

MARITIME SAFETY COMMITTEE  
87th session  
Agenda item 5

MSC 87/5/Y  
XX February 2010  
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## GOAL-BASED SHIP CONSTRUCTION STANDARDS

### Proposed amendments to the Guidelines for Ship Construction File Implementation

#### Balancing Design Transparency and Intellectual Property Protection

Submitted by CESA, ICS, INTERCARGO, INTERTANKO, BIMCO, OCIMF and IACS

#### SUMMARY

**Executive Summary:** This document describes a detailed proposal to amend the draft Guidelines for the Information to be included in a Ship Construction File (SCF), Guidelines for Verification of Conformity with Goal-based Ship Construction Standards and Amendments to SOLAS with a view to providing both design transparency and intellectual property protection precautions.

**Action to be taken:** Paragraph 3

**Related documents:** MSC 87/3, MSC 87/5/1, MSC 86/5, MSC 86/WP.5, MSC 86/5/7, MSC86/INF.10, MSC87/5/X

1. This document is to supplement the cross industry submission MSC 87/5/X which has proposed a “SCF onboard – SCF Supplement ashore” model to implement the GBS design transparency requirements.
2. Taking the “SCF onboard – SCF Supplement ashore” model into consideration, the co-sponsors would like to propose amending the relevant MSC Resolutions including the *Amendments to the International Convention for the Safety of Life at Sea, 1974, as amended (as set out in Annex 1 to MSC 87/3)* and the *Guidelines for verification of conformity with goal-based ship construction standards for bulk carriers and oil tankers (as set out in Annex to MSC 87/5/1)*, and MSC Circular including the *Guidelines for the Information to be included in a Ship Construction File (as set out in Annex 4 to MSC86/5)* as set out in the annex so that the goals of safe operation and intellectual property protection can be provided.

#### Action requested of the Committee

3. The Committee is invited to consider the annexed proposals presented and take actions as appropriate.

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**ANNEX 1**

**DRAFT MSC RESOLUTION  
ADOPTION OF AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR  
THE SAFETY OF LIFE AT SEA, 1974, AS AMENDED**

**ANNEX  
CHAPTER II-1  
CONSTRUCTION, STRUCTURE, SUBDIVISION AND STABILITY,  
MACHINERY AND ELECTRICAL INSTALLATIONS**

**PART A  
GENERAL**

**PART A-1  
STRUCTURE OF SHIPS**

**“Regulation 3-10**

**Goal-based ship construction standards for bulk carriers and oil tankers**

4           A Ship Construction File with specific information on how the functional requirements of the goal-based ship construction standards for bulk carriers and oil tankers have been applied in the ship design and construction shall be provided upon delivery of a new ship, and kept on board the ship and/ or ashore\* and updated as appropriate throughout ~~its~~ the ship's service. The contents of the Ship Construction File shall, at least, conform to the guidelines developed by the Organization.\*

\* Refer to the Guidelines for the information to be included in a Ship Construction File (MSC.1/Circ.[...]).”

\* \* \*



## ANNEX 2

**DRAFT MSC RESOLUTION  
GUIDELINES FOR VERIFICATION OF CONFORMITY WITH GOAL-BASED SHIP  
CONSTRUCTION STANDARDS FOR BULK CARRIERS AND OIL TANKERS**

**ANNEX  
GUIDELINES FOR VERIFICATION OF CONFORMITY WITH THE  
INTERNATIONAL GOAL-BASED SHIP CONSTRUCTION STANDARDS  
FOR BULK CARRIERS AND OIL TANKERS**

**PART B  
INFORMATION/DOCUMENTATION REQUIREMENTS  
AND EVALUATION CRITERIA**

## 10 Design transparency

*10.1 Statement of intent*

Confirm that the design and construction process is transparent, and that design information is clearly stated and made available to the classification society, the owner and the flag State, with due consideration to intellectual property rights.

