14-390

# RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

## Part C Hull Construction and Equipment

**Rules for the Survey and Construction of Steel Ships**
**Part C 2014 AMENDMENT NO.2**
**Guidance for the Survey and Construction of Steel Ships**
**Part C 2014 AMENDMENT NO.2**

Rule No.55 / Notice No.40 30th June 2014
Resolved by Technical Committee on 4th February 2014
Approved by Board of Directors on 24th February 2014

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NIPPON KAIJI KYOKAI

# RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

## Part C Hull Construction and Equipment

**2014 AMENDMENT NO.2**

Rule No.55 30th June 2014

Resolved by Technical Committee on 4th February 2014

Approved by Board of Directors on 24th February 2014

Rule No.55 30th June 2014
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

## Chapter 1 GENERAL

### 1.1 General

#### 1.1.11 Application of Steels

Sub-paragraph -2 has been amended as follows.

**2** Within 0.4*L* amidships, the widths of single strakes of sheer strakes to the strength deck, stringer plates in the strength deck, bilge strakes (excluding ships of less than 150*m* in length $L_1$ having double bottom structures), deck plates adjoined to longitudinal bulkheads and other members of grade *KE*, *KE*32, *KE*36, *KE*40, *KF*32, *KF*36 and *KF*40 are to be not less than the value given by the following formula (maximum being 1,800*mm*). The widths of single strakes on rounded gunwales are to be determined by the Society.

$5L_1 + 800 \quad (mm)$

$L_1$: Length (*m*) of ship specified in **2.1.2, Part A** or 0.97 times the length (*m*) of ship on the load line, whichever is smaller

Table C1.1 has been amended as follows.

Table C1.1 Application of Mild Steels for Various Structural Members

| Structural member | Application | | Thickness of plate : $t$ (*mm*) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | $t \leq 15$ | $15 < t \leq 20$ | $20 < t \leq 25$ | $25 < t \leq 30$ | $30 < t \leq 40$ | $40 < t \leq 50$ |
| Shell Plating | | | | | | | | |
| Sheer strake at strength deck | within 0.4$L$ amidship | $L_1 \leq 250$ | $A^{*1*4}$ | $B$ | $D$ | | $E$ | |
| | | $L_1 > 250$ | $E$ | | | | | |
| | within 0.6$L$ amidship excluding the above | | $A^{*1*4}$ | | $B$ | $D$ | | $E$ |
| | other than those mentioned above | | $A^{*1*4}$ | | | | $B$ | $D$ |
| Side plating | within 0.4$L$ amidship | within 0.1$D$ downward from the lower surface of strength deck | $A^{*1*4}$ | | $B$ | $D$ | | $E$ |
| | | other than those mentioned above | $A^{*1*4}$ | | | | $B$ | $D$ |
| Bilge strake | within 0.4$L$ amidship | $L_1 > 250$ | $D$ | | | | $E$ | |
| | | ships of $150 \leq L_1 \leq 250$, having double bottom structures and ships having single bottom structures | $A^{*1*4}$ | $B$ | $D$ | | $E$ | |
| | within 0.6$L$ amidship excluding the above | | $A^{*1*4}$ | | $B$ | $D$ | | $E$ |
| | other than those mentioned above | | $A^{*1*4}$ | | | | $B$ | $D$ |
| Bottom plating including keel plate | within 0.4$L$ amidship | | $A$ | | $B$ | $D$ | | $E$ |
| Deck Plating | | | | | | | | |
| Stringer plate in strength deck | within 0.4$L$ amidship | $L_1 \leq 250$ | $A^{*2*5}$ | $B$ | $D$ | | $E$ | |
| | | $L_1 > 250$ | $E$ | | | | | |
| | within 0.6$L$ amidship excluding the above | | $A$ | | $B$ | $D$ | | $E$ |
| | other than those mentioned above | | $A$ | | | | $B$ | $D$ |
| Strength deck strake adjoining to longitudinal bulkhead | within 0.4$L$ amidship | | $A^{*2*5}$ | $B$ | $D$ | | $E$ | |
| | within 0.6$L$ amidship excluding the above | | $A$ | | $B$ | $D$ | | $E$ |
| | other than those mentioned above | | $A$ | | | | $B$ | $D$ |
| Strength deck other than mentioned above | within 0.4$L$ amidship | | $A^{*2*5}$ | | $B$ | $D$ | | $E$ |
| Strength deck at cargo hatch corner | container carriers and other ships with similar hatch openings configuration | | $A^{*2}$ | $B$ | $D$ | | $E$ | |
| | bulk carriers, ore carriers, combination carriers and other ships with similar hatch openings configuration | within 0.6$L$ amidship | $A^{*2}$ | $B$ | $D$ | | $E$ | |
| | | cargo region excluding the above | $A$ | | $B$ | $D$ | | $E$ |
| | other than those mentioned above within 0.4$L$ amidship | | $A^{*2}$ | | $B$ | $D$ | | $E$ |
| Deck plating exposed to weather, in general | within 0.4$L$ amidship | | $A$ | | | | $B$ | $D$ |

