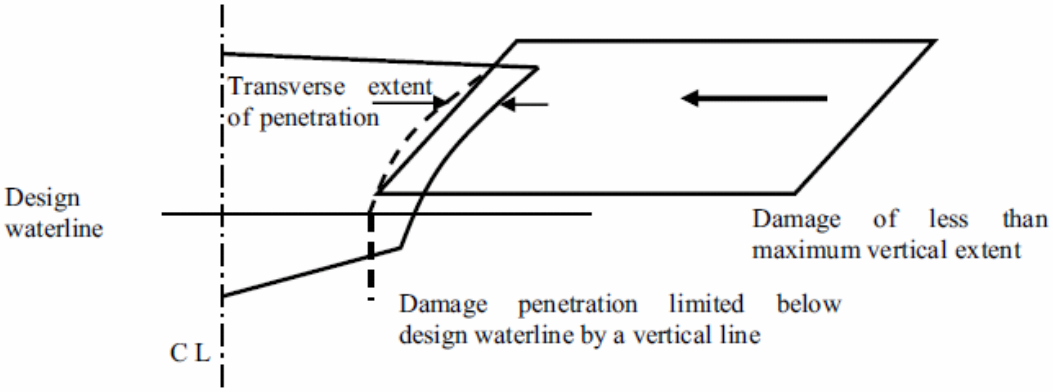


Fig 8.1.3 has been added as follows.

Fig. 8.1.3 Horizontal Extent of Side Damage of Multihull Craft

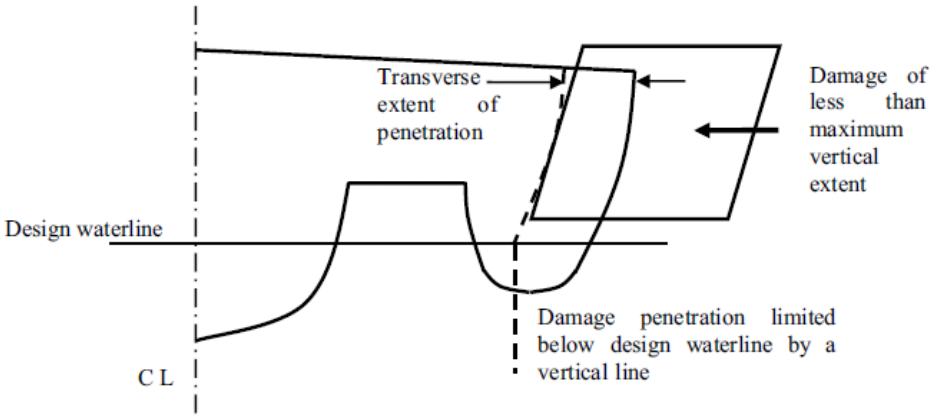


Fig 8.1.4 has been added as follows.

Fig. 8.1.4 Extent of Bottom Damage

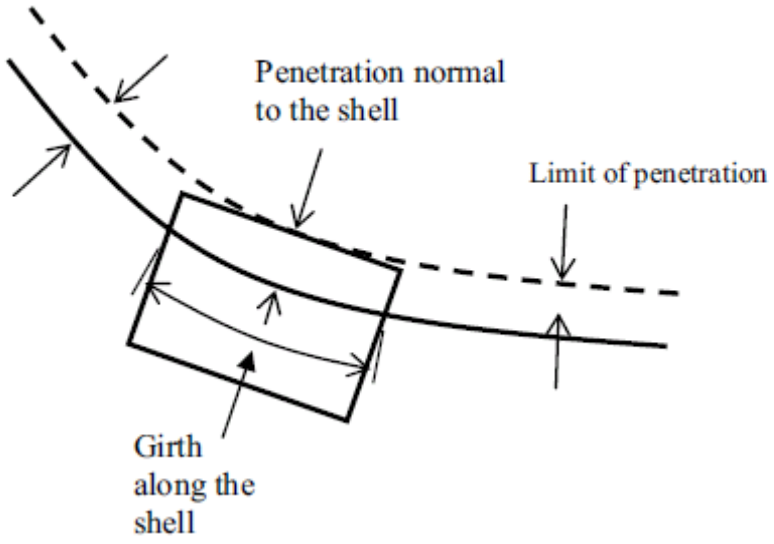


Fig 8.1.5 has been added as follows.

Fig. 8.1.5 Extent of Bottom damage in Areas Vulnerable to Raking Damage

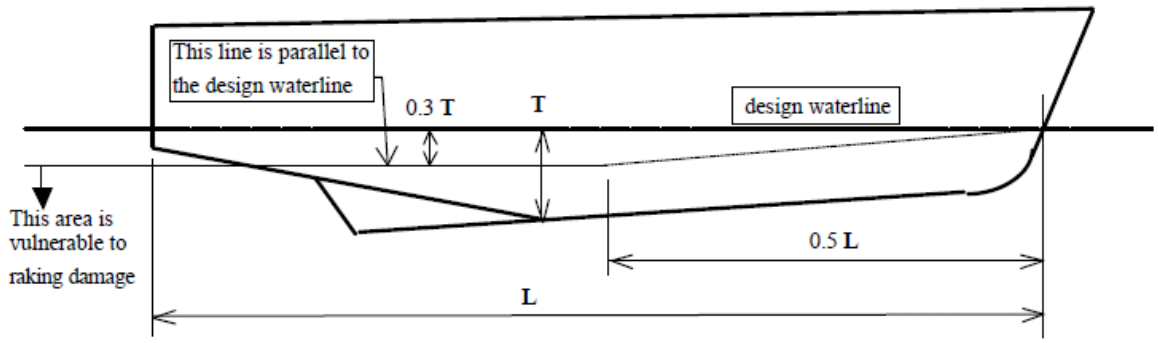
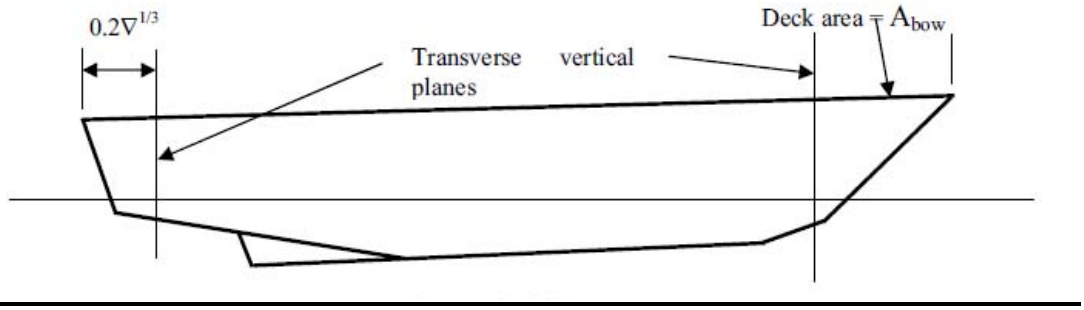


Fig 8.1.6 has been added as follows.

