INTERNATIONAL MARITIME ORGANIZATION

IMO

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SUB-COMMITTEE ON FIRE PROTECTION
47th session
Agenda item 16

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# REPORT TO THE MARITIME SAFETY COMMITTEE

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**LIST OF ANNEXES**

## 1 GENERAL

1.1 The Sub-Committee held its forty-seventh session from 10 to 14 February 2003 under the chairmanship of Mr. K. Yoshida (Japan). The Vice-Chairman, Mr. J.C. Cubisino (Argentina), was also present.

1.2 The session was attended by delegations from the following Member Governments:

ARGENTINA
BAHAMAS
BRAZIL
CAMEROON
CANADA
CHILE
CHINA
COLOMBIA
CROATIA
CYPRUS
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA
DENMARK
ECUADOR
EGYPT
FINLAND
FRANCE
GABON
GERMANY
GHANA
GREECE
INDIA
IRAN (ISLAMIC REPUBLIC OF)
ITALY
JAPAN
LATVIA
LIBERIA
MALTA
MARSHALL ISLANDS
MEXICO
NETHERLANDS
NIGERIA
NORWAY
PANAMA
PERU
PHILIPPINES
POLAND
REPUBLIC OF KOREA
ROMANIA
RUSSIAN FEDERATION
SINGAPORE
SOUTH AFRICA
SPAIN
SWEDEN
TURKEY
UNITED KINGDOM
UNITED STATES
VENEZUELA

the following Associate Member of IMO:

HONG KONG, CHINA

1.3 The session was also attended by representatives from the following United Nations and specialized agencies:

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)

1.4 The session was also attended by observers from the following non-governmental organizations:

INTERNATIONAL CHAMBER OF SHIPPING (ICS)
INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)
INTERNATIONAL CONFEDERATION OF FREE TRADE UNIONS (ICFTU)
INTERNATIONAL ASSOCIATION OF CLASSIFICATION SOCIETIES (IACS)
OIL COMPANIES INTERNATIONAL MARINE FORUM (OCIMF)
INTERNATIONAL FEDERATION OF SHIPMASTERS' ASSOCIATION (IFSMA)

INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKER OWNERS (INTERTANKO)
INTERNATIONAL COUNCIL OF CRUISE LINES (ICCL)
INTERNATIONAL ASSOCIATION OF DRY CARGO SHIPOWNERS (INTERCARGO)
THE INSTITUTE OF MARINE ENGINEERING, SCIENCE AND TECHNOLOGY (IMarEST)
WORLD NUCLEAR TRANSPORT INSTITUTE (WNTI)
THE ROYAL INSTITUTION OF NAVAL ARCHITECTS (RINA)

**Opening address**

1.5 On behalf of the Secretary-General, the Assistant Secretary-General welcomed the participants and referred to the various activities undertaken by the Organization during 2002, when, in addition to the regular meetings of the various IMO bodies, the Diplomatic Conference to adopt a Protocol to the 1974 Athens Convention and the Diplomatic Conference on Maritime Security had successfully been concluded.

Referring to the Diplomatic Conference on Maritime Security, he emphasized that the worldwide escalation of acts of terrorism did not leave room for any complacency and that it would be prudent for all parties concerned to start putting in place, methodically and systematically and as soon as possible, all the necessary infrastructure (including legislative, administrative and operational) needed to give effect to the decisions of the Maritime Security Conference without awaiting the arrival of the entry-into-force date of 1 July 2004, so as to avoid the need to have to take hasty actions at the last minute.

He recalled that it was in January 2001 when the Secretary-General first suggested, in the context of the accident involving the tanker **Castor**, that the time had come for IMO to undertake, as a matter of priority, a global consideration of the matter of places of refuge and adopt any measures required to ensure that, in the interests of safety and environmental protection, coastal States reviewed their contingency arrangements so that disabled ships were provided with assistance and facilities as might be required in the circumstances. Although progress had been made in considering the places-of-refuge issue within the Organization, it was regrettable that it had come to prominence in the context of the accident involving the tanker **Prestige**.

Because of the possibility of regional action being taken in the aftermath of that accident, the Assistant Secretary-General repeated the statement and firm position which the Secretary-General had expressed on various occasions in the past, namely that IMO should always and without exception be regarded as the only forum where safety and pollution prevention standards affecting international shipping should be considered and adopted, and that regional, let alone unilateral, application to foreign flag ships of national requirements which go beyond the IMO standards would be detrimental to international shipping and to the functioning of the Organization itself and should be avoided.

Referring to the approval by MSC 75 of the Interim Guidelines for evacuation analysis for new and existing passenger ships, the Assistant Secretary-General considered this as an important achievement in IMO's continuous endeavours to provide up-to-date and as high as possible fire safety standards for passenger ships. He noted that the interim guidelines would provide useful advice to passenger ship owners, operators and designers when conducting a proper passenger ship evacuation analysis and, in particular, for dealing with emergencies involving large cruise ships.

He then expressed the hope that the revised resolution A.654(16) on Graphical symbols for fire control plans would greatly increase the usefulness of the fire control plans required by SOLAS chapter II-2, both for the ship crews and shore-based fire brigades, and assist all those involved with planning and co-ordinating fire emergencies on board all types of ships.

Recalling that the Sub-Committee had also been requested by the MSC to consider matters on large passenger ship safety, he emphasized how important it was for IMO to give its fullest attention and care to progressing the safety of large passenger ships and that he had no doubt that the Sub-Committee's contribution to the MSC's work would be commensurate with the significance of the risks the Sub-Committee had been established to deal with.

Referring to the revision of the fishing vessel Safety Code and Voluntary Guidelines, he recalled the efforts already made by the Organization to establish adequate safety standards for fishing vessels, which culminated in the adoption of the 1993 Torremolinos Protocol for the Safety of Fishing Vessels. He was confident that the Sub-Committee would carry out the revision exercise in a timely and thorough manner.