*10.2 Information and documentation requirements*

¶10.2.1 Description of how the rules require design specific information ~~as required by SOLAS regulation ...~~ ~~procedures for updating the SCF~~ to be included in the Ship Construction File (SCF), including:

- ¶.1 Areas requiring special attention throughout the ship's life.
- .2 All design parameters limiting the operation of a ship.
- .3 Any alternatives to the rules, including structural details and equivalency calculations.
- .4 ~~Approved and stamped~~ "As built" drawings and information which are verified to incorporate all alterations approved by the classification society or flag State during the construction process.
- .5 ~~Procedures for updating the Ship Construction File SCF over the lifetime of the ship throughout the ship's life.~~
- .6 Net (renewal) scantlings for all the structural ~~members~~ constituent parts.
- .7 Minimum hull girder section modulus along the length of the ship which has to be maintained throughout the ~~life of the ship~~ ship's life.¶

10.2.2 Description of the process, requirements and criteria ~~for~~ to be followed when assessing, documenting and communicating alternative methods as being equivalent to specific rule requirements.

10.2.3 Description of procedures for ensuring that all relevant design and construction information, including correspondence exchanged between shipyard and the recognized organization during the construction process, is available to the owner and flag State ~~during the construction process.~~

*10.3 Evaluation criteria*

10.3.1 Do the rules establish requirements for including and updating design specific and critical information, including limitations, in the ~~Ship Construction File~~ SCF?

10.3.2 Do the rules establish clear criteria and techniques for assessing alternative methods used in the design? Are all equivalencies documented in the ~~Ship Construction File~~ SCF and made available to the owner and/or flag State?

10.3.3 Do the rules establish procedures to provide all relevant design and construction information, including correspondence exchanged between shipyard and recognized organization during the construction process, e.g., on net scantlings, corrosion margins used, etc., to be made available to the owner and flag State ~~during the construction process~~?

\* \* \*

## ANNEX 3

**DRAFT MSC CIRCULAR  
GUIDELINES FOR THE INFORMATION TO BE INCLUDED IN A  
SHIP CONSTRUCTION FILE****ANNEX  
GUIDELINES FOR THE INFORMATION TO BE INCLUDED IN  
A SHIP CONSTRUCTION FILE****1 Purpose**

The aim of these Guidelines is to provide additional guidance on the content of the Ship Construction File (SCF) to be provided upon delivery of new bulk carriers and oil tankers in accordance with SOLAS regulation II-1/3-10.4, kept on board the ship and/ or ashore and updated as appropriate throughout the ship's life in order to facilitate safe operation, maintenance, survey, ~~and~~ repair and emergency measures. It is to be noted that parts of the content of the SCF may be subject to various degrees of restricted access and that such documentation may be appropriately kept ashore as indicated in this guidance.

**2 Definition**

*Tier II items* means the functional requirements included in the International Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers, adopted by the Maritime Safety Committee by resolution MSC.1.107.

**3 Scope of Information**

~~The Ship Construction File~~ SCF should include the list of documents constituting the Ship Construction File SCF and following all information listed in the Annex, which is required for a ships' safe operation, maintenance, survey, repair and in emergency situations. Details of ~~the~~ specific information below that is not considered to be critical to safety might be included directly or by reference to other documents.

When developing an SCF, all of the columns in the table at Annex to this Circular should be reviewed to ensure that all necessary information has been provided.

It may be possible to provide information listed in the Annex under more than one Tier II provision as a single item within the SCF, for example, the Coating Technical File required by PSC is relevant for both "Coating Life" and "Survey during Construction".

**4 Availability and Storage**

The SCF should remain with the ship and, in addition be available to its' classification society and flag State throughout the ship's life. Where information not considered necessary to be on board is stored ashore, procedures to access this information should be specified in the on board SCF. The intellectual property provisions within the SCF should be duly complied with.

**5 Updates**

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The SCF should be updated throughout the ship's life at any major event including, but not limited to the, substantial repair and conversion, or any modification to the ship structure.