Fig. 8.1.6 Extent of Bow and Stern Damage



1.7 Inclining and Stability Information

1.7.1 Assessment of Lightship Displacement and Centre of Gravity

Existing text has been renumbered to -1 and paragraph -2 has been added as follows.

1 Every craft on completion of build is to be inclined and the elements of its stability determined. When an accurate inclining in not practical, the lightship displacement and centre of gravity are to be determined by a lightweight survey and accurate calculation.

2 On all craft, where an accurate inclining experiment is impractical owing to the height of the centre of gravity (VCG or KG) being less than one third of the transverse metacentric height (GM_T), KG may be estimated by detailed calculation in place of an inclining experiment. In such cases, a displacement check is to be confirm the calculated lightship characteristics, including LCG, which may be accepted if the measured lightship displacement and LCG are respectively within 2% and 1% L relative to the estimate.

Paragraph 1.7.6 has been amended as follows.

1.7.6 Draught Marks at Bow and Stern

Every craft is to have scales of draughts marked clearly at the bow and stern. In the case where the draught marks are not located where they are easily readable, or operational constraints for a particular trade make it difficult to read the draught marks, then the craft is to also be fitted with a reliable draught indicating system by which the bow and stern draughts can be determined. For amphibious air-cushion vehicles this may be achieved by the use of draught gauges in conjunction with deck datum plates.

Chapter 2 REQUIRMENTS FOR PASSENGER CRAFT

2.1 General

Sub-paragraphs 2.1.1(7) to (10) have been added as follows.

2.1.1 Consideration of the Effects of Passenger Weight

Where compliance with this Part requires consideration of the effects of passenger weight, the following information are to be used:

(1) The distribution of passengers is 4 persons per square metre.
(2) Each passenger has a mass of 75 *kg*.
(3) Vertical centre of gravity of seated passengers is 0.3*m* above seat.
(4) Vertical centre of gravity of standing passengers is 1.0*m* above deck.
(5) Passengers and luggage are to be considered to be in the space normally at their disposal
(6) Passengers are to be distributed on available deck areas towards one side of the craft on the decks where muster stations are located and in such a way that they produce the most adverse heeling moment.
(7) Passengers assumed to be occupying seats are to be taken as having a vertical centre of gravity corresponding to being seated, with all others standing.
(8) On the decks where assembly stations are located, the number of passengers on each deck is to be that which generates the maximum heeling moment. Any remaining passengers are to be assumed to occupy decks adjacent to those on which the assembly stations are located, and positioned such that the combination of number on each deck and total heeling moment generate the maximum static heel angle.
(9) Passengers may not to be assumed to gain access to the weather deck nor be assumed to crowd abnormally towards either end of the craft unless this is a necessary part of the planned evacuation procedure.
(10) Where there are seats in areas occupied by passengers, one passenger per seat are to be assumed, passengers being assigned to the remaining free areas of the deck (including stairways, if appropriate) at the rate of four per square metre.

Part 11 FIRE PROTECTION, DETECTION, EXTINCTION AND MEANS OF ESCAPE

Chapter 2 FIRE PROTECTION

2.1 Classification of Space Use

Paragraph 2.1.2 has been added as follows.

2.1.2 Treatment of Space

1 If a space is divided by partial bulkheads into two (or more) smaller areas such that they form enclosed spaces, then the enclosed spaces are to be surrounded by bulkheads and decks in accordance with **Table 11.2.1**, as applicable. However, if the separating bulkheads of such spaces are at least 30% open, then the spaces may be considered as the same space.

2 Cabinets having a deck area of less than 2 m^2 may be accepted as part of the space they serve, provided they have open ventilation to the space and do not contain any material or equipment that could be a fire risk.

3 Where a space has the special characteristics of two or more space groupings, the structural fire protection time of the divisions are to be the highest for the space groupings concerned.

Paragraph 2.1.3 has been added as follows.

2.1.3 Insulation of Deck or Bulkhead

1 To prevent heat transmission at intersections and terminal points, the insulation of the deck or bulkhead is to be carried past the intersection or terminal point for a distance of at least 450 *mm* in the case of steel or aluminium structures (refer to **Fig.11.2.1** and **Fig.11.2.2**).

2 If a space is divided by a deck or bulkhead and the fire insulation required for each space is different, the insulation with the higher structural fire protection time is to continue on the deck or bulkhead with the insulation of the lesser structural fire protection time for a distance of at least 450 *mm* beyond the boundary between the spaces.

3 Where the lower part of the fire insulation has to be cut for drainage, the construction is to be in accordance with the structural details shown in **Fig.11.2.3**.

Fig. 11.2.1 has been added as follows.

Fig. 11.2.1

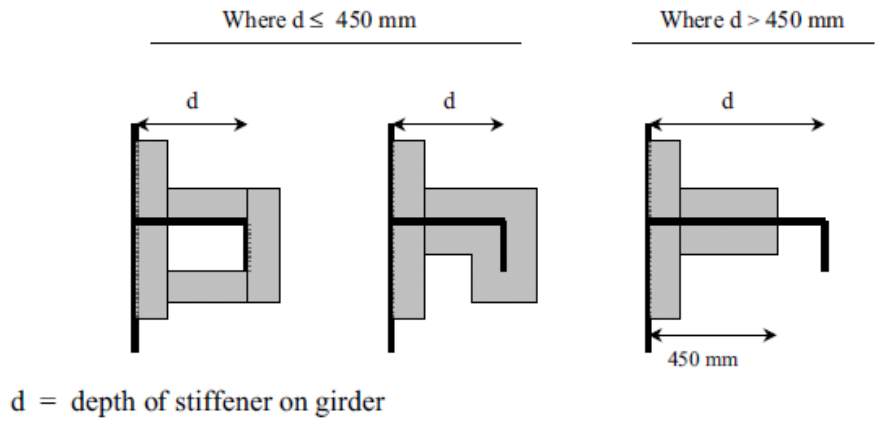


Fig. 11.2.2 has been added as follows.