Table C1.1 Application of Mild Steels for Various Structural Members (continued)

<table>
<tr><th rowspan="2">Structural member</th><th colspan="3" rowspan="2">Application</th><th colspan="6">Thickness of plate : $t$ (mm)</th></tr>
<tr><th>$t \leq 15$</th><th>$15 < t \leq 20$</th><th>$20 < t \leq 25$</th><th>$25 < t \leq 30$</th><th>$30 < t \leq 40$</th><th>$40 < t \leq 50$</th></tr>
<tr><td colspan="9">Longitudinal bulkhead plate</td></tr>
<tr><td>Upper strake in longitudinal bulkhead adjoining to strength deck</td><td colspan="8" rowspan="2">(Omitted)</td></tr>
<tr><td>Other than those mentioned above</td></tr>
<tr><td colspan="9">Longitudinals</td></tr>
<tr><td>Upper strake in sloping plate of topside tank adjoining to strength deck</td><td colspan="2">within 0.4L amidship</td><td colspan="2">A</td><td>B</td><td colspan="2">D</td><td>E</td></tr>
<tr><td rowspan="4">Longitudinal plating members above strength deck ~~including bracket and face plate of longitudinals~~</td><td rowspan="2">corners of dome openings on trunk deck and inner deck plating above strength deck in ships with membrane tanks carrying liquefied gases in bulk</td><td>within 0.6L amidship</td><td>A*5</td><td>B</td><td colspan="2">D</td><td colspan="2">E</td></tr>
<tr><td>cargo region excluding the above</td><td colspan="2">A</td><td>B</td><td colspan="2">D</td><td>E</td></tr>
<tr><td>longitudinal girders including end brackets and face plates</td><td>within 0.4L amidship</td><td colspan="2">A*3*5</td><td>B</td><td colspan="2">D</td><td>E</td></tr>
<tr><td>longitudinal plating members other than those mentioned above</td><td>within 0.4L amidship</td><td colspan="2">A*3*5</td><td>B</td><td colspan="2">D</td><td>E</td></tr>
<tr><td colspan="9">Cargo Hatch</td></tr>
<tr><td rowspan="3">~~Face plate and web of c~~Cargo hatch coaming longitudinally extended on the strength deck</td><td rowspan="3">longitudinal members over 0.15L (including face plate and its flange, but excluding other stiffeners. See Fig. C1.1) and end brackets and deck house transition</td><td>within 0.4L amidship</td><td colspan="4">D</td><td colspan="2">E</td></tr>
<tr><td>within 0.6L amidship excluding the above</td><td colspan="5">D</td><td>E</td></tr>
<tr><td>other than those mentioned above</td><td colspan="6">D</td></tr>
<tr><td>Hatch cover</td><td colspan="3">—</td><td colspan="4">A</td><td>B</td><td>D</td></tr>
</table>

Table C1.1 Application of Mild Steels for Various Structural Members (continued)

| Structural member | Application | Thickness of plate : $t$ (*mm*) | | | | | |
|---|---|---|---|---|---|---|---|
| | | $t \leq 15$ | $15 < t \leq 20$ | $20 < t \leq 25$ | $25 < t \leq 30$ | $30 < t \leq 40$ | $40 < t \leq 50$ |
| Stern | | | | | | | |
| Stern frame, rudderhorn, shaft bracket | (Omitted) | | | | | | |
| Rudder | | | | | | | |
| Rudder plate | (Omitted) | | | | | | |
| Other | | | | | | | |
| Other members than those mentioned above (including stiffeners) | | $A^{*1*4}$ | | | | | |