ANNEX

**Table 1 List of information to be included in the Ship Construction File (SCF)**

Tier II items		<del>Explicit</del> Information to be recorded <u>included</u>	<u>Further explanation of the content</u>	<u>Sample documents</u>	<u>Normal Storage Location</u>
<b>DESIGN</b>					
1	Design Life	•Assumed design life <u>in years</u>	• <u>Statement or note on Midship Section</u>	• <u>SCF-specific</u> • <u>Midship Section</u>	<u>on board ship</u> <u>on board ship</u>
2	Environmental conditions	•Assumed environmental conditions	• <u>Statement referencing data source or Rule (specific rule cite and data) or;</u> • <u>In accordance with Rule (date &amp; revision)</u>	• <u>SCF-specific</u>	<u>on board ship</u>
3	Structural Strength				
3.1	<u>General Design</u>	• <u>Applied Rule (date &amp; revision)</u> • <u>Applied alternative to Rule</u>	• <u>Applied design method alternative to Rule and subject structure(s)</u>	• <u>SCF-specific</u> • <u>Capacity Plan</u>	<u>on board ship</u> <u>on board ship</u>
3.2	<u>Deformation and Failure Modes</u>	• <u>Calculating conditions and results;</u> •Assumed loading conditions •Operational restrictions due to structural strength	• <u>Allowable loading pattern</u> • <u>Maximum allowable hull girder bending moment and shear force</u>	• <u>Loading Manual</u> • <u>Trim &amp; Stability Booklet</u>	<u>on board ship</u> <u>on board ship</u>
3.3	<u>Ultimate Strength</u>	• <u>Strength calculation results</u>	• <u>Maximum allowable cargo density or storage factor</u>	• <u>Loading Instrument Instruction Manual</u>	<u>on board ship</u>
3.4	<u>Safety Margins</u>	• <u>Gross hull girder section modulus</u> • <u>Minimum hull girder section modulus along the length of the ship to be maintained throughout the ship's life</u> • <u>Gross scantlings of structural</u>	• <u>Bulky output of strength calculation</u> • <u>Plan showing highly stressed areas prone to yielding and/or buckling</u> • <u>Structural drawings</u>	• <del>Operation and Maintenance Manuals</del> • <u>General Arrangement</u> • <u>Key Construction Plans</u> • <u>Rudder and Rudder Stock</u> • <u>Structural Details</u>	<u>on board ship</u> <u>on board ship</u> <u>on board ship</u> <u>on board ship</u>