The Assistant Secretary-General concluded by expressing confidence that the Sub-Committee would make considerable progress on all issues on its agenda.

**Adoption of the agenda**

1.6 The Sub-Committee adopted the agenda (FP 47/1/Rev.1), which, together with a list of documents considered under each agenda item, is set out in annex 1. The Sub-Committee agreed, in general, to be guided in its work by the annotations contained in document FP 47/1/1.

## 2 DECISIONS OF OTHER IMO BODIES

2.1 The Sub-Committee noted the decisions of the Marine Environment Protection Committee (MEPC) at its forty-seventh and forty-eighth sessions, the Sub-Committee on Ship Design and Equipment (DE) at its forty-fifth session, the Sub-Committee on Flag State Implementation (FSI) at its tenth session, the Maritime Safety Committee (MSC) at its seventy-fifth and seventy-sixth sessions, the Sub-Committee on Bulk Liquids and Gases (BLG) at its seventh session, the Sub-Committee on Safety of Navigation (NAV) at its forty-eighth session, the Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety (SLF) at its forty-fifth session and the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers (DSC) at its seventh session (documents FP 47/2, FP 47/2/1 and FP 47/2/2), and took them into account in its deliberations when dealing with relevant agenda items.

**Consideration of the strategy and policy of the Organization**

2.2 The Sub-Committee noted that C 89 had instructed the Committees and through them, their subsidiary bodies, when developing new instruments or amendments to existing ones, to ensure that these are compatible and not in conflict with other instruments or international law and that they should not be interpreted or used in a way that conflicts with such instruments, in particular, those addressing human rights.

**Co-ordination within the United Nations system**

2.3 The Sub-Committee was advised that C 89 had noted the information provided in documents C 89/23(b)/Add.1 and C 88/21(b)/Add.1 and, with regard to the updating of the study on the Implications of the United Nations Convention on the Law of the Sea for IMO, had recommended that all bodies of the Organization should keep it in mind as a reference document in the context of their work.

## 3 UNIFIED INTERPRETATIONS OF SOLAS CHAPTER II-2, THE FSS CODE AND RELATED FIRE TEST PROCEDURES

### General

3.1 The Sub-Committee recalled that it had agreed to retain the item on "Unified interpretations of SOLAS chapter II-2, the FSS Code and related fire test procedures" in the Sub-Committee's work programme and agenda for FP 47 with a target completion date of 2004 and to establish a working group at this session.

### Unified interpretations of the revised SOLAS chapter II-2

3.2 The Sub-Committee noted that MSC 75 had referred document MSC 75/10/2 (Sweden) and instructed the Sub-Committee to reconsider the draft unified interpretations related to emergency escape breathing devices, as contained in annex 4 to document FP 46/WP.9, with a view to approval at MSC 77. Having consider the submissions by Sweden (MSC 75/10/2) and Hong Kong, China (FP 47/3/4), the Sub-Committee decided to forward these documents to the working group to consider whether a unified interpretation related to SOLAS regulation II-2/13.4.3 is necessary and, if so, to prepare a draft unified interpretation for consideration by the Sub-Committee with a view to submission to MSC 77 for approval (see paragraph 3.11).

3.3 The Sub-Committee recalled that FP 46 had agreed to develop unified interpretations for the revised SOLAS chapter II-2 and that the delegation of Germany had kindly offered to prepare a relevant document for consideration at FP 47. Having considered the comprehensive submission by Germany (FP 47/3/2) and the submissions by Japan (FP 47/3/1 and FP 47/INF.2) and Denmark (FP 47/3/7) containing draft unified interpretations of the revised SOLAS chapter II-2, the Sub-Committee decided that these issues should be further considered by the working group in detail (see paragraphs 3.14 to 3.19).

3.4 The Sub-Committee also recalled that it had agreed to reconsider at this session the draft unified interpretations related to SOLAS regulation II-2/6.2, as contained in annex 4 to document FP 46/WP.9, and instructed the working group to consider this matter further (see paragraph 3.15).

### Unified interpretations related to fire safety systems

3.5 The Sub-Committee considered matters pertaining to fire safety systems, as addressed in the submissions by Denmark (FP 47/3) and Finland (FP 47/3/6) on matters related to the sizing of supply pumps and alternative supply components of an equivalent automatic sprinkler system and agreed that these documents should be further considered by the Working Group on Performance Testing and Approval Standards since they were closely related to the work under agenda item 8 (see paragraphs 8.10 to 8.13).

### Unified interpretations related to fire test procedures

3.6 The Sub-Committee considered matters pertaining to fire test procedures, as addressed in the submissions by France (FP 47/3/9), Italy (FP 47/3/5), the Russian Federation (FP 47/3/3) and the Chairman (FP 47/3/8) and agreed that these issues should be further considered by the working group in the course of their deliberations on fire test procedures in general (see paragraphs 3.20 to 3.24).

**Unified interpretations for chapter 7 of the 2000 HSC Code**

3.7 The Sub-Committee noted that DE 45 had requested the Sub-Committee to consider the proposed interpretations concerning chapter 7 of the 2000 HSC Code, as contained in the annexes to documents DE 45/12 and DE 45/12/1 (see also paragraph 14.1).

3.8 In considering submissions by the Secretariat (FP 47/14) and Australia (FP 47/14/4), the Sub-Committee noted that there were a large number of fire protection-related interpretations contained in the above documents and, after having taken into account the DE Sub-Committee's target completion date of 2004 for this work, decided that a working group should review the proposed unified interpretations concerning chapter 7 of the 2000 HSC Code. Therefore, the Sub-Committee forwarded the above documents to the working group for detailed consideration (see paragraph 3.12).