Remarks:

1. For ships with length of $L_1$ exceeding 150*m* and single strength deck, single side strakes for ships without inner continuous longitudinal bulkhead(s) between bottom and the strength deck within cargo region are not to be less than grade *KB* as defined in **Part K of the Rules**.
2. For ships with length of $L_1$ exceeding 150*m* and single strength deck, longitudinal strength members of strength deck plating within 0.4*L* amidship are not to be less than grade *KB* as defined in **Part K of the Rules**.
3. For ships with length of $L_1$ exceeding 150*m* and single strength deck, continuous longitudinal plating of strength members above strength deck within 0.4*L* amidship are not to be less than grade *KB* as defined in **Part K of the Rules**.
4. For ships with ice strengthening conforming to **Chapter 5**, **Part I of the Rules**, shell strakes in way of ice strengthening area for plates are not to be less than grade *KB* as defined in **Part K of the Rules**.
5. For ships with membrane tanks carrying liquefied gases in bulk with length of $L_1$ exceeding 150*m* having deck structure comprising trunk deck and inner deck (see **Fig. C1.2**), the following structural members within 0.4*L* amidship are not to be less than grade *KB* as defined in **Part K of the Rules**.
   (1) Strength deck
   (2) Inner deck above strength deck
   (3) Longitudinal strength member plating between trunk deck and inner deck above strength deck
   The above structural members for ships having similar deck structure are not to be less than grade *KB* where deemed necessary by the Society.

Notes:

1. *A*, *B*, *D*, *E* refer to the following grades of steel.
   *A*: *KA*, *B*: *KB*, *D*: *KD*, *E*: *KE*
2. $L_1$ is the length (*m*) of ship specified in **2.1.2 Part A** or 0.97 times the length (*m*) of the ship on the load line, whichever is smaller.
3. Where the strength deck strake adjoined to the inner skin bulkhead of double hull ships is not a deck stringer plate, the deck strake may be treated as an ordinary strength deck strake.
4. Applicable areas of bilge strakes is as follows.
   (1) If the point where the bottom flat line stops being parallel to the centre line of the ship is within 0.6 *L* amidships, the applicable part is to be taken as 0.6 *L* amidships.
   (2) If the point where the bottom flat line stops being parallel to the centre line of the ship is outside 0.6 *L* amidships, the applicable part is to be taken as is.
5. The type of steel used in way of lower pintle for type D and type E rudders specified in **Chapter 3** and in way of upper part of type C rudder specified in **Chapter 3** is to be approved by the Society.
6. Continuous longitudinal plating of strength members above strength deck (including trunk deck, inner deck and longitudinal strength member plating between trunk deck and inner deck) are to be treated as longitudinal plating members above strength deck.

Fig. C1.1 has been renumbered to Fig. C1.3, and Fig. C1.1 and Fig. C1.2 have been added as follows.

Fig. C1.1 Example of cross section in longitudinal hatch coaming area

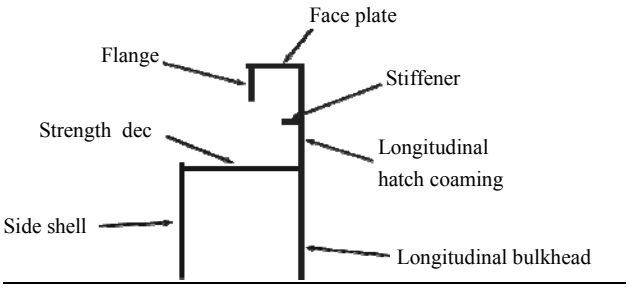


Fig. C1.2 Typical deck structure of ships with membrane tank carrying liquefied gases in bulk

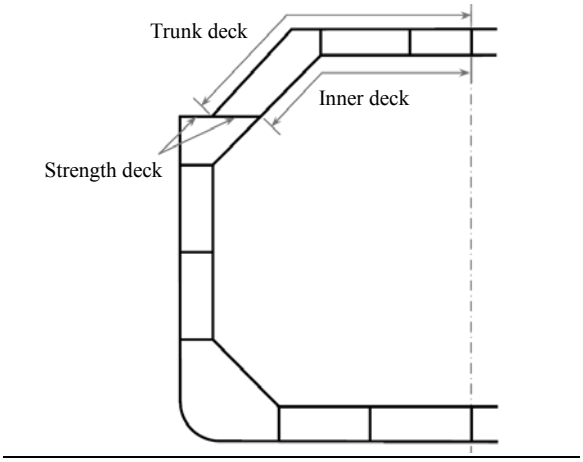

Table C1.2 has been amended as follows.