Tier II items		<del>Explicit</del> Information to be recorded <u>included</u>	<u>Further explanation of the content</u>	<u>Sample documents</u>	<u>Normal Storage Location</u>
		<ul style="list-style-type: none"> <li><del>constituent parts items</del></li> <li>•Net scantlings of structural constituent parts <del>items</del></li> <li>•<u>Hull form</u></li> </ul>	<ul style="list-style-type: none"> <li>•<u>Rudder and Stern Frame</u></li> <li>•<u>Structural details of typical members</u></li> <li>•<u>Hull form information indicated in Key Construction Plans</u></li> <li>•<u>Hull form data stored within an onboard computer necessary for trim &amp; stability and longitudinal strength calculations</u></li> </ul>	<ul style="list-style-type: none"> <li>•<u>Yard Plans</u></li> <li>•<u>Lines Plan</u> or <u>Equivalent</u></li> <li>•<u>Dangerous area plan</u></li> <li>•<u>Strength Calculation</u></li> <li>•<u>Areas prone to yielding and/or buckling</u></li> </ul>	<ul style="list-style-type: none"> <li><u>on shore archive</u></li> <li><u>on shore archive</u></li> <li><u>on board ship</u></li> <li><u>on board ship</u></li> <li><u>on shore archive</u></li> <li><u>on board ship</u></li> </ul>
4	Fatigue Life	<ul style="list-style-type: none"> <li>•<u>Applied Rule (date &amp; revision)</u></li> <li>•<u>Applied alternative to Rule</u></li> <li>•<u>Calculating conditions and results;</u></li> <li>•<u>Assumed loading conditions</u></li> <li>•<u>Fatigue life calculation results</u></li> </ul>	<ul style="list-style-type: none"> <li>•<u>Applied design method alternative to Rule and subject structure(s)</u></li> <li>•<u>Assumed loading conditions and rates</u></li> <li>•<u>Bulky output of fatigue life calculation</u></li> <li>•<u>Plan showing areas prone to fatigue</u></li> </ul>	<ul style="list-style-type: none"> <li>•<u>SCF-specific</u></li> <li>•<u>Structural Details</u></li> <li>•<u>Fatigue life calculation</u></li> <li>•<u>Areas prone to fatigue</u></li> </ul>	<ul style="list-style-type: none"> <li><u>on board ship</u></li> <li><u>on board ship</u></li> <li><u>on shore archive</u></li> <li><u>on board ship</u></li> </ul>
5	Residual Strength	<ul style="list-style-type: none"> <li>•<del>Assumed conditions</del></li> <li>•<u>Applied Rule (date &amp; revision)</u></li> </ul>		<ul style="list-style-type: none"> <li>•<u>SCF-specific</u></li> </ul>	<ul style="list-style-type: none"> <li><u>on board ship</u></li> </ul>
6	Protection against Corrosion				
6.1	Coating Life	<ul style="list-style-type: none"> <li>•<u>Coated areas &amp; target coating life and other measures for corrosion protection in holds, cargo &amp; ballast tanks and other structure-integrated deep tanks</u></li> <li>•<del>Coating specification and selected anti-corrosion measures</del></li> </ul>	<ul style="list-style-type: none"> <li>•<u>Plans showing areas prone to excessive corrosion</u></li> </ul>	<ul style="list-style-type: none"> <li>•<u>SCF-specific</u></li> <li>•<u>Coating Technical File required by PSPC</u></li> <li>•<u>Key Construction Plans</u></li> <li>•<u>Areas prone to excessive corrosion</u></li> </ul>	<ul style="list-style-type: none"> <li><u>on board ship</u></li> <li><u>on board ship</u></li> <li><u>on board ship</u></li> <li><u>on board ship</u></li> </ul>
6.2	Corrosion Addition				

Tier II items		<del>Explicit</del> Information to be recorded <b>included</b>	<u>Further explanation of the content</u>	<u>Sample documents</u>	<u>Normal Storage Location</u>
		<ul style="list-style-type: none"> <li>•<u>Specification for coating and other measures for corrosion protection in holds, cargo and ballast tanks and other structure-integrated deep tanks</u></li> <li>•<del>Corrosion addition and wastage allowance</del></li> <li>•<u>Gross scantlings of structural constituent parts <del>items</del></u></li> <li>•<u>Net scantlings of structural constituent parts <del>items</del></u></li> </ul>			
7	Structural Redundancy	<ul style="list-style-type: none"> <li>•<del>Assumed conditions</del></li> <li>•<u>Applied Rule (date &amp; revision)</u></li> </ul>		• <u>SCF-specific</u>	<u>on board ship</u>
8	Watertight and weathertight integrity	<ul style="list-style-type: none"> <li>•<u>Applied Rule (date &amp; revision)</u></li> <li>•<u>Key factors for watertight and weathertight integrity</u></li> </ul>	• <u>Details of equipment forming part of the watertight and weathertight integrity</u>	<ul style="list-style-type: none"> <li>•<u>SCF-specific</u></li> <li>•<u>Structural details of hatch covers, doors and other closings integral with the shell and bulkheads</u></li> </ul>	<u>on board ship</u>  <u>on board ship</u>
9	Human Element Considerations	• <u>List of ergonomic design principles applied to ship structure design to enhance safety during operations, inspections and maintenance of ship</u>		• <u>SCF-specific</u>	<u>on board ship</u>