**Establishment of the working group**

3.9 Recognizing the necessity to make progress on these issues and recalling its relevant decision at FP 46, the Sub-Committee established the Working Group on Unified Interpretations and, taking into account the comments and decisions made in plenary, instructed it to:

.1 consider whether the draft unified interpretations related to SOLAS regulations II-2/13.4.3 and II-2/13.3.4, as contained in annex 4 to document FP 46/WP.9, are necessary, taking into account documents FP 47/3/4 and MSC 75/10/2, and, if so, prepare the associated MSC circular cover note;

.2 in the context of agenda item 14, review the proposed unified interpretations concerning chapter 7 of the 2000 HSC Code, as contained in documents DE 45/12, DE 45/12/1 and FP 47/14/4 and make recommendations as appropriate;

.3 further consider the draft unified interpretations related to the revised SOLAS chapter II-2, as contained in documents FP 46/WP.9 (annex 4, regulation 6.2), FP 47/3/1, FP 47/3/2 (annex 1), FP 47/3/7 and FP 47/INF.2 and make recommendations as appropriate;

.4 further consider the draft unified interpretations related to fire test procedures, as contained in documents FP 47/3/2 (annex 3), FP 47/3/3, FP 47/3/5, FP 47/3/8 and FP 47/3/9 and make recommendations as appropriate;

.5 in the context of agenda item 10, consider whether to amend the current gas concentration limit for sulphur dioxide for smoke and toxicity levels specified in the FTP Code, taking into account document FP 47/10 and, if necessary, prepare the associated MSC resolution;

.6 in the context of agenda item 12, consider the fire protection-related IACS unified interpretations contained in documents MSC 75/10/3, MSC 75/19/2 and MSC 76/18/2 and make recommendations as appropriate; and

.7 prepare a recommendation regarding the need for a correspondence group and, if so, prepare the terms of reference for consideration by the Sub-Committee.

**Report of the working group**

3.10 Having received the report of the working group (FP 47/WP.8), the Sub-Committee approved it in general and took action as outlined hereunder.

**Draft unified interpretations of SOLAS regulations II-2/13.3.4 and II-2/13.4.3**

3.11 The Sub-Committee considered whether a draft unified interpretation related to SOLAS regulations II-2/13.4.3 and II-2/13.3.4, as contained in annex 4 to document FP 46/WP.9, was necessary, taking into account documents FP 47/3/4 and MSC 75/10/2 and, having agreed that such interpretations were necessary, prepared a relevant draft MSC circular on Unified Interpretations of the revised SOLAS chapter II-2, as set out in annex 2 for submission to MSC 77 with a view to approval. The Sub-Committee felt that requirements for spare emergency escape breathing devices for machinery spaces should be left to the Administration.

**Unified interpretations concerning chapter 7 of the 2000 HSC Code**

3.12 The Sub-Committee considered the interpretations for chapter 7 of the 2000 HSC Code contained in documents DE 45/12, DE 45/12/1 and FP 47/14/4 and agreed to them with the amendments specified in paragraph 5 of document FP 47/WP.8. The Secretariat was instructed to prepare the consolidated text of the interpretations, as set out in annex 3, for referral to the DE Sub-Committee for co-ordination purposes.

**Draft unified interpretations related to the revised SOLAS chapter II-2**

3.13 The Sub-Committee considered the draft unified interpretations contained in annex 1 of document FP 47/3/2 and, having concluded that the interpretations listed in paragraph 6 of document FP 47/WP.8 had become obsolete since they were taken into account in the new revised SOLAS chapter II-2, agreed to delete these from the list contained in annex 1 to document FP 47/3/2.

3.14 The Sub-Committee also agreed with the group's recommendation that the draft unified interpretations identified in paragraph 7 of document FP 47/WP.8 should be amended.

3.15 With regard to the draft interpretation of regulation II-2/6.2 indicated in annex 4 of document FP 46/WP.9, the Sub-Committee felt that is interpretation should be deleted because it was covered by other interpretations. However, the issues, related to exposed interior surfaces would be further considered by the correspondence group to be established (see paragraph 3.25).

3.16 With regard to annex 1 of document FP 47/3/1, the Sub-Committee agreed that the interpretation of regulation II-2/10.5.6.3 proposed in the annex should be included in the set of new draft interpretations of the revised SOLAS chapter II-2, for further consideration.

3.17 With regard to annex 2 of document FP 47/3/1, proposing interpretations of the Guidelines for the approval of fixed water-based local application fire-fighting systems (MSC/Circ.913), the Sub-Committee agreed to the draft interpretation as set out in annex 4 and instructed the Secretariat to prepare a covering MSC circular for submission to MSC 77 for approval.

3.18 The Sub-Committee considered document FP 47/3/7, proposing, *inter alia*, an interpretation of SOLAS regulation II-2/15.2.11, in force before 1 July 2002, on screening of piping for fuel oils. The Sub-Committee agreed that the retroactive application should only apply to fuel oil piping and, having agreed on the necessity of this interpretation, prepared a relevant draft MSC circular, as set out in annex 5, for submission to MSC 77 for approval.

3.19 Having noted the above decision, the delegation of Denmark expressed the view that the draft unified interpretation of SOLAS regulation II-2/15.2.11 should also cover SOLAS regulations II-2/15.3 and II-2/15.4 since all flammable oil arrangements, in their opinion, should comply with SOLAS regulation II-2/15.2.11.

**Draft unified interpretations related to fire test procedures**

3.20 The Sub-Committee noted annex 3 of document FP 47/3/2, containing a list of fire test procedure-related interpretations. With regard to the interpretation to paragraph 5.2.4 of the FTP Code, the Sub-Committee noted that it could not recommend any minimum dimensions of windows subject to optional test(s) such as hose stream test and/or thermal radiation tests on windows because no relevant information had been received from ISO TC 8. With regard to the interpretation on smoke and toxicity tests, the Sub-Committee agreed that a reference to MSC/Circ.1008 needed to be included.

