

**The Ship Construction File Interim Industry Standard
and Interim Supplementary Guidance**
– Executive Summary –

7 March 2016

**Approved for
submission to MSC 96**
(Submitted in abbreviated form as MSC 96/5/7)

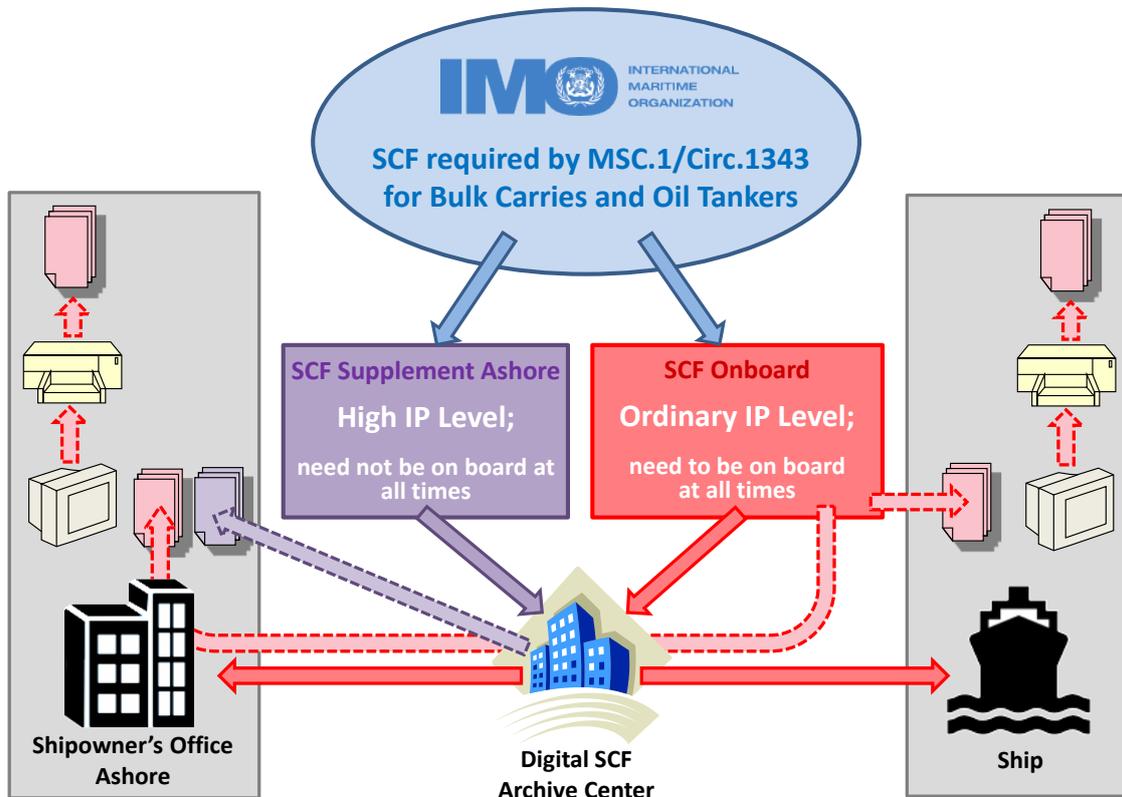
1. Introduction and agreed principles:

The Ship Construction File (SCF) provides ship information related to design and construction that is needed to facilitate the safety of the ship throughout its operational life.

The SCF Interim Industry Standard (called “SCF IS”) and the associated Interim Supplementary Guidance (called “SCF SG” and SCF IS and SCF SG being collectively called “IS”) were jointly developed by the tripartite group (Shipowners, Shipbuilders and Classification Societies) as industry guidance relevant to newbuilding, substantial repair, conversion or major modification to the structure of Bulk Carriers or Oil Tankers subject to the IMO SOLAS GBS requirements for the SCF.

The IS serves as industry guidance and therefore does not oblige parties to fully follow the contents but rather provide principles, which will facilitate agreement on procedures for compliance being reached for each Ship. Such agreements and the resulting commitments will reflect specific individual situations. In other words, the purpose of the IS is to promote common understanding of the industry issues involved, and to facilitate agreement on procedures for achieving compliance with the IMO requirements on individual projects.

It is to be noted that nothing in this guidance should be interpreted as providing any alternative to full compliance with the relevant requirements of IMO.



The “SCF Onboard – SCF Supplement Ashore” model

2. Purpose and scope of SCF Interim Industry Standard:

The main objective of the IS is to give practical guidance on the definitions of the SCF contents and operating principles of the “SCF Onboard and SCF Supplement Ashore” industry model.