Tier II items		<del>Explicit</del> Information to be recorded <b>included</b>	<b>Further explanation of the content</b>	<b>Sample documents</b>	<b>Normal Storage Location</b>
13	Survey and Maintenance	<ul style="list-style-type: none"> <li>•<del>List of</del> Maintenance plans specific to the structure of the ship where higher attention to structural fatigue and corrosion is called for</li> <li>•Preparations for survey</li> <li>•Gross hull girder section modulus</li> <li>•Minimum hull girder section modulus along the length of the ship to be maintained throughout the ship's life</li> <li>•Gross scantlings of structural constituent parts <del>items</del></li> <li>•Net scantlings of structural constituent parts <del>items</del></li> <li>•Hull form</li> </ul>	<ul style="list-style-type: none"> <li>•Plan showing highly stressed areas prone to yielding, buckling, fatigue and/or excessive corrosion</li> <li>•Arrangement and details of all penetrations normally examined at drydocking</li> <li>•Details for drydocking</li> <li>•Details for in-water survey</li> <li>•Hull form information indicated in Key Construction Plans</li> </ul>	<ul style="list-style-type: none"> <li>•SCF-specific</li> <li>•Docking Plan</li> <li>•Key Construction Plans</li> <li>•Rudder and Rudder Stock</li> <li>•Structural Details</li> <li>•Yard Plans</li> <li>•Lines Plan</li> <li>or</li> <li>Equivalent</li> <li>•Coating Technical File required by PSPC</li> <li>•Operation and Maintenance Manuals (e.g. Hatch covers and doors)</li> <li>•Dangerous area plan</li> <li>•Ship Structure Access Manual</li> </ul>	<ul style="list-style-type: none"> <li>on board ship</li> <li>on board ship</li> <li>on board ship</li> <li>on board ship</li> <li>on board ship</li> <li>on shore archive</li> <li>on shore archive</li> <li>on board ship</li> <li>on board ship</li> <li>on board ship</li> <li>on board ship</li> <li>on board ship</li> <li>on board ship</li> </ul>
14	Structural Accessibility	<ul style="list-style-type: none"> <li>•<del>Ship Structure Access Manual (SOLAS regulation II-1/3-6) covering both cargo and other areas</del></li> <li>•Means of access to holds, cargo &amp; ballast tanks and other structure-integrated deep tanks</li> </ul>	<ul style="list-style-type: none"> <li>•Plans showing arrangement and details of means of access</li> </ul>	<ul style="list-style-type: none"> <li>•Ship Structure Access Manual</li> <li>•Means of Access to Other Structure-integrated Deep Tanks</li> </ul>	<ul style="list-style-type: none"> <li>on board ship</li> <li>on board ship</li> </ul>
<del>RECYCLING CONSIDERATIONS</del>					

Tier II items		<del>Explicit</del> Information to be recorded <b>included</b>	<b>Further explanation of the content</b>	<b>Sample documents</b>	<b>Normal Storage Location</b>
<del>15</del>	<del>Recycling</del>	<del>•</del> Identification of all materials that were used in construction and may need special handling due to environmental and safety concerns. <del>†</del>	<del>•</del> List of materials used for the construction of the hull structure <del>†</del>	<del>•</del> SCF-specific <del>†</del>	on board ship

Note:

- ”SCF-specific” means Documents to be developed specially to meet the specific requirements of this guidelines.
- ”Key Construction Plans” means such as Midship section, Main O.T. & W.T. Transverse Bulkheads, Construction Profiles/Plans, Shell Expansions, Forward and Aft Sections in Cargo Tank (or Hold) Region, Engine Room Construction, Forward Construction and Stern Construction drawings.
- ”Yard Plans” means a full set of structural drawings, which include scantling information of all structural members.
- ”Hull form” means a graphical or numerical representation of the geometry of the hull. Examples would include the graphical description provided by a Lines Plan and the numerical description provided by the hull form data stored within an onboard computer.
- ”Lines Plan” means a special drawing which is dedicated to show the entire hull form of a ship.
- ”Equivalent (to Lines Plan)” means a set of information of hull form to be indicated in Key construction Plans for SCF purposes:  
Sufficient information should be included in the drawings to provide the geometric definition to facilitate the repair of any part of the hull structure.
- ”Normal Storage Location” means a standard location where each SCF information item should be stored. However, those items listed as being on board in the table above should be on board as a minimum to ensure that they are transferred with the ship on a change of owner.
- ”Shore archive” is to be operated in accordance with applicable international standards.