3.21 The Sub-Committee considered document FP 47/3/3, proposing amendments to resolution A.754(18) with regard to "A" class bulkhead tests, and concluded that the document does not give sufficient information or comparison data to support the proposed amendment.

3.22 The Sub-Committee also considered document FP 47/3/5, proposing interpretations to resolution A.754(18) on the application of measurement of temperatures on "A" class divisions built of aluminium alloy, tests of aluminium alloy decks for general application and "A" class specimens with no standard design, and agreed:

.1 that the proposed interpretation to paragraphs 7.5.1.6 and 9.3 of the Annex to resolution A.754(18) represented an amendment rather than an interpretation and was therefore not supported. However, the Sub-Committee also agreed that thermocouples placed over aluminium deck stiffeners can yield higher temperatures than those placed on aluminium plate and that this issue should be taken into consideration for any future discussion on amendments to resolution A.754(18);

.2 with the proposed interpretation to paragraphs 1.2 and 1.6 of the Annex to resolution A.754(18) in principle, but noted that there was not sufficient information on test results regarding primary deck coverings for final approval;

.3 that the proposed interpretation to paragraphs 1.2 and 2.1 of the Annex to resolution A.754(18) are amendments to the resolution rather than interpretations.

3.23 The Sub-Committee considered document FP 47/3/8, providing information on the updating of standards referred to in SOLAS chapter II-2 and the Fire Test Procedures (FTP) Code and other activities, and agreed that the most current standards should be used to evaluate materials. The proposed interpretation should state that the most current version of the standards in effect at the time of testing should apply. The Sub-Committee also agreed that interpretations should be prepared to apply standards ISO 1182:2002 (instead of 1182:1990) and 1716:2002 (instead of 1716:1973).

3.24 The Sub-Committee considered document FP 47/3/9 requesting clarifications with regard to the FTP Code and agreed:

.1 with regard to the expression “rapid flash-over surface, later steady flame progress”, that this should be interpreted to mean any flash of not longer than 1 s duration causing no damage to the sample surface;

.2 with regard to resolution A.653(16), paragraph 7.4, which states “if a bright metallic faced specimen is to be tested, it should be painted with a thin coat of flat black paint prior to conditioning for test”, that this means "black paint" of low emissivity generally used for heat flux meters and radiometers. A definition can be found in the relevant ISO standard;

.3 with regard to paragraph 8.3.2 of resolution A.653(16), which states that "if a specimen shows extensive loss of incompletely burned material during test, at least one additional specimen, restrained in the testing frame by poultry netting, should be tested and the data secured reported separately", that this should be taken to refer to netting of approximately 0.3 mm wire diameter and 25 mm mesh.

**Terms of reference for the correspondence group**

3.25 The Sub-Committee decided to establish a correspondence group, under the co-ordination of Italy*, to continue the work intersessionally and instructed the group to:

.1 further consider the draft unified interpretations related to the revised SOLAS chapter II-2, taking into account document FP 47/WP.8, with a view to preparing a final list of such interpretations;

.2 further consider the draft unified interpretations related to fire test procedures taking into account document FP 47/WP.8, with a view to preparing a final list of such interpretations;

.3 consider fire protection-related IACS unified interpretations taking into account document FP 47/WP.8, with a view to incorporating them in the list of draft unified interpretations related to the revised SOLAS chapter II-2, as appropriate (see paragraphs 12.8 to 12.9);

.4 further consider the proposed interpretations related to the FSS Code contained in annex 2 of document FP 47/3/2; and

.5 submit a report to FP 48.

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## 4 ANALYSIS OF FIRE CASUALTY RECORDS

4.1 The Sub-Committee recalled that FP 46 had agreed to establish a drafting group at this session to consider the use of smoke helmets for fire-fighting; revisions to the fire casualty record; and matters related to hot work-related casualties.

### Hot work casualties

4.2 The Sub-Committee recalled that FP 46 had considered the recommendations of FSI 8 related to hot work casualties and agreed to develop a user-friendly, non-detailed list of common principles applicable to hot work situations on board all types of ships, which seafarers, operators, management and auditors in the ISM Code system could keep in mind when developing specific on-board instructions to suit their operational needs, on the basis of existing guidelines referred to in paragraph 7.18 of document FP 46/16.

4.3 Having discussed hot work safety issues, the Sub-Committee agreed to develop a list of common principles at this session, which shipowners, ship operators, shipmasters and other parties concerned could keep in mind when developing specific on-board instructions to suit their operational needs, taking into account the ICS/OCIMF/IAPH International Safety Guide for Oil Tankers and Terminals (ISGOTT) and the ILO Accident Prevention on Board Ship at Sea and in Port publications (see paragraph 4.14).

### Use of smoke helmets for fire-fighting

4.4 The Sub-Committee recalled that it had considered the observations on the human element from the investigation of the engine-room fire on board the **Toisa Gryphon**, as contained in document FP 46/7, and noted that the document highlighted problems associated with the use of smoke helmets, which reduces the effectiveness and safety of fire-fighting teams on ships having small crews, and questioned the wisdom of the use of such equipment.

4.5 The Sub-Committee noted that the revised SOLAS chapter II-2 does not permit the use of a smoke helmet, but that the relevant new regulations do not apply to existing ships, and, in this regard, reaffirmed its view that if companies continue to use this equipment, they should be satisfied that fire-fighting teams are adequately trained in its use, effective procedures are in place and fire-fighting teams are able to operate effectively and safely.

4.6 After having briefly discussed the issue, the Sub-Committee agreed to finalize the text of the draft MSC circular contained in annex 4 to document FP 46/WP.3 at this session, taking into account the comments made in plenary (see paragraph 4.15).