The IS will facilitate access by the Classification Society, Shipowner and flag State to necessary SCF Information effectively, while demonstrating in a verifiable manner due consideration to IP protection, as required in Functional Requirement 10 of the IMO GBS and Paragraph 4 of the IMO Guidelines for the information to be included in a Ship Construction File (MSC.1/Circ.1343).

- The IS applies to the operational phase of the ship and addresses the SCF Information as required by MSC.1/Circ.1343. It does not affect the scope of and access to information related to the ship structure under construction, which is referred to in Part B of Annex to MSC.296 (87)⁽¹⁾.
- Summarized information on fatigue life calculation is available on board through document such as Item 4-2 shown in Annex to the SCF IS (Plan showing areas prone to fatigue).
- Full “Detailed strength calculation” and “Detailed fatigue life calculation”, such as Items 3-2 and 4-1 shown in Annex to the SCF IS, are available to the Shipowner during ship design and construction period, and can after ship delivery be provided to the Shipowner from the Archive Center subject to the procedures as defined in 2.1 of the SCF SG. If for some legitimate reason the full calculations have not been available to the Shipowner before ship delivery, (e.g. the Shipowner not being involved in the project until the ship is already constructed), then the Archive Center will provide such information to the Shipowner on request. The calculations may be only for internal use by the Shipowner.

Full “Detailed strength calculation” and “Detailed fatigue life calculation” need to incorporate the following information for the purpose of demonstrating compliance with the structural design criteria, including, but not limited to those specified in the reporting requirements of Common Structural Rules for Bulk Carriers and Oil Tankers (CSR) issued by IACS for direct strength analyses.

Information related to direct strength analyses (CSR, Ch. 7):

- a) List of plans used including dates and versions;
- b) Detailed description of structural modelling including all modelling assumptions and any deviations in geometry and arrangement of structure compared with plans;
- c) Plots to demonstrate correct structural modelling and assigned properties.
- d) Details of material properties, plate thickness, beam properties used in the model;
- e) Details of (assumed) boundary conditions;
- f) Details of all loading conditions reviewed with calculated hull girder shear force, bending moment and torsional moment distributions;

⁽¹⁾ See 10.2.3 and 10.3.3 in Part B of Annex to IMO MSC.296(87) “Guidelines for Verification of Conformity with the International Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers”

- g) Details of applied loads and confirmation that individual and total applied loads are correct;
- h) Plots and results that demonstrate the correct behaviour of the structural model under the applied loads;
- i) Summaries and plots of global and local deflections.
- j) Summaries and sufficient plots of stresses to demonstrate that the design criteria are not exceeded in any member;
- k) Plate and stiffened panel buckling analysis and results;
- l) Tabulated results showing compliance, or otherwise, with the design criteria.
- m) Proposed amendments to structure where necessary, including revised assessment of stresses, buckling and fatigue properties showing compliance with design criteria;
- n) Reference of the finite element computer program (software), including its version and date.

Information related to strength calculations other than direct strength analyses:

- o) Hull girder ultimate capacity calculation (CSR, Ch. 5, Section2);
- p) Residual strength calculation (CSR, Ch. 5, Section 3);
- q) Any other strength calculations such as Hull girder section modulus calculation (CSR, Ch. 5 Section1)

The scope and sample format of information to be included in the SCF are provided by Annex to the SCF IS.

3. SCF Onboard and SCF Supplement Ashore: appropriate formats and locations for different type of information

It was agreed that a shore based Archive Center could be used to store the full scope of documents and drawings addressed by the SCF, which include certain documents that are recognised as being both highly IP sensitive and not needed to be kept on board the ship at all times.

The “SCF Onboard” is accessible on board the Ship and in the Shipowner’s office ashore. The model procedures for management of the “SCF Onboard”, either in a printed or digital format, are provided in the SCF SG to facilitate customisation in accordance with the principles of the IS to accommodate the different management style of each Shipowner.

For Shipowners who have chosen to carry the “SCF Onboard” in a digital format, a selected set of printed “SCF Onboard” for frequent use as shown in Table 2 of the SCF IS, as well as a full set of “SCF Onboard” in a printed format for emergency use can also be provided. In addition, the electronic “SCF Onboard” is printable by equipment onboard or in the Shipowners’ office ashore.

The “SCF Supplement Ashore” comprises only documents that satisfy two criteria, which are marked as “high IP level” documents in Table 2 of the SCF IS:

- High IP sensitivity; and
- Not needed to be kept on board the Ship at all times.