Table C1.2 Application of High Tensile Steels for Various Structural Members

| Structural member | Application | | Thickness of plate : $t$ (*mm*) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | $t \leq 15$ | $15 < t \leq 20$ | $20 < t \leq 25$ | $25 < t \leq 30$ | $30 < t \leq 40$ | $40 < t \leq 50$ |
| Shell plating | | | | | | | | |
| Sheer strake at strength deck | within0.4$L$ amidship | $L_1 \leq 250$ | *AH* | | *DH* | | *EH* | |
| | | $L_1 > 250$ | *EH* | | | | | |
| | within 0.6$L$ amidship excluding the above | | *AH* | | | *DH* | | *EH* |
| | other than those mentioned above | | *AH* | | | | | *DH* |
| Side plating | within 0.4$L$ amidship | within 0.1$D$ downward from the lower surface of strength deck | *AH* | | | *DH* | | *EH* |
| | | other than those mentioned above | *AH* | | | | | *DH* |
| Bilge strake | within 0.4$L$ amidship | $L_1 > 250$ | *DH* | | | | *EH* | |
| | | ships of $150 \leq L_1 \leq 250$, having double bottom structures and ships having single bottom structures | *AH* | | *DH* | | *EH* | |
| | within 0.6$L$ amidship excluding the above | | *AH* | | | *DH* | | *EH* |
| | other than those mentioned above | | *AH* | | | | | *DH* |
| Bottom plating including keel plate | within 0.4$L$ amidship | | *AH* | | | *DH* | | *EH* |
| Deck plating | | | | | | | | |
| Stringer plate in strength deck | (Omitted) | | | | | | | |
| Strength deck strake adjoining to longitudinal bulkhead | | | | | | | | |
| Strength deck other than mentioned above | | | | | | | | |
| Strength deck at cargo hatch corner | | | | | | | | |
| Deck plating exposed to weather, in general | | | | | | | | |

Table C1.2 Application of High Tensile Steels for Various Structural Members (continued)

| Structural member | Application | | Thickness of plate : $t$ (*mm*) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | $t \leq 15$ | $15 < t \leq 20$ | $20 < t \leq 25$ | $25 < t \leq 30$ | $30 < t \leq 40$ | $40 < t \leq 50$ |
| Longitudinal bulkhead plate | | | | | | | | |
| Upper strake in longitudinal bulkhead adjoining to strength deck | (Omitted) | | | | | | | |
| Other than those mentioned above | | | | | | | | |
| Longitudinals | | | | | | | | |
| Upper strake in sloping plate of topside tank adjoining to strength deck | within 0.4*L* amidship | | *AH* | | | *DH* | | *EH* |
| Longitudinal plating members above strength deck ~~including bracket and face plate of longitudinals~~ | corners of dome openings on trunk deck and inner deck plating above strength deck in ships with membrane tanks carrying liquefied gases in bulk | within 0.6*L* amidship | *AH* | | *DH* | | *EH* | |
| | | cargo region excluding the above | *AH* | | | *DH* | | *EH* |
| | longitudinal girders including end brackets and face plates | within 0.4*L* amidship | *AH* | | | *DH* | | *EH* |
| | longitudinal plating members other than those mentioned above | within 0.4*L* amidship | *AH* | | | *DH* | | *EH* |
| Cargo Hatch | | | | | | | | |
| ~~Face plate and web of c~~Cargo hatch coaming longitudinally extended on the strength deck | longitudinal members over 0.15*L* (including face plate and its flange, but excluding other stiffeners) and end brackets and deck house transition | within 0.4*L* amidship | *DH* | | | | *EH* | |
| | | within 0.6*L* amidship excluding the above | *DH* | | | | | *EH* |
| | | other than those mentioned above | *DH* | | | | | |
| Hatch cover | — | | *AH* | | | | | *DH* |
| Stern | | | | | | | | |
| Stern frame, rudderhorn, shaft bracket | (Omitted) | | | | | | | |
| Rudder | | | | | | | | |
| Rudder plate | (Omitted) | | | | | | | |
| Other | | | | | | | | |
| Other members than those mentioned above (including stiffeners) | | | *AH* | | | | | |

(Notes are omitted)

## 1.2 Welding

### 1.2.3 Details of Joints

Table C1.5 has been amended as follows.