### Revision of the fire casualty record

4.7 The Sub-Committee recalled that FP 46, having expressed the view that the existing reporting format needed to be reviewed and amended in order to obtain relevant data through the casualty analysing process, had agreed to review the existing reporting format of the Fire Casualty Record, as contained in annex 6 to MSC/Circ.953-MEPC/Circ.372 on Revised harmonized reporting procedures - Reports required under SOLAS regulation I/21 and MARPOL 73/78 articles 8 and 12.

4.8 Having briefly discussed the revisions proposed by the working group at FP 46, the Sub-Committee agreed to finalize the text of the draft revisions to the fire casualty record (annex 6 of MSC/Circ.953-MEPC/Circ.372) at this session, taking into account annex 3 to document FP 6/WP.3 and the comments made in plenary (see paragraph 4.16).

**Outcome of FSI 10**

4.9 The Sub-Committee recalled that FP 46 had developed a proposed revised method, as illustrated in a graphical presentation set out in annex 5 to document FP 46/WP.3, on the interactive process between the FSI Sub-Committee and other sub-committees to identify maritime safety and marine pollution issues, and that FSI 10 had agreed to the proposed process and forwarded the graphical presentation set out in annex 5 to document FSI 10/WP.1 to the sub-committees for information purposes.

4.10 The Sub-Committee also recalled that FSI 10, in considering the summary of casualty analysis and recommendations prepared by the Working Group on Casualty Analysis, agreed to forward annex 4 of document FSI 10/WP.1 to other relevant sub-committees for consideration so that they could be informed as to what type of casualties are occurring and take action if deemed appropriate. In this regard, the Sub-Committee noted the casualty analysis and recommendations in annex 4 of document FSI 10/WP.1 and decided that no further action was required at this time.

**Fire casualty report**

4.11 The Sub-Committee noted with appreciation the document submitted by the Russian Federation (FP 47/4) providing information on a fire extinguished by an aerosol fire-extinguishing system.

**Establishment of the drafting group**

4.12 Recognizing the necessity to make progress on the above issues and recalling its relevant decision at FP 46, the Sub-Committee established the Drafting Group on Analysis of Fire Casualty Records and instructed it, taking into account the comments and decisions made in plenary, to:

.1 develop a user-friendly, non-detailed list of common principles, applicable to hot work situations on board all types of ships, using as a basis the existing guidelines referred to in paragraph 7.18 of document FP 46/16;

.2 finalize the text of the draft MSC circular on Use of smoke helmet type breathing apparatus, taking into account annex 4 to document FP 46/WP.3; and

.3 finalize the text of the draft revisions to the fire casualty record (annex 6 of MSC/Circ.953-MEPC/Circ.372), taking into account annex 3 to document FP 46/WP.3.

**Report of the drafting group**

4.13 Having received the report of the drafting group (FP 47/WP.4), the Sub-Committee approved it in general and took action as outlined hereunder.

**Hot work matters**

4.14 The Sub-Committee agreed to the draft MSC circular on Principles for hot work on board all types of ships, attaching a list of the principles, as set out in annex 6, for submission to MSC 77 with a view to approval.

**Use of smoke helmet type breathing apparatus**

4.15 The Sub-Committee agreed to the draft MSC circular on the Use of smoke helmet type breathing apparatus, as set out in annex 7, for submission to MSC 77 with a view to approval.

**Revision of the fire casualty record**

4.16 The Sub-Committee noted the draft revisions to the fire casualty record made by the group. However, having endorsed the group's view that the text in the prefix of appendix A as well as item 24 of the fire casualty record may be confusing, the Sub-Committee agreed that further improvements were needed and pertinent wording should be inserted in the fire casualty record to advise Member Governments to make use of the classification system given in appendix A when completing the record. Noting that the improvements identified could be undertaken by the Secretariat, the Sub-Committee instructed it to prepare a proposal, taking into account document FP 47/WP.4, with a view towards clarity and user-friendliness, for consideration at FP 48.

4.17 The Sub-Committee also reminded Member Governments, when submitting fire casualty records, to do so in accordance with the reporting scheme contained in MSC/Circ.953, in particular to provide the information requested in annexes 1, 2 and 3 of the aforementioned circular together with fire casualty record contained in annex 6.

4.18 Having considered the above issue, the Sub-Committee instructed the Secretariat to forward annex 3 of document FP 47/WP.4 and the above discussion to the FSI Sub-Committee for comment.

4.19 Member Governments and international organizations were invited to submit comments and proposals on the above issue to FP 48.

## 5 REVISION OF RESOLUTION A.654(16)

5.1 The Sub-Committee recalled that FP 46 had considered the documents submitted by ISO (FP 46/8 and FP 46/INF.8) and noted that the standard ISO 17631 – Shipboard plans for fire protection, life-saving appliances and means of escape, had been finalized and published in 2002.

5.2 The Sub-Committee noted that, in considering how to incorporate the standard ISO 17631 within the IMO regulatory framework, FP 46, as an interim measure, had agreed to a draft MSC circular, which MSC 75 approved as MSC/Circ.1050, informing Member Governments and the marine industry of the new ISO standard so that they could use it, on a voluntary basis, for the preparation of the shipboard fire control plans, as required by both the existing and revised SOLAS chapter II-2, in anticipation of the pending revision of resolution A.654(16).

5.3 The Sub-Committee also recalled that FP 46 accordingly had decided that it would consider, at this session, how to incorporate, or make reference to the standard ISO 17631, in the revised resolution A.654(16) for adoption by the Assembly at its twenty-third session in 2003 and instructed the Secretariat to prepare two versions of the draft Assembly resolution for consideration, as highlighted in document FP 47/5.

5.4 Having considered the draft Assembly resolutions prepared by the Secretariat (FP 47/5, annexes 1 and 2), the Sub-Committee agreed that rather than developing a resolution making reference to the ISO standard, a resolution should be adopted containing the symbols for shipboard fire control plans and, having decided to use annex 2 of document FP 47/5 as the base document, requested the Secretariat and interested delegations to prepare a final text of the draft Assembly resolution.