For conventional Bulk Carriers and Oil Tankers these criteria are only met by the following four items (Noting that this may be different for other ship types which may in the future be subjected to other GBS):

- full “Detailed strength calculation” document

- full “Detailed fatigue life calculation” document
- “Yard plans” drawings
Note: “Yard plans” drawings – besides scantling information of structural members – contain also sensitive proprietary information on fabrication processes. The scantling information of structural members to fulfil the day-to-day needs on board is, however, available on board, by means of Item 3-5 (Key construction plans) and Item 3-6 (Net scantlings of structural constituent parts) defined in Annex to the SCF IS.
- Master “Lines Plan” drawing
Note: Master “Lines plan” is a master drawing displaying the detailed hull form of the entire ship. Hull form information frequently required is readily made available on board, by means of Item 3-5 (Key construction plans) defined in Annex to the SCF IS. Hull form information needed in emergency situations is also encrypted and stored on ship loading computers on board as numerical data (Refer to Item 3-11 “Equivalent to Lines plan” defined in Annex to the SCF IS).

SCF Information that is required for Emergency Response Services (ERS) will be available for use by dedicated ERS providers subject to appropriate procedures for IPR protection being implemented by the ERS provider for example, by means of a confidentiality agreement.

4. Access to and IP protection of SCF information: practical, user-friendly and safe

For the defined scope of the SCF, whether on board or ashore, availability to the Shipowner is assured, taking into account the need for appropriately structured access procedures that consider both the IP sensitivity of individual documents/drawings and the need for practical operational access to the information. How to manage access procedures in practice is fully under the Shipowner’s control.

4.1 SCF Onboard

Where the “SCF Onboard” is in a digital format it should be directly accessible by the Shipowner through the onboard standard IT systems and document management procedures. It is anticipated that Shipowners will put in place appropriate IT security procedures to protect information held in a digital format. This should include procedures and systems for taking off a person from the registration list when the person is no longer qualified for access because of changeover or retirement, etc. and periodical renewal of passwords to be made by the Shipowner to ensure maintenance of secure access to SCF Information, and may include periodical renewal of information held in a digital format. This is intended to ensure that full set of the latest SCF Information is being used and that the information has not been compromised.

Records of the access to SCF Information are to be kept by the Shipowner, e.g. as a part of the Ship’s document management system or quality management system. Where information in a digital format is selected, this can be arranged to be automated.

4.2 SCF Supplement Ashore

For the “SCF Supplement Ashore”, information should be provided by the Shipowner to clarify the intended use of information in the four documents recognised as being of high IP sensitivity (Table 2 in the SCF IS refers). The

Archive Center will only use this information to verify that SCF Information is being provided to a recognized representative of the Shipowner for legitimate use⁽²⁾ related to the specific Ship.

However, this does not oblige the Shipowner to give away business sensitive information. The information provided will simply enable the Shipbuilder to understand the specific part/extent of SCF Supplement Ashore Information needed, so as to facilitate the relevant procedures and enable the Archive Center to deliver necessary and sufficient SCF Supplement Information in a timely manner. Such exchange is based on trust and a spirit of good cooperation between the Shipowner and the Shipbuilder. Archive Center and Shipbuilder will operate under strict principles not to divulge for whatever reason the purpose given by the Shipowner.

The Archive Center will keep a record of access to “SCF Supplement Ashore” and any backup documents or drawings of the “SCF Onboard” that it provides to any party.

5. The Archive Center: provides availability and IP protection

The Archive Center will function as the keeper of the “SCF Supplement Ashore” in a digital format, while also keeping a full digital copy of the “SCF Onboard” for backup purposes.

Qualification elements for becoming an Archive Center are defined in IS, keeping in mind that independent services can be competitively achieved. Classification Societies may be the most suitable and likely candidate. Not all classification societies, however, necessarily will provide Archive Center services.

However, the IS do not rule out other entities as long as the qualifications set in the IS are achievable. The selection and appointment of the Archive Center will ultimately be subject to agreement between the Shipowner and the Shipbuilder.

6. SCF Interim Industry Standard: open to modification and alternative purposes

The IS has been specifically developed to facilitate the SCF for Bulk Carriers and Oil Tankers. However, if an individual Shipowner sees benefit in applying the same industry model for information beyond the SCF scope, this could be arranged by agreement between the relevant parties.

It is intended that in the absence of significant issues arising, a general review will be initiated by the cross industry group within 24 months to take account of experience gained in the initial use of the IS.

⁽²⁾ Refer to definition 1.(a) of the SCF IS