RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part C Hull Construction and Equipment

2006 AMENDMENT NO.3

Rule No.44 15th June 2006

Resolved by Technical Committee on 12th May 2006

Approved by Board of Directors on 30th May 2006

Rule No.44 15th June 2006
AMENDMENT TO THE RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Rules for the Survey and Construction of Steel Ships" has been partly amended as follows:

Part C HULL CONSTRUCTION AND EQUIPMENT

Amendment 3-1

Chapter 31B ADDITIONAL REQUIREMENTS FOR EXISTING BULK CARRIERS

31B.1 General

31B.1.1 Application

Sub-paragraphs -1 to -5 have been renumbered to -2 to -6 respectively, and sub-paragraph -1 has been added as follows.

1 The requirements in this chapter apply to cargo ships of not less than 500 *gross tonnage* engaged on international voyages.

EFFECTIVE DATE AND APPLICATION (Amendment 3-1)

1. The effective date of the amendments is 1 July 2006.

Amendment 3-2

Chapter 28 STRENGTHENING FOR NAVIGATION IN ICE

28.2 Ice Strengthening

28.2.2 Definitions

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

(3) The load waterline (*LWL*) is the line defined by the draught amidships of length L_f on the fresh water load line in summer determined by the requirements in **Part V** (If the ship has the timber load lines determined by the requirements in **Part V**, the draught on the fresh water timber load line in summer is to be used.) and the maximum draughts fore and aft taking account of the trim of ship and the salinity of the sea water along the intended route. For the application of this chapter, the forward maximum draught is, in general, not to be less than the draught amidships of length L_f.

28.2.4 Engine Output

In sub-paragraph -1, the definitions of T, L_{PAR}, L_{BOW}, φ_1, φ_2 and α have been amended as follows.

T: Actual ice class draughts of the ship, in general being a draught amidships of length L_f corresponding to the load waterline according to **28.2.2(3)** and a draught amidships of length L_f corresponding to the ballast waterline according to **28.2.2(4)** (*m*)

In any case, $\left(LT / B^2\right)^3$ is not to be taken as less than 5 and not to be taken as more than 20.

L_{PAR}: Length of the parallel midship body, measured horizontally between the fore and aft ends of the flat side on the waterline at the actual ice class draught (*m*) (See **Fig. C28.2**)

L_{BOW} : Length of the bow, measured horizontally between the fore end of the flat side on the waterline at the actual ice class draught (*m*) and the fore perpendicular at the load waterline (*m*) (See **Fig. C28.2**)

φ_1, φ_2, α : The angle between the ship and the water plane at the actual ice class draught (*deg*) (See **Fig. C28.2**). Where the value of φ_1 and φ_2 is greater than 90 *degrees*, 90 *degrees* is to be used in the calculations.

Chapter 31A ADDITIONAL REQUIREMENTS FOR NEW BULK CARRIERS

31A.6 Double-side Skin Construction and Cargo Hold Construction

31A.6.2 Cargo Hold Construction

Sub-paragraphs -1(3) has been amended as follows.

(3) The structure of cargo areas is to be such that localized mechanical damage of one stiffening structural member will not lead to immediate consequential failure of other structural items potentially leading to the collapse of the entire stiffened panels.

EFFECTIVE DATE AND APPLICATION (Amendment 3-2)

1. The effective date of the amendments is 1 July 2006.

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 1% of the estimated mass of all structural material, whichever is the less.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE

Part C Hull Construction and Equipment

2006 AMENDMENT NO.2

Notice No.47 15th June 2006

Resolved by Technical Committee on 12th May 2006

Notice No.47 15th June 2006
AMENDMENT TO THE GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Guidance for the Survey and Construction of Steel Ships" has been partly amended as follows:

Part C HULL CONSTRUCTION AND EQUIPMENT

Amendment 2-1

C15 LONGITUDINAL STRENGTH

C15.2 Bending Strength

C15.2.1 Bending Strength at the Midship Part

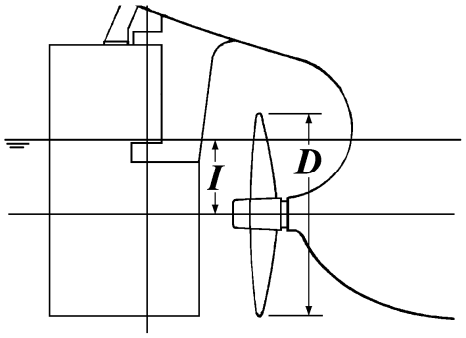
Sub-paragraphs (6) and (7) have been added as follows.