Table C1.5 Application of Fillet Welds
(Table is omitted)

Notes:

1 Where longitudinal strength members are mutually connected by fillet welds, the fillet sizes are to be in accordance with **Table C1.4** and this Table, except that the total throat areas of fillet joints are not to be less than the minimum sectional area of the members.

2 Where the ends of frames, beam and stiffeners are directly fillet welded to deck, shell, inner bottom or bulkhead plates, the fillet sizes are not to be less than 0.7 times the web thickness of the members.

3 Where beams, frames, stiffeners and girders are intermittently welded to deck, shell, inner bottom plates and bulkhead plates, the fillet welds are to be partly continuous as shown in **Fig.~~C1.1~~ C1.3**(a). Where the members are backed by other members at the opposite side as shown in **Fig.~~C1.1~~ C1.3**(b) or (c), the fillet welds are to be continuous for a proper length at the ends of the members or at the toes of the brackets of the members. The fillet weld may be as shown in **Fig.~~C1.1~~ C1.3**(d), where the whole lengths of the joints are welded with the effective fillet size not less than $F2$.

4 Where the rider plates or inner bottom plates consist of bed plates of the main engine seating or seatings of other important machinery, the kind of fillet is to be in accordance with the requirements for the type of seating.

5 For connections other than those specified in double bottoms with longitudinal framing, the requirements for transverse framing are to be applied.

6 In cases where the bulkheads of compartments intended to carry liquid cargoes are corrugated bulkheads, the welding of the corrugated bulkheads is to be in accordance with the requirements given in **14.4**. In cases where the bulkheads of compartments not intended to carry liquids cargo are corrugated bulkheads, the kind of fillet weld used for the corrugated bulkhead is to be in accordance with the requirements for bulkheads.

Fig. ~~C1.1~~C1.3 Parts of Continuous Fillet Weld
(Figure is omitted)

## EFFECTIVE DATE AND APPLICATION

**1.** The effective date of the amendments is 1 July 2014.

**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 the latest version of IACS Procedural Requirement (PR) No.29.

**IACS PR No.29** (Rev.0, July 2009)

**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.

Note:
This Procedural Requirement applies from 1 July 2009.

# GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE

## Part C Hull Construction and Equipment

**2014 AMENDMENT NO.2**

Notice No.40 30th June 2014

Resolved by Technical Committee on 4th February 2014

Notice No.40 30th June 2014
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

## Appendix C4 PERFORMANCE STANDARD FOR PROTECTIVE COATINGS FOR DEDICATED SEAWATER BALLAST TANKS IN ALL TYPES OF SHIPS AND DOUBLE-SIDE SKIN SPACES OF BULK CARRIERS (Resolution MSC.215(82) and IACS Unified Interpretations SC223)

**Interpretation regarding Table 1**

3 has been amended as follows.

**3 SSP (Secondary Surface Preparation)**

**Interpretation regarding 3.2 Surface treatment, 3.3 Surface treatment after erection, and 3.4 Profile requirement**

~~Methods such as, but not limited to, UHP Water Jetting may be considered for Secondary Surface Preparation, where it can be demonstrated that the surface conditions specified by PSPC Table 1, Section 3 can be achieved before the application of the main coatings.~~

Usually, the fillet welding on tank boundary watertight bulkhead is left without coating on block stage (because not yet be leakage tested), in which case it can be categorized as erection joint ("butt") to be power tooled to St 3.

**Interpretation regarding 3.6 Water soluble salts limit equivalent to NaCl after blasting/grinding**

(Omitted)

## 6 COATING INSPECTION REQUIREMENTS

**Interpretation**

**Procedure for Assessment of Coating Inspectors' Qualifications**

4 has been amended as follows.

4 Assistant to the coating inspectors

4.1 If the coating inspectors requires assistance from other persons to ~~do~~perform the part of the inspections ~~under the coating inspector's supervision~~, those persons shall perform the inspections under the coating inspector's supervision and shall be trained to the coating inspector's satisfaction.