Fig.11.2.2

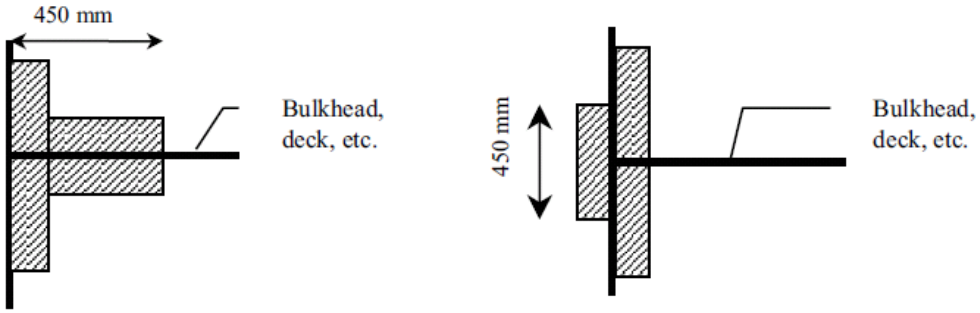


Fig. 11.2.3 has been added as follows.

Fig. 11.2.3

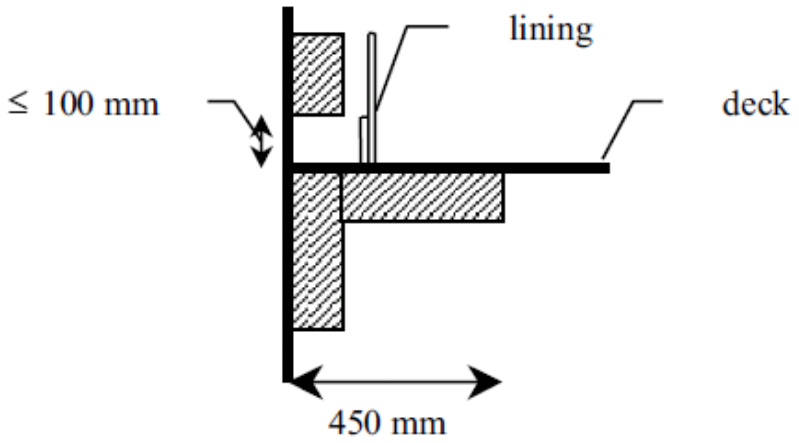


Table 11.2.1 has been amended as follows.

Table 11.2.1 Structural Fire Protection Times for Separating Bulkheads and Decks

Separating Bulkheads and Decks

Categories	A	B	C	D	E	F
Category *A*: Areas of major fire hazard	60 (1)(2) / 60 (1)(2)	30 / 60 (1)	(3) / 60 (1)(6)	(3) / 60 (1)	(3) / 60 (1)	— / 60 (1)(5)
Category *B*: Areas of moderate fire hazard		— / —	— / —	— / —	— / —	— / —
Category *C*: Areas of minor fire hazard			— / —	— / —	— / —	— / —
Category *D*: Control station				— / —	— / —	— / —
Category *E*: Evacuation stations and escape routes					— / —	— / —
Category *F*: Open spaces						— / —

Notes :

The figures on either side of the diagonal line represent the required structural fire protection time for the protection system on the relevant side of the division.

(1) The upper side of the decks ~~of special category spaces and open vehicle space~~ within spaces protected by fixed fire-extinguishing systems need not be insulated.

(2) Where adjacent spaces are in the same alphabetical category and a note (2) appears, a bulkhead or deck between such spaces need not be fitted if deemed unnecessary by the Society. For example, a bulkhead need not be required between two store-rooms. A bulkhead is, however, required between a machinery space and a special category space even though both spaces are in the same category.

(3) No structural fire protection requirements, however, smoke-tight non-combustible or fire-restricting material is required.

(4) Control stations which are also auxiliary machinery spaces are to be provided with 30*min*. structural fire protection.

(5) Fire-resisting divisions need not comply with **1.2.2(5)** of this Part.

(6) Fire-resisting divisions adjacent to void spaces need not comply with **1.2.2(5)** of this Part.

「-」 There are no special requirements for material or integrity of boundaries where only a dash appears in the table.

2.3 Fire-resisting Divisions

Paragraph 2.3.1 has been amended as follows.

2.3.1 Protection of Areas of Major Fire Hazard

1 Areas of major fire hazard are to be enclosed by fire-resisting divisions complying with the requirements of **1.2.~~1~~2** except where the omission of any such division would not affect the safety of the craft. These requirements need not apply to those parts of the structure in contact with water ~~at the lightweight condition~~ at least 300*mm* below the craft's waterline in the lightweight condition in displacement mode, but due regard is to be given to the effect of temperature of hull in contact with water and heat transfer from any uninsulated structure in contact with water to insulated structure above the water.

2 Fire-resisting bulkheads and decks are to be constructed to resist exposure to the standard fire test for a period of 60 *min*. for areas of major fire hazards.

3 Main load-carrying structures within major and moderate fire hazard areas are to be arranged to distribute load such that there will be no collapse of the construction of the hull and superstructure when it is exposed to fire for the appropriate fire protection time. The load-carrying structure is to also comply with the requirements of **2.3.1-4** and **2.3.1-5**.

4 If the structures specified in **2.3.1-3** are made of aluminium alloy their installation is to be such that the temperature of the core does not rise more than $200^{\circ}C$ above the ambient temperature for a period of 60 *min*.