(6) For large wing ballast tanks of ore carriers as defined in **1.3.1(13)(b), Part B of the Rules**, an examination for partially filled ballast tanks specified in **(4)** above, may be according to the followings.
   (a) Where full ballast water filling levels or empty of one or two pairs of these tanks lead to the ship's trim exceeding one of the following conditions, it may be sufficient to demonstrate compliance with maximum, minimum and intended partial filling levels of these one or two pairs of ballast tanks such that the ship's condition does not exceed any of these trim limits.
      i) Trim by stern of 3% of the ship's length (L_1)
      ii) Trim by bow of 1.5% of ship's length (L_1)
      iii) Any trim that cannot maintain propeller immersion (I/D) not less than 25%, where;
      I = the distance from propeller centerline to the waterline
      D = propeller diameter
   (b) Where two or more pairs of ballast tanks are intended to be partially filled, for the application of the provisions of **(a)** above, filling levels of all wing ballast tanks other than any one pairs of ballast tanks filling level of which determined by the trim limitation are to be considered between empty and full.
   (c) For the application of the provisions of **(a)** above, the maximum and minimum filling levels of the above mentioned pairs of side ballast tanks are to be indicated in the loading manual specified in **34.2.1, Part C of the Rules**.

(7) The provisions of **(4)** to **(6)** above need not apply to ballast water exchange using the sequential method.

Figure C25.2.1-1 has been added as follows.

Fig. C25.2.1-1 Propeller Immersion



Annex C34.1.2 GUIDANCE FOR PREPARATION OF LOADING MANUAL

1.2 Contents to be Included in the Introduction

1.2.2 Precautions for loading

Sub-paragraph -1(4) has been added as follows.

(4) Precautions related to the filling level of ballast tanks according to the provisions of **C15.2.1(6)**

EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

1. The effective date of the amendments is 1 July 2006.

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.2).

IACS PR No.29 (Rev.2)

Unless specified otherwise:

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 sister 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, a "series of sister vessels" is a series of vessels built to the same approved plans for classification purposes, under a single contract for construction. The optional vessels will be considered part of the same series of sister 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.

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. Sister vessels may have minor design alterations provided such alterations do not affect matters related to classification.
4. Revision 2 of this Procedural Requirement is effective for ships "contracted for construction" on or after 1 April 2006.

Amendment 2-2

C28 STRENGTHENING FOR NAVIGATION IN ICE

C28.2 Ice Strengthening

C28.2.2 has been added as follows.

C28.2.2 Definitions

1 For the application of **Chapter 28, Part C of the Rules**, fore and aft perpendiculars are to be determined in the same manner as those of length L_f.

2 The load waterline specified in **28.2.2(3), Part C of the Rules** may be, in general, a broken line having different draughts fore and aft.

C28.2.6 has been deleted.

C28.2.7 has been added as follows.

C28.2.7 General Requirements for Frames

1 With respect to the provisions of **28.2.7-2, Part C of the Rules**, for longitudinal frames, where deemed as unavoidable by the Society, no end brackets may be accepted. In this case, for facilitating transmission of the ice load to main hull structures, the web of such frames is to be attached to web frames by double lugs and web frame stiffeners, welded to the flange of the frame, fitted in way of every frame support, and effective support structures at frame terminations. In the application of the formula specified in **28.2.9-2, Part C of the Rules**, value of *m* is not to be taken larger than 11.

2 Where larger spacing is adopted for longitudinals according to the conditional clause in **28.2.9-2, Part C of the Rules**, web thickness of the frames specified in **28.2.7-3(3), Part C of the Rules** need not to exceed one half of the required shell plating thickness as required for frame spacing of 0.45 *m* assuming the yield stress of the plate not more than that used for the frame.

C28.2.9 Longitudinal Frames

Sub-paragraph -1 has been amended as follows.

1 With respect to the provisions of **28.2.9, Part C** of the Rules, vertical extension of ice strengthening of longitudinal framing may be limited to longitudinal frames within the ice belt specified in **28.2.6-1, Part C of the Rules** and those just above and below the edge of the ice belt, except where deemed necessary by the Society. Notwithstanding the above, the longitudinal frames just above and below the edges of the ice belt are closer than 50% of *s* to the upper and lower edges of the ice belt respectively, where *s* is the spacing specified in **28.2.9-1, Part C of the Rules**, the same frame spacing of *s* is to be extended to the second longitudinal frames above and below the ice belt.

C31A ADDITIONAL REQUIREMENTS FOR NEW BULK CARRIERS

C31A.6 Double-side Skin Construction and Cargo Hold Construction

C31A.6.2 Cargo Hold Construction

Sub-paragraph -3 has been added as follows.

3 With respect to the provisions of **31A.6.2-1, Part C of the Rules**, steel materials in the following structural members in bulk carriers of single-side skin construction are not to be less than grade *KD*, *KD*32 or *KD*36 as defined in **Part K of the Rules**.

(1) Side shell strakes included totally or partially between the two points located to 0.125*l* above and below the intersection of side shell and bilge hopper sloping plate or inner bottom plate, where *l* is the span of ordinary frame.

(2) Web of ordinary frames, including end bracket, of single-side skin construction within an extent of 0.125*l* above the intersection of side shell and bilge hopper sloping plate or inner bottom plate.

C35 MEANS OF ACCESS

C35.2 Special Requirements for Oil Tankers and Bulk Carriers

C35.2.1 Application

Sub-paragraph -3 has been deleted.

EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

1. The effective date of the amendments is 1 July 2006.

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 1% of the estimated mass of all structural material, whichever is the less.