5.5 In considering the matters related to the use of the graphical symbols annexed to the draft Assembly resolution, the Sub-Committee agreed that existing ships should still be able to carry fire control plans which use the graphical symbols contained in resolution A.654(16) and, therefore, agreed to include the relevant operative paragraph in the draft Assembly resolution and further decided that resolution A.654(16) should not be revoked.

5.6 In the course of the discussion, the Sub-Committee noted the comments by the delegation of China that a number of the graphical symbols contained in the standard ISO 17631 were, in some instances, different from the graphical symbols contained in resolution A.654(16) for the same fire safety equipment and, in other instances, the standard ISO 17631 no longer contains any graphical symbols for some of the equipment identified in resolution A.654(16). Having briefly discussed the issue, the Sub-Committee suggested that the delegation of China bring their comments to the attention of ISO TC 8.

5.7 In this regard, the ISO observer, after responding to the specific comments made by the delegation of China, informed the Sub-Committee that all the comments presented at the previous sessions had been considered during the development of the ISO standard and invited interested Members and observers to bring their comments to the attention of ISO TC 8 so they could be considered in the next revision of the standard ISO 17631:2002.

5.8 Having considered document FP 47/WP.2 (Secretariat) indicating modifications to the draft Assembly resolution contained in annex 2 to document FP 47/5 and having made further modifications thereto, the Sub-Committee agreed to the draft Assembly resolution on Graphical symbols for shipboard fire control plans, as set out in annex 8, for submission to MSC 77 for approval and subsequent adoption by the twenty-third session of the Assembly.

5.9 The Sub-Committee, having noted that the aforementioned draft Assembly resolution addresses only matters related to fire protection, agreed to invite the DE Sub-Committee to consider taking similar actions in regard to the use of the graphical symbols contained in the standard ISO 17631:2002 as they relate to life-saving appliances and arrangements, as required by SOLAS chapter III.

5.10 The Sub-Committee also invited the DE Sub-Committee to note that a graphical symbol for emergency escape breathing devices (EEBDs), which is designated as a lifesaving appliance in the standard ISO 17631:2002, had been included in the draft Assembly resolution since SOLAS regulation II-2/13.4.3.2 requires that the number and location of such devices be indicated in the fire control plan.

## 6 REVISION OF THE FISHING VESSEL SAFETY CODE AND VOLUNTARY GUIDELINES

6.1 The Sub-Committee recalled that MSC 74, having considered the request of SLF 43 to invite the FP, COMSAR, NAV, DE and STW Sub-Committees to review and prepare final texts of relevant chapters of the draft revised fishing vessel Safety Code and Voluntary Guidelines, decided to include, in the work programmes of these Sub-Committees a high priority item on "Revision of the fishing vessel Safety Code and Voluntary Guidelines" with a target completion date of 2003.

6.2 The Sub-Committee also recalled that FP 46, having considered detailed comments and proposals on the specific requirements, had agreed that a thorough review was necessary to properly consider the draft revised fishing vessel Safety Code and Voluntary Guidelines and decided to establish a correspondence group, under the co-ordination of Bangladesh, to progress the work intersessionally with the terms of reference contained in paragraph 10.5 of document FP 46/16.

**Report of the correspondence group**

6.3 The Sub-Committee noted that the correspondence group had prepared a draft text of the fire protection provisions of the draft revised Safety Code and Voluntary Guidelines, as set out in annexes 1 and 2 to document FP 47/6/1, and provided a summary record of the group's discussions (FP 47/6, annex).

6.4 In commenting on the above documents, the FAO representative expressed the view that more consideration should be given to the minimum requirements in relation to fishing vessels 24 m in length, but less than 45 m in length, including the possibility of introducing an intermediate length (i.e. 35 m). In relation to the Voluntary Guidelines, the FAO representative was of the opinion that there appeared to be little or no differentiation between certain technical proposals for a vessel of 24 m in length and one of 12 m in length, notwithstanding the fact that they vary greatly in design and layout. He suggested that there might well be a justification for intermediate length categories in keeping with other chapters of the Voluntary Guidelines. Referring to the fact that the Safety Code and Voluntary Guidelines are intended to assist those concerned with framing national laws and regulations, the FAO representative expressed the opinion that a large majority of the fishing vessels are not in the industrialized countries. Consequently, the revision process, setting out minimum provisions, should not be based on new technologies due to the worldwide application intended for the Safety Code and Voluntary Guidelines.

6.5 Having briefly discussed the group's report in general, the Sub-Committee noted that, some of the provisions of the draft revised Safety Code and Voluntary Guidelines were more stringent than those of the 1993 Torremolinos Protocol, and, having recalled that SLF 43 had agreed that for vessels of 24 m and above, but less than 45 m in length, the Code should be modified to reflect the intent of the Protocol, thus ensuring that they do not contain conflicting standards and, after discussing the matter at length, agreed that proposed modifications to the Code made by the correspondence group should be reviewed and redrafted, if necessary, so that the provisions of the draft revised Safety Code are in line with requirements of the 1993 Torremolinos Protocol.

**Establishment of the drafting group**

6.6 Recognizing the necessity to make progress on these issues and recalling its relevant decision at FP 46, the Sub-Committee established the Drafting Group on Fishing Vessel Safety Code and Voluntary Guidelines and, taking into account the comments and decisions made in plenary, instructed it to:

.1 identify any proposed modifications made by the correspondence group (FP 47/6/1) which exceed the provisions of the 1993 Torremolinos Protocol and make modifications as necessary, taking into account the comments provided in document FP 47/6; and

.2 prepare the final texts of the fire protection chapters of the draft revised fishing vessel Safety Code and Voluntary Guidelines for consideration by the Sub-Committee.