5 If the structures specified in **2.3.1-3** are made of combustible material, their insulation is to be such that their temperatures will not rise to a level where deterioration of the construction will occur during the exposure to the composite standard fire test which is considered appropriate by the Society to such an extent that the load-carrying capability will be impaired.

6 The construction of all doors, and door frames in fire-resisting divisions, with the means of securing them when closed, is to provide resistance to fire as well as to the passage of smoke and flame equivalent to that of the bulkheads in which they are situated. Watertight doors of steel need not insulated. Also, where a fire-resisting division is penetrated by pipes, ducts, controls, electrical cables or for other purposes, arrangements and necessary testing are to be made to ensure that the fire-resisting integrity of the division is not impaired. Where machinery shafts penetrate fire-resisting watertight divisions, arrangements are to be made to ensure that the required watertight and fire-resisting integrity of the division is not impaired.

2.4 Restricted Use of Combustible Materials

2.4.2 Separating Divisions

Sub-paragraph -2 has been amended as follows.

1 All separating divisions, ceilings or linings if not a fire-resisting division, are to be of non-combustible or fire-restricting materials.

2 Where insulation is installed in areas in which it could come into contact with any flammable fluids or their vapours, its surface is to be impermeable to such flammable fluids or vapours.

The exposed surfaces of vapour barriers and adhesives used in conjunction with insulation materials are to have low flame spread characteristics. The fire insulation in such spaces may be covered by metal sheets (not perforated) or by vapour proof glass cloth sealed at joints.

2.4.3 Furniture and Furnishings

Sub-paragraph (1) has been amended as follows.

Furniture and furnishings in public spaces and crew accommodation are to comply with the following standards :

(1) all case furniture e.g., decks, wardrobes, dressing tables, bureaux and dressers is constructed entirely of approved non-combustible or fire-restricting materials, except that a combustible veneer with a calorific value not exceeding 45 MJ/m^2 may be used on the exposed surface of such articles ;

(2) all other furniture such as chairs, sofas, tables, is constructed with frames of non-combustible or fire-restricting materials ;

(3) all draperies, curtains and other suspended textile materials have qualities of resistance to the propagation of flame in accordance with standards which is considered appropriate by the Society ;

(Omitted)

2.4.4 Surface Materials

Sub-paragraph -1 has been amended as follows.

1 The following surfaces are to, as a minimum standard be constructed of materials having low flame-spread characteristics. ≒ However this requirement does not apply to partitions, windows and sidescuttles made of glass which are deemed to be non-combustible.

(1) exposed surfaces in corridors and stairway enclosures, and of bulkheads, wall and ceiling linings in all accommodation and service spaces and control stations ;

(2) concealed or inaccessible spaces in accommodation, service spaces and control stations.

2 Any thermal and acoustic insulation material, if not in compliance with the requirements for fire-resisting divisions or fire-restricting materials, are to be of non-combustible material.

3 Materials used in the craft, when exposed to fire, are not to emit smoke or toxic gases in quantities that could be dangerous to humans as determined in tests of a standard which is considered appropriate by the Society.

(Omitted)

Chapter 3 FIRE DETECTION AND EXTINCTION

3.1 Fire Detection Systems

3.1.1 Fixed Fire Detection and Fire Alarm Systems

Sub-paragraph -3 has been amended as follows.

1 Areas of major fire hazard are to be provided with an approved automatic smoke detection system and manually operated call points to indicate at the control station the location of outbreak of a fire in all normal operating conditions of the installations.

2 In case where deemed necessary by the Society, main propulsion machinery rooms are to in addition have detectors sensing other than smoke and be supervised by TV cameras monitored from the operating compartment.

3 Manually operated call points are to be installed throughout the accommodation spaces, service spaces and, where necessary, control stations. One manually operated call point is to be located at each exit from these spaces and from areas of major fire hazard. Control stations not normally occupied (e.g., emergency generator rooms) need not be provided with manually operated call points.

4 Fixed fire detection and fire alarm systems with manually operated call points are to comply with the installation requirements and the design requirements specified in **Chapter 7, Part R of the Rules for the Survey and Construction of Steel Ships** in addition to the requirements specified in this chapter.

3.3 Fire Pumps

Paragraph 3.3.3 has been amended as follows.

3.3.3 Isolation Valves

Isolating valves to separate the section of the fire main within the machinery space containing the main fire pump or pumps from the rest of the fire main are to be fitted in an easily accessible and tenable position outside the machinery spaces. The fire main is to be so arranged that when the isolating valves are shut all the hydrants on the craft, except those in the machinery space referred to above, can be supplied with water by a fire pump not located in this machinery space through pipes which do not enter this space. The fire main is to be capable of being drained and is to be fitted with valves arranged so that fire main branches can be isolated when the main is used for purposes other than fire-fighting.

Paragraph 3.3.4 has been amended as follows.

3.3.4 Hydrants

Hydrants are to be arranged so that any location on the craft can be reached by the water jets from two fire hoses from two different hydrants, one of the jets being from a single length of

hose. In special category spaces and open vehicle spaces, hydrants are be located so that any location within the space can be reached by two water jets from two different hydrants, each jet being supplied from a single length of hose. One hydrant is to be located in the vicinity of and outside each entrance to a machinery space.

3.3.5 Fire Hoses and Nozzles

Sub-paragraph -1 has been amended as follows.

1 Each fire hose is to be of non-perishable material ~~and their maximum length is generally not to exceed 20 *m*~~ and have a length of at least 10*m*, not more than 15*m* in machinery spaces and not more than 20*m* for other spaces and open decks. Fire hoses, together with any necessary fittings and tools, are to be kept ready for use in conspicuous positions near the hydrants.
2 In machinery spaces and boiler rooms, a set of a fire hose and a nozzle is to be provided with for each hydrant.
3 Each fire hose is to be provided with a nozzle of an approved dual purpose type (*i.e.* spray/jet type) incorporating a shutoff.

3.4 Portable Fire Extinguishers

3.4.1 Portable Fire Extinguishers in Control Stations, Accommodation and Service Spaces

Sub-paragraph -3 has been added as follows.