4.2 Such training should be recorded and endorsed either by the inspector, the yard's training organization or inspection equipment manufacturer to confirm competence in using the measuring equipment and confirm knowledge of the measurements required by the PSPC.

4.3 Training records shall be available for verification ~~if required~~.

8 has been amended as follows.

## 8 ALTERNATIVE SYSTEMS

8.1 All systems that are not an epoxy based system applied according to **table 1** of this Standard are defined as an alternative system.

8.2 This Standard is based on recognized and commonly used coating systems. It is not meant to exclude other, alternative, systems with proven equivalent performance, for example non epoxy based systems.

8.3 Acceptance of alternative systems will be subject to documented evidence that they ensure a corrosion prevention performance at least equivalent to that indicated in this Standard.

8.4 As a minimum, the documented evidence shall consist of satisfactory performance corresponding to that of a coating system which conforms to the coating standard described in **section 4**, a target useful life of 15 years in either actual field exposure for 5 years with final coating condition not less than "GOOD" or laboratory testing. Laboratory test shall be conducted in accordance with the test procedure given in **annex 1** of this Standard.

**********

~~**Interpretation**~~

~~**1 The definition of alternative systems**~~

~~1.1 Normal coating systems, i.e. not alternative systems, are epoxy-based systems applied according to table 1 of PSPC.~~

~~1.2 Alternative systems can be coating systems which are:~~

- ~~epoxy-based systems, but not applied according to table 1 of PSPC;~~
- ~~non epoxy-based systems applied according to table 1 of PSPC; or~~
- ~~non epoxy-based systems, but not applied according to table 1 of PSPC.~~

~~**2 The requirement of coating system approval for alternative systems**~~

~~2.1 Type Approval Certificate shall be issued subject to satisfaction of the test procedure given in **Annex 1** to this standard, evaluated according to the acceptance criteria for~~

~~alternative systems.~~

~~**3 The inspection of application of alternative systems**~~

~~3.1 The coatings are to be inspected according to the coating inspection requirement in PSPC.~~

~~**4 The application of alternative systems**~~

~~4.1 The necessary conditions for application, especially for difference from conventional epoxy coating system should be specified in the coating technical file as per section 3.4. of MSC.215 (82).~~

~~4.2 It is recommended that the work for confirmation of the suitability of application (workability, coating quality, worker's skill and so on) is demonstrated before the project starts.~~

~~**********~~

EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

**1.** The effective date of the amendments is 30 June 2014.

**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 the latest version of IACS Procedural Requirement (PR) No.29.

**IACS PR No.29** (Rev.0, July 2009)

**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.

Note:
This Procedural Requirement applies from 1 July 2009.

Amendment 2-2

# C23 BULWARKS, GUARDRAILS, FREEING ARRANGEMENTS, CARGO PORTS AND OTHER SIMILAR OPENINGS, SIDE SCUTTLES, RECTANGULAR WINDOWS, VENTILATORS AND GANGWAYS

## C23.6 Ventilator

### C23.6.8 Additional Requirement for Ventilators Fitted on Exposed Fore Deck

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

(1) Applied Loads
Forces acting in the horizontal direction on the pipe and its closing device are to be calculated by using the pressure ($p$) obtained from the following formula and the largest projected area of each component.

$p = 0.5\rho V_w^{\,2} C_d C_s C_p \quad (kN/m^2)$

$\rho$ : Density of sea water (1.025 $t/m^3$)

~~$V$~~ $V_w$ : Velocity ~~(13.5 *m/sec*)~~ of water over the fore deck given by the following:

$13.5\ (m/sec)$ : for $h_{ed} \le 0.5h_t$

$13.5\sqrt{2\left(1-\frac{h_{ed}}{h_t}\right)}\ (m/sec)$ : for $0.5h_t < h_{ed} < h_t$

$h_{ed}$ : Distance from the designed maximum load line to exposed deck ($m$)

$h_t$ : $0.1L_1$ or 22 $m$ whichever is the lesser

$C_d$ : Shape coefficient (0.5 for pipes and 1.3 for ventilator head in general, 0.8 for ventilator head of cylindrical form with its axis in the vertical direction)

$C_s$ : Slamming coefficient (3.2)

$C_p$ : Protection coefficient given by the following

(0.7): for pipes and ventilator heads located immediately behind a breakwater or forecastle

(1.0): elsewhere and immediately behind a bulwark

# Appendix C6 PERFORMANCE STANDARD FOR PROTECTIVE COATINGS FOR CARGO OIL TANKS (Resolution MSC.288(87) and IACS Unified Interpretations SC259)

**Interpretation regarding Table 1**

3 has been amended as follows.