**Report of the drafting group**

6.7 Having received the report of the drafting group (FP 47/WP.7), the Sub-Committee approved it in general and took action as outlined hereunder.

**Revision of the fishing vessel Safety Code**

6.8 The Sub-Committee noted that, in reviewing the proposed revision of the relevant chapters of the fishing vessel Safety Code, the group had compared the text provided by the correspondence group in annex 1 to document FP 47/6/1 with the corresponding provisions of the 1993 Torremolinos Protocol and identified a number of provisions exceeding the requirements of the Protocol.

6.9 The Sub-Committee also noted the opinion of the group that the structure of the draft revision of chapter 5 is directed at vessels of 24 m in length and over, but less than 60 m in length and is, therefore, not aligned with Part C of chapter V of the Protocol, which applies to vessels of 45 m in length and over but less than 60 m in length. Since the provisions of the Code would be the minimum standards acceptable, the Sub-Committee noted the group's view that the application of Part C of the Protocol to vessels of 24 m in length and over, but less than 45 m, could be too stringent for all vessels in this size range and should, therefore, be addressed. One possibility discussed was to address the provisions for vessels of that size under a separate Part D, taking due account of, for example, areas of operation and the need or otherwise to introduce intermediate length parameters.

6.10 The Sub-Committee noted further that, whereas paragraph 1.4 of annex 1 to document FP 47/6/1 had been drawn from the 1993 Torremolinos Protocol, the correspondence group had added an additional sentence stating that "Documentation approved by the competent authority to the effect that the alternative structures, measures and appliances meet national regulations should be available on board a vessel." The Sub-Committee agreed that there was merit in the intent of the sentence and proposed that it be retained.

6.11 With regard to many of the footnotes that were identified for deletion to align the revised Safety Code with the 1993 Torremolinos Protocol, the Sub-Committee considered that, due to the more general nature of the Code and the need to give the widest possible guidance, such references should be made available to the user of the Code. In this regard, the Sub-Committee invited the SLF Sub-Committee to consider including a new annex to the Code containing a list of pertinent referenced instruments, such as the FTP and FSS Codes, developed after 1993.

**Revision of the draft Voluntary Guidelines**

6.12 In reviewing the proposed revised text of the Voluntary Guidelines, the Sub-Committee noted that the group had compared the text provided in annex 2 to document FP 47/6/1 with the corresponding provisions of the Code and the 1993 Torremolinos Protocol and that, having identified a number of provisions that exceed those of the 1993 Protocol and Safety Code, the group had made the necessary aligning modifications.

6.13 Although the proposed draft text in paragraph 5.1 of annex 2 to document FP 47/6/1 was considered as generally acceptable, the Sub-Committee recognized that this did not fully cover all aspects of fire protection related to glass reinforced plastic construction and agreed that further consideration should be given to fire protection provisions applicable to vessels of glass reinforced plastic construction.

6.14 In this regard, the Sub-Committee, recognizing that the safety of fishing vessels built of glass reinforced plastic also requires consideration of structural issues other than those related to fire protection, invited the SLF Sub-Committee to consider this matter with a view to deciding how to proceed on this issue.

6.15 The Sub-Committee considered that the operational provisions for testing emergency fire pumps added to section 5.14 of annex 2 to document FP 47/6/1 should be moved to Part A of the Code and invited the SLF Sub-Committee to take appropriate action in that respect.

6.16 The Sub-Committee recognized that the provisions of the proposed revision to the Voluntary Guidelines set out in annex 2 to document FP 47/WP.7 remained too stringent for application to vessels down to 12 m in length and that further consideration should be given to these provisions, taking into account the need to consider areas and types of operation and intermediate vessel lengths.

**Continuation of the work**

6.17 In the light of the above discussion, the Sub-Committee, acknowledging that the draft revised text of both the Safety Code and the Voluntary Guidelines, as prepared by the drafting group and set out respectively in annexes 1 and 2 to document FP 47/WP.7, necessitated further consideration, in particular regarding the provisions applicable to vessels between 24 m and 45 m in length in the case of the Code and down to 12 m in length in the case of the Voluntary Guidelines, agreed to invite MSC 77 to extend the target completion date for this item to 2004.

**Establishment of the correspondence group**

6.18 Subject to the Committee's approval of the extension of the target completion date for this item as mentioned in paragraph 6.17 above, the Sub-Committee agreed that the best way to progress this matter would be to work intersessionally and decided to re-establish the Correspondence Group on Revision of the Fishing Vessel Safety Code and Voluntary Guidelines, under the co-ordination of Japan*, and instructed it to:

.1 consider further the fire protection provisions of the draft revised Safety Code and Voluntary Guidelines, as set out in annexes 1 and 2 to document FP 47/WP.7, taking into account the comments reflected in paragraphs 6.8 to 6.16 of document FP 47/16, and prepare a draft text for final consideration with the view that the proposed changes should, in general, be in line with the 1993 Torremolinos Protocol and take into account regional agreements on fishing vessel safety; and

.2 submit a report to FP 48.

6.19 Having established the above correspondence group, the Sub-Committee invited Member Governments and international organizations to provide wider participation in the work of the correspondence group.

6.20 The Sub-Committee, having considered the above issues, instructed the Secretariat to inform the SLF Sub-Committee accordingly on the outcome of this item.

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## 7 LARGE PASSENGER SHIP SAFETY

### Background

7.1 The Sub-Committee recalled that MSC 74 had approved an updated work plan on large passenger ship safety (MSC 74/WP.6, annex 3), assigning a number of tasks to the Sub-Committee, and included a high priority item on "Large passenger ship safety" in the Sub-Committee's work programme and provisional agenda for FP 46 with a target completion date of 2003.