1 Control stations, accommodation spaces and service spaces are to be provided with portable fire extinguishers of appropriate types in accordance with **Table 11.3.2**.
2 In addition to **-1** above, at least one extinguisher suitable for machinery space fires is to be positioned outside each machinery space entrance.
3 Portable Fire Extinguishers are to comply with the requirements in **Chapter 24, Part R of the Rules for the Survey and Construction of Steel Ships**.

3.6 Fireman's Outfits

Paragraph 3.6.3 has been amended as follows.

3.6.3 Fireman's Outfit

A fireman's outfit is to consist of:
(1) Personal equipment comprising:
(a) protective clothing of material to protect the skin from the heat radiating from the fire and from burns and scalding by steam or gases. The outer surface is to be water-resistant;
(b) boots ~~and gloves~~ of rubber or other electrically non-conductive material;

(c) a rigid helmet providing effective protection against impact;
(d) an electric safety lamp (hand lantern) of an approved ~~type~~ explosion-proof type with a minimum burning period of 3 *hours*; and
(e) an axe to the satisfaction of the Society having a handle provided with high-voltage insulation.

~~(2) A breathing apparatus of an approved type which may be either:~~
~~(a) a smoke helmet or smoke mask which is to be provided with a suitable air pump and a length of air hose sufficient to reach from the open deck, well clear of hatch or doorway, to any part of the holds or machinery spaces. If, in order to comply with this subparagraph, an air hose exceeding 36*m* in length would be necessary, a self-contained breathing apparatus is to be substituted or provided in addition as determined by the Society; or~~
~~(b)~~(2) a self-contained compressed-air-operated breathing apparatus of an approved type, the volume of air contained in the cylinders of which are to be at least 1,200 ℓ, or other self-contained breathing apparatus of an approved type which are to be capable of functioning for at least 30 *minutes*. ~~A number of spare charges, suitable for use with the apparatus provided, are to be available on board~~. Two spare charges suitable for use with the apparatus are to be provided for each required apparatus.

(3) For each breathing apparatus, a fireproof lifeline of ~~sufficient length~~ approximately 30*m* in length and strength is to be provided capable of being attached by means of a snaphook to the harness of the apparatus or to a separate belt in order to prevent the breathing apparatus becoming detached when the lifeline is operated. The lifeline is to be subjected to a test by static load of 3.5*kN* for 5 *minutes*.

Chapter 4 ADDITIONAL REQUIREMENTS FOR MACHINERY SPACES

4.1 Additional Requirements for Machinery Spaces

4.1.1 Fuel and Other Flammable Fluid Tanks and Systems

Sub-paragraph -2 has been amended as follows.

1 Tanks containing fuel and other flammable fluids are to be separated from passenger, crew, and baggage compartments by vapour-proof enclosures or cofferdams which are suitably ventilated and drained.

2 Fuel oil tanks are not to be located in or contiguous to major fire hazard areas.
However, flammable fluids of a flashpoint not less than 60 $^{\circ}C$ may be located within such areas provided the tanks are made of steel or other equivalent material. The use of aluminium in lubricating oil sump tanks for engines, or in lubricating oil filter housings fitted integral with the engines, is accepted.

3 Every oil fuel pipe which, if damaged, would allow oil to escape from a storage, settling or

daily service tank is to be fitted with a cock or valve directly on the tank capable of being closed from a position outside the space concerned in the event of a fire occurring in the space in which such tanks are situated.

4 Pipes, valves and couplings conveying flammable fluids are to be of steel or such alternative material satisfactory to the Society, in respect of strength and fire integrity having regard to the service pressure and the spaces in which they are installed. Wherever practicable, the use of flexible hoses is to be avoided.

5 Pipes, valves and couplings conveying flammable fluids are to be arranged as far from hot surfaces or air intakes of engine installations, electrical appliances and other potential sources of ignition as is practicable and be located or shielded so that the likelihood of fluid leakage coming into contact with such sources of ignition is kept to a minimum.

4.1.3 Miscellaneous Requirements

Sub-paragraph (3) has been amended as follows.

Craft are to comply with the following miscellaneous requirements on fire safety measures for machinery spaces:

(1) Means are to be provided in machinery spaces to ensure prevention of accumulation of flammable vapours under normal service condition by positive means of ventilation capable of releasing smoke in the event of a fire.

(2) The number of skylights, doors, ventilators, openings in funnels to permit exhaust ventilation and other openings to machinery spaces is to be reduced to a minimum consistent with the needs of ventilation.

(3) The openings given in **(2)** above are to be provided with closing appliances which are made of steel or other equivalent material and are operable from outside the machinery spaces, where they will not be cut off in the event of a fire in the spaces they serve. <u>The controls are to be easily acceptable as well as prominently and permanently marked and are to indicate whether the shut-off is open or closed.</u>

(4) The doors fitted in boundary bulkheads of main propulsion machinery rooms are to be of self-closing type to prevent the spread of fire to other spaces.

(5) In addition to the requirements given in **(1)** to **(4)** above, periodically unattended machinery spaces are to be provided with fire protection arrangements as considered appropriate by the Society having due regard to the risk of a fire where deemed necessary by the Society.

Chapter 5 PROTECTION OF SPECIAL CATEGORY SPACES

5.1 Protection of Special Category Spaces

Paragraph 5.1.1 has been amended as follows.

5.1.1 Structural Protection

1 Boundaries of special category spaces are to be insulated in accordance with **Table 11.2.1**. ~~The standing deck of the special category space need only be insulated on the underside if required.~~

2 The vehicle deck of a special category space or a ro-ro space, including an open ro-ro space, need only be insulated on the underside if required. Vehicle decks located totally within ro-ro spaces may be accepted without structural fire protection, provided these decks are not part of, or do not provide support to, the crafts main load-carrying structure and provided satisfactory measures are taken to ensure that the safety of the craft, including fire-fighting abilities, integrity of fire resisting divisions and means of evacuation, is not affected by a partial or total collapse of these internal decks.

~~2~~**3** Indicators are to be provided on the navigating bridge which are to indicate when any door leading to or from the special category space is closed.

5.1.3 Fixed Fire-extinguishing System

Existing text has been renumbered to -1 and paragraph -2 has been added as follows.