**3 SSP (Secondary Surface Preparation)**

**Interpretation regarding 3.2 Surface treatment, 3.3 Surface treatment after erection, and 3.4 Profile requirement**

~~Methods such as, but not limited to, UHP Water Jetting may be considered for Secondary Surface Preparation, where it can be demonstrated that the surface conditions specified by PSPC **Table 1**, **Section 3** can be achieved before the application of the main coatings.~~

Usually, the fillet welding on tank boundary watertight bulkhead is left without coating on block stage (because not yet be leakage tested), in which case it can be categorized as erection joint ("butt") to be power tooled to St 3.

**Interpretation regarding 3.6 Water soluble salts limit equivalent to NaCl after blasting/grinding**

(Omitted)

**6 COATING INSPECTION REQUIREMENTS**

**Interpretation**

**Procedure for Assessment of Coating Inspectors' Qualifications**

4 has been amended as follows.

4 Assistants to coating inspectors

4.1 If the coating inspectors requires assistance from other persons to ~~do~~ perform the part of the inspections ~~under the coating inspector's supervision~~, those persons shall perform the inspections under the coating inspector's supervision and shall be trained to the coating inspector's satisfaction.

4.2 Such training should be recorded and endorsed either by the inspector, the yard's training organization or inspection equipment manufacturer to confirm competence in using the measuring equipment and confirm knowledge of the measurements required by the PSPC-COT.

4.3 Training records shall be available for verification ~~if required~~.

8 has been amended as follows.

## 8 ALTERNATIVE COATING SYSTEMS

8.1 All systems that are not an epoxy based system applied according to **table 1** of this Standard are defined as an alternative system.

8.2 This Standard is based on recognized and commonly used coating systems. It is not meant to exclude other, alternative, systems with proven equivalent performance, for example non epoxy based systems.

8.3 Acceptance of alternative systems shall be subject to documented evidence that they ensure a corrosion prevention performance at least equivalent to that indicated in this Standard, by either:

.1 testing according to this standard; or

.2 five years' field exposure with documentary evidence of continuous trading with crude oil cargoes.* The coating condition is not less than "GOOD" after five years.

* For field exposure the ship should be trading in varied trade routes and carrying substantial varieties of crude oils to ensure a realistic sample: for example, three ships on three different trade areas with different varieties of crude cargoes.

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~~**Interpretation**~~

~~**1 The definition of alternative systems**~~

~~1.1 Normal coating systems, i.e. not alternative systems, are epoxy-based systems applied according to **table 1** of PSPC-COT.~~

~~1.2 Alternative systems can be coating systems which are:~~

- ~~epoxy-based systems, but not applied according to **table 1** of PSPC-COT;~~
- ~~non epoxy-based systems applied according to **table 1** of PSPC-COT; or~~
- ~~non epoxy-based systems, but not applied according to **table 1** of PSPC-COT.~~

~~**2 The requirement of coating system approval for alternative systems**~~

~~2.1 Type Approval Certificate shall be issued subject to satisfaction of the test procedure given in **Annex 1** to this standard, evaluated according to the acceptance criteria for alternative systems.~~

~~**3 The inspection of application of alternative systems**~~

~~3.1 The coatings are to be inspected according to the coating inspection requirement in PSPC-COT.~~

~~**4 The application of alternative systems**~~

~~4.1 The necessary conditions for application, especially for difference from conventional epoxy coating system should be specified in the coating technical file as per **section 3.4** of PSPC-COT.~~

~~4.2 It is recommended that the work for confirmation of the suitability of application (workability, coating quality, worker's skill and so on) is demonstrated before the project starts.~~

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## EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

**1.** The effective date of the amendments is 1 July 2014.

**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 the latest version of IACS Procedural Requirement (PR) No.29.

**IACS PR No.29** (Rev.0, July 2009)

**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.

Note:
This Procedural Requirement applies from 1 July 2009.