1 Each special category space is to be fitted with an approved fixed pressure water-spraying system for manual operation which is to protect all parts of any deck and vehicle platform in such space, provided that the Society may permit the use of any other fixed fire-extinguishing system that has been shown by full-scale test in conditions simulating a flowing petrol fire in a special category space to be not less effective in controlling fires likely to occur in such a space.

2 Fixed fire-extinguishing systems are to fulfill the following requirement.

(1) the valve manifold shall be provided with a pressure gauge, and each of the valves shall be marked to identify the protected areas

(2) instructions for maintenance and operation of the installation shall be set up in the room where the valves are located

(3) the piping system shall be provided with a sufficient number of drainage valves.

Paragraph 5.1.6 has been amended as follows.

5.1.6 Scuppers, Bilge Pumping and Drainage

1 In view of the serious loss of stability which could arise due to large quantities of water accumulating on the deck or decks consequent to the operation of the fixed pressure water-spraying system, ~~scuppers are to be fitted so~~ pumping and drainage arrangements are to be such as to prevent such accumulation. Scuppers fitted for this purpose are to be so arranged as to ensure that such water is rapidly discharged directly overboard. Alternatively, pumping and drainage facilities are to be provided in additional to the requirements of **Chapter 8 in**

Part 9. When it is required to maintain watertight or weathertight integrity, as appropriate, the scuppers is to be arranged so that they can be operated from outside the space protected.

2 Scuppers and drainage pumps fitted in accordance with 1 above are to comply with following requirements:

(1) the amount of water for which drainage is to be provided is to take into account the capacity of both the water spraying system pumps and the required number of fire hose nozzles

(2) the drainage system is to have a capacity of not less than 125% of the capacity specified in (1) above

(3) bilge wells are to be of sufficient holding capacity and are to be arranged at the side shell of the ship at a distance from each other of not more than 40*m* in each watertight compartments

Paragraph 5.1.7 has been amended as follows.

5.1.7 Precautions against Ignition of Flammable Vapours

1 On any deck or platform, if fitted, on which vehicles are carried and on which explosive vapours might be expected to accumulate, except platforms with openings of sufficient size permitting penetration of petrol gases downwards, equipment which may constitute a source of ignition of flammable vapours and, in particular, electrical equipment and wiring, are to be installed at least 450 *mm* above the deck or platform~~;~~. Electrical equipment installed at more than 450 *mm* above the deck or platform are to be of a type approved so enclosed and protected as to prevent the escape of sparks. However, if the installation of electrical equipment and wiring at less than 450 *mm* above the deck or platform is necessary for the safe operation of the craft, such electrical equipment and wiring may be installed provided that it is of a type approved for use ~~in an explosive petrol and air mixture~~.

2 ~~Electrical equipment and wiring, if~~ If installed in an exhaust ventilation duct, electrical equipment are to be of a type approved for use ~~in explosive petrol and air mixtures and the outlet from any exhaust duct is to be sited in a safe position, having regard to other possible sources of ignition~~. The requirement and wiring, if fitted, are to be of a type approved for use and the outlet from any exhaust duct is to be sited in a safe position, having regard to other possible sources of ignition.

Chapter 6 MEANS OF ESCAPE

6.1 Exits and Means of Escape

Paragraph 6.1.1 has been amended as follows.

6.1.1 General

(Omitted)

6 The closing, latching and locking arrangements for exits are to be such that it is readily apparent to the appropriate crew member when the doors are closed and in a safe operational condition, either in direct view or by an indicator. The design of external doors is to be such as to eliminate the possibility of jamming by ice of debris.

7 The craft is to have a sufficient number of exits which are suitable to facilitate the quick and unimpeded escape of persons wearing approved lifejackets in emergency conditions, such as collision damage or fire.

8 Sufficient space for a crew member is to be provided adjacent to exits for ensuring the rapid evacuation of passengers.

9 All exits, together with their means of opening, are to be adequately marked for the guidance of passengers. ~~Adequate marking~~ Clear markings, including the location of the fire control, is ~~also~~ to be provided for the guidance of rescue personnel outside the craft.

10 Footholds, ladders, etc., provided to give access from the inside to exits, are to be of rigid construction and permanently fixed in position. Permanent handholds are to be provided whenever necessary to assist persons using exits, and are to be suitable for conditions when the craft has developed any possible angles of list or trim.

11 At least two unobstructed evacuation paths are to be available for the use of each person. Evacuation paths are to be disposed such that adequate evacuation facilities will be available in the event of any likely damage or emergency conditions, and evacuation paths are to have adequate lighting supplied from the main and emergency sources of power. Doors providing escape from a space are to be situated at opposite ends of the space. Where the doors providing escape from a space are situated in the same end of the space, the distance between those doors is to be greater than the maximum length of the space.

12 The dimensions of passages, doorways and stairways which form part of evacuation paths are to be such as to allow easy movement of persons when wearing lifejackets. There are to be no protrusions in evacuation paths which could cause injury, ensnare clothing, damage lifejackets or restrict evacuation of disabled persons. Requirements of this paragraph do not apply to aisles (fore-aft passageways separating seating areas) or to spaces between adjacent rows of seats.

13 Adequate notices are to be provided to direct passengers to exits.

14 Provision are to be made on board for embarkation stations to be properly equipped for evacuation of passengers into life-saving appliances. Such provision are to include handholds, anti-skid treatment of the embarkation deck, and adequate space which is clear of cleats, bollards and similar fittings.

Paragraph 6.1.2 has been amended as follows.

6.1.2 Means of Escape from Machinery Spaces

1 At least two means of escape from the machinery spaces are to be provided, and they are to be arranged as widely separated as possible. ~~At least one set of them is to be able to directly escape to the open deck area.~~ At least one means of escape from a machinery space shall

consist of either a ladder leading to a door or hatch (not being a horizontal flush-hatch) or a door located in the lower part of that space and giving access to an adjacent compartment from which a safe means of escape is provided. However, the Society may dispense with one set of means of escape paying due regard to dimensions and arrangement of the machinery spaces.

2 Stairways, ladders, etc. which are part of means of escape from machinery spaces are to be of ample strength and to be effectively secured to the hull constructions. Raw materials which are easily dehardening or melting such as plastics are not to be used for these equipment.

3 Notwithstanding the above, spaces that are only entered occasionally by crew members may have only one means of escape provided that it is independent of watertight doors.

6.1.3 Means of Escape from Special Category Spaces and Open Vehicle Spaces

Paragraph -5 has been added as follows.

1 Means of escape are to be provided at least in the fore, midship and aft part of respective special category spaces and the open vehicle spaces. These means of escape are to be placed in both wings of respective spaces unless these means of escape are placed at centre line of such spaces.

2 Means of escape are to be so located that no point in the space is more than 40*m* walking distance from the means of escape. Where the arrangement of means of escape required by **-1** above cannot comply with this requirement, additional means of escape are to be appropriately so arranged to comply with this requirement.

3 Stairways, ladders, etc., which are part of means of escape from the special category spaces and open vehicle spaces are to be of ample strength and to be effectively secured to the hull constructions. Raw materials which are easily dehardening or melting such as plastics are not to be used for these equipment.

4 Where stores and lockers have only exits facing to special category spaces or open vehicle spaces, the Society may require to provide additional means of escape which directly escape to the outside of the special category spaces or open vehicle spaces paying due regard to dimensions and use of such spaces.

5 Special category spaces used for stowage of motor vehicles are to be provided with walkways having a width of at least 600 mm leading to a safe means of escape.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 July 2008.

2. Notwithstanding the amendments to the Rules, the current requirements may apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date.

(Note) The term "*a similar stage of construction*" means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 *tonnes* or 3% of the estimated mass of all structural material, whichever is the less.

GUIDANCE FOR HIGH SPEED CRAFT

GUIDANCE

2008 AMENDMENT NO.1

Notice No.12 27th February 2008

Resolved by Technical Committee on 30th November 2007

Notice No.12 27th February 2008
AMENDMENT TO THE GUIDANCE FOR HIGH SPEED CRAFT

"Guidance for high speed craft" has been partly amended as follows:

Amendment 1-1

Part 1 GENERAL RULES

Chapter 2 has been added as follows.

Chapter 2 DEFINITIONS

2.1 General

2.1.16 Freeboard Deck

1 "Adequate width" specified in **2.1.16-3** of the Rules is to be determined by taking into account the ship's construction, and operation, and at the minimum, is to accommodate the passages specified in **23.7, Part C of the Rules**.

2 With respect to the provisions of **2.1.16** of the Rules, the freeboard deck on a ship which has openings at the after end and the bottom of cargo spaces (hereinafter referred to as "well deck") can be submerged below the waterline by ballasting for loading/unloading cargoes from such after end openings is to be in accordance with the following.

(1) If such a ship is fitted with weathertight closures for the cargo space(s) and a watertight closure at the stern, the uppermost complete deck may be taken as the freeboard deck.

(2) If such a ship is not fitted with weathertight closures for the cargo space(s) or a watertight closure at the stern, the well deck is to be taken as the freeboard deck. In this case, buoyant spaces in the hull structure above such well decks may be considered as superstructures in accordance with the provisions of **2.1.19** of the Rules.

(3) If such a ship is not fitted with weathertight closures for the cargo space(s) but has a watertight closure at the stern, the uppermost complete deck may be taken as the freeboard deck provided that the calculated freeboard is corrected for any missing buoyancy above the well deck in accordance with **Part V of the Rules**. In this case, the structure of the freeboard deck, where provided within cargo spaces, is to be continuous forward and afterward at the ship's sides and continuous athwartship at the transverse bulkheads, and capable of passage.

Part 7 EQUIPMENT AND PAINTING

Chapter 3 BULWARKS, GUARDRAILS, FREEING ARRANGEMENTS, CARGO PORTS AND OTHER SIMILAR OPENINGS, SIDE SCUTTLES, VENTILATORS AND GANGWAYS

Section 3.1 has been added as follows.

3.1 Bulwarks and Guardrails

3.1.1 General

In **3.1.1-2(2)** of the Rules, "measures deemed appropriate by the Society" implies that **(1)** and **(2)** below need to be satisfied.

(1) Stanchions are to be of increased breadth as in **(a)** to **(c)** below, depending on their arrangement. The figure of these stanchions is given in **Fig.C23.1.1-1**.

(a) at least every third stanchion is to be of increased breadth : $kb_S \geq 2.9b_S$

(b) at least every second stanchion is to be of increased breadth : $kb_S \geq 2.4b_S$

(c) every stanchion is to be of increased breadth : $kb_S \geq 1.9b_S$

kb_S: increased breath of stanchion (*mm*)

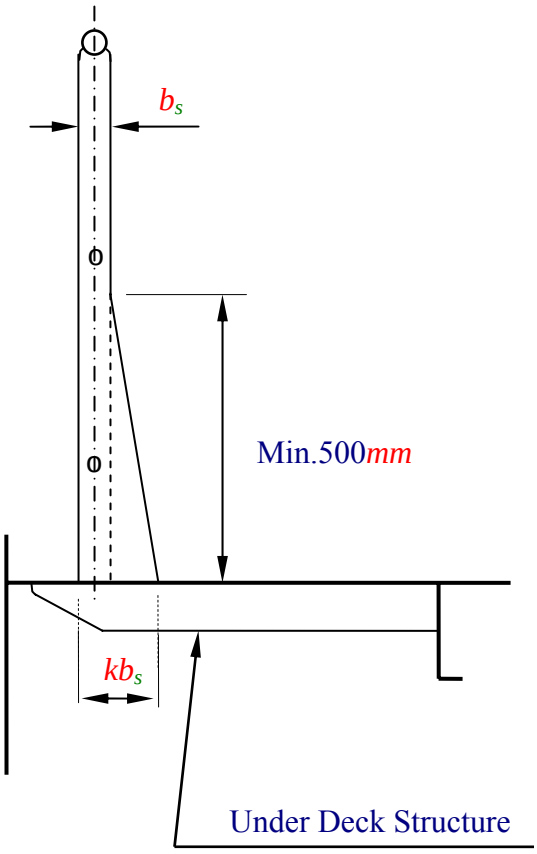
b_S : breadth of stanchion according to standards approved by the Society.(*mm*)

Stanchions of increased breadth are to be welded to the deck with double continuous fillet welds and a minimum leg size of 7 *mm* or as specified by standards approved by the Society.

(2) Stanchions with increased breadth, as described in **(1)** above, are to be aligned with the members below the deck. These members are to be a minimum of 100x12 *mm* flat bar welded to the deck by double continuous fillet welds. The stanchions with increased breadth need not be aligned with under deck structures for deck plating exceeding 20 *mm*.

Fig.3.1.1-1 has been added as follows.

Fig.3.1.1-1 Guardrail Stanchion (Example)



Section 3.2 has been added as follows.

3.2 Freeing Arrangements

3.2.2 Freeing Port Area

1 A flush-decker having an effective deckhouse is to be considered to have two wells afore and abaft the deckhouse, and each of these wells is required to have a freeing port area as prescribed in **3.2.2, Part 7** of the Rules. The term "effective deckhouse" means a structure having a breadth not less than 80% of the breadth of ship and the width of passageways at its sides does not exceed 1.5 *m*.

2 Where a divisional bulkhead extending from side to side is provided at the forward end of deckhouse, the ship is to be considered to have two wells afore and abaft the bulkhead, irrespective of the breadth of deckhouse, and each of these wells is required to have the freeing port area prescribed in **3.2.2, Part 7** of the Rules.

3 Where freeing ports have rails or other fixtures that reduce the area of the opening, the projected area caused by these fixtures is to be deducted from the actual freeing port area during calculations.

3.2.3 Arrangement of Freeing Ports

In ships without sheer or having very small sheer, the area of freeing ports is to be distributed throughout the whole length of the well.

Section 3.6 has been added as follows.

3.6 Ventilators

3.6.3 Closing Appliances

Closing appliances required in **3.6.3** of the Rules are to be of steel or other equivalent materials.

Part 14 has been added as follows.

Part 14 SPECIAL REQUIREMENTS FOR CRAFT ENGAGED IN INTERNATIONAL VOYAGE

Chapter 1 GENERAL

1.1 General

1.1.1 Application

1 With regard to requirement stipulated in 7.3.1.3 of *THE INTERNATIONAL CODE OF SAFETY FOR HIGH SPEED CRAFT*, Stairway may be categorised as areas of minor fire hazard.

2 With regard to requirement stipulated in 7.4.4.1 of *THE INTERNATIONAL CODE OF SAFETY FOR HIGH SPEED CRAFT*, Public spaces extending over 2 decks may be considered as one space, provided as follows.

(1) the length and width of the openings area between lower and upper part is at least 25% of the mean length and width of the upper part of the whole space or at least of a corresponding area.

(2) sufficient means of escape is provided from both levels of the space directly leading to an adjacent safe area or compartment.

(3) the whole space is served by one section of sprinkler system with one relieve valve.

3 With regard to requirement stipulated in **Table 7.4-1** of *THE INTERNATIONAL CODE OF SAFETY FOR HIGH SPEED CRAFT*, Ventilation openings may be accepted in entrance doors to public toilets if positioned in the lower portion of such doors and fitted with closable grilles operable from the public space side and made of non-combustible or fire-restricting material.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 1 April 2008.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to ships for which the date of contract for construction* is before the effective date.
*"contract for construction" is defined in IACS Procedural Requirement(PR) No.29 (Rev.4).

IACS PR No.29 (Rev.4)

1. The date of "contract for construction" of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.

2. The date of "contract for construction" of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder.
For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a "series of vessels" if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:
(1) such alterations do not affect matters related to classification, or
(2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.
The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.

3. If a contract for construction is later amended to include additional vessels or additional options, the date of "contract for construction" for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a "new contract" to which **1.** and **2.** above apply.

4. If a contract for construction is amended to change the ship type, the date of "contract for construction" of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Notes:
1. This Procedural Requirement applies to all IACS Members and Associates.
2. This Procedural Requirement is effective for ships "contracted for construction" on or after 1 January 2005.
3. Revision 2 of this Procedural Requirement is effective for ships "contracted for construction" on or after 1 April 2006.
4. Revision 3 of this Procedural Requirement was approved on 5 January 2007 with immediate effect.
5. Revision 4 of this Procedural Requirement was adopted on 21 June 2007 with immediate effect.

Amendment 1-2

Annex 2 METHODS RELATING TO THE INTACT STABILITY INVESTIGATION OF HYDROFOIL CRAFT

Section 1.1 has been amended as follows.

1.1 General

The stability of these craft should be considered in the hull-borne, transient and foil-borne modes. The stability investigation should also take into account the effects of external forces. The following procedures are outlined for guidance in dealing with stability.
In addition, "hull-borne mode" has the same meaning as "displacement mode" defined in **2.1.30, Part 1** of the Rules and "foil-borne mode" has the same meaning as "non-displacement mode" defined in **2.1.31, Part 1** of the Rules.

Annex 3 STABILITY OF MULTIHULL CRAFT

Section 1.1 has been amended as follows.

1.1 Stability Criteria in the Intact Condition

A multihull craft, in the intact condition, should have sufficient stability when rolling in a seaway to successfully withstand the effect of either passenger crowding or high-speed turning as described in **1.1.4**. The craft's stability should be considered to be sufficient provided compliance with this paragraph is achieved. Alternatively another method of assessment may be employed, as provided for in **1.1.4, Part 8** of the Rules.

Paragraph 1.1.5 has been amended as follows.

1.1.5 Rolling in Waves (Fig. 1)

The effect of rolling in a seaway upon the craft's stability should be demonstrated mathematically. In doing so, the residual area under the GZ curve (A_2), *i.e.* beyond the angle of heel (θ_h), should be at least equal to 0.028 *m-rad* up to the angle of roll θ_r. In the absence of model test or other data θ_r should be taken as 15° or an angle of ($\theta_d - \theta_h$), whichever is less. The determination of θ_r using model test or other data is to be made using the method for determination θ_z in **1.2.1-5.(3), Annex 2**.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 July 2008.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date.

(Note) The term "*a similar stage of construction*" means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 *tonnes* or 3% of the estimated mass of all structural material, whichever is the less.