7.2 The Sub-Committee noted that MSC 75 (FP 47/7), as part of its work on large passenger ship safety, had considered the outcome of FP 46 in conjunction with the tasks assigned in the agreed work plan (MSC 74/WP.6, annex 3) and had noted that the Sub-Committee had established a Correspondence Group on Large Passenger Ship Safety to consider the outcome of MSC 75. In this regard, the Committee, noting that the aforementioned correspondence group's terms of reference, as contained in paragraph 11.11 of document FP 46/16, did not place enough emphasis on crowd management and fire prevention measures, among other areas, agreed to add the following additional instructions to the correspondence group's terms of reference:

.1 to consider the issue of fire prevention, taking into account relevant IMO conventions, codes and guidelines, and make recommendations as appropriate;

.2 to consider the issue of in-port evacuation, taking into account best cruise industry practices, and make recommendations as appropriate;

.3 to consider the issue of crowd management, taking into account the demographics of passengers and best cruise industry practices, and make recommendations as appropriate;

.4 to review the SOLAS requirements for main vertical zones with a view towards developing performance-based requirements which would not inhibit the use of new technologies and concepts; and

.5 to consider the use of directional sound as an aid to evacuation, taking into account comments from FP 46 and MSC 75 and documents MSC 75/4/5 and MSC 75/INF.17, and provide recommendations to FP 47.

7.3 Having considered document FP 47/7 (Secretariat), the Sub-Committee noted that, in particular, the Committee had finalized the guiding philosophy, strategic goals and objectives, as set out in annex 1 to document FP 47/7, and agreed that this approach would provide the sub-committees concerned with a structured and focused way forward for dealing with large passenger ship safety matters.

7.4 It was also noted that the Committee had completed its work on the areas for consideration, as set out in annex 2 to document FP 47/7, with the view that the sub-committees assigned work on this issue should use the information contained in the aforementioned annex as additional guidance to clarify the intent of assigned objectives and tasks.

7.5 With respect to the work to be accomplished, it was further noted that the Committee had agreed to additional guidance for the Sub-Committee to consider and approved the updated work plan, as set out in annexes 3 and 4 to document FP 47/7, respectively; and conveyed document MSC 75/WP.12 to the appropriate sub-committees for background purposes.

**Cruise Ship Safety Forum recommendations**

7.6 The Sub-Committee considered document FP 47/7/1 (ICCL) providing the outcome of the Cruise Ship Safety Forum (CSSF) together with nine recommendations for large passenger vessel safety, which are current best practice for many of the CSSF representatives, and agreed that the aforementioned recommendations should be taken into consideration by the working group in the course of their deliberations.

**Report of the correspondence group**

7.7 The Sub-Committee approved, in general, the report of the Correspondence Group on Large Passenger Ship Safety (FP 47/7/2) and took action as indicated hereunder.

7.8 The Sub-Committee discussed whether a definition or working criteria for the term 'large passenger ship' should be developed and, having recalled the decision of MSC 75 on this subject (FP 47/7, paragraph 6), agreed that relevant parameters should be developed, as necessary, for application purposes for any proposed recommendations. In this context, the Sub-Committee also recalled the decision of MSC 75 that "such parameters may include, but are not limited to, ship length, tonnage, number of persons, design parameters, etc.".

7.9 In considering the correspondence group's opinion that risk assessment (RA) guidelines should be developed, the Sub-Committee expressed the view that the development of such guidelines would be time consuming and should not be pursued unless the working group recommended this course of action. In this event, the Sub-Committee agreed that benchmarking (safety level) and performance standards should be considered instead.

7.10 The Sub-Committee considered whether the Interim Guidelines on evacuation analysis for new and existing passenger ships (MSC/Circ.1033) should be made mandatory for large passenger ships and, having noted the opinions of several delegations that more data on application of the Interim Guidelines was needed to validate the methodologies and criteria contained in the above Guidelines, agreed that the Interim Guidelines should not be made mandatory at this time.

7.11 In considering discussions which took place within the correspondence group on matters related to directional sound technology, the Sub-Committee agreed, in principle, with the views expressed by the delegation of Bahamas that a performance standard should be developed to assess escape aids such as directional sound technology and low-location lighting so that in the future, the Sub-Committee would have a consistent approach to evaluate new evacuation guidance system technologies (see also paragraphs 11.5 to 11.6).

7.12 The Sub-Committee also briefly discussed other actions requested of the correspondence group and decided that the working group should further consider the actions requested in the group's report (FP 47/7/2, paragraph 88), taking into account documents FP 47/7, FP 47/7/1 and FP 47/INF.4, and make recommendations as appropriate. The Sub-Committee also agreed that the working group should review the tasks assigned by MSC 75 with a view to determining which tasks require further action by the Sub-Committee and which tasks are already adequately covered by existing IMO instruments.

**Establishment of the working group**

7.13 Recognizing the necessity to make progress on these issues and recalling its relevant decision at FP 46, the Sub-Committee established the Working Group on Large Passenger Ship Safety and, taking into account the comments and decisions made in plenary, instructed it to:

.1 further consider the actions requested in the report of the correspondence group (FP 47/7/2, paragraph 88), taking into account documents FP 47/7, FP 47/7/1 and FP 47/INF.4, and make recommendations as appropriate;

.2 review the tasks contained in annex 4 to document FP 47/7 with a view towards determining which tasks require further action by the Sub-Committee and which tasks are adequately covered by existing IMO instruments and make recommendations regarding any proposed modifications to the work plan approved by MSC 75;

.3 in the context of agenda item 11, consider matters related to directional sound, taking into account documents FP 47/7/2, FP 47/11 and FP 47/11/1 and the comments in plenary on the need to develop performance standards to evaluate new evacuation guidance system technologies, and make recommendations as appropriate; and

.4 prepare a recommendation regarding the need for a correspondence group and, if so, prepare the terms of reference for consideration by the Sub-Committee.

**Report of the working group**

7.14 Having received the report of the working group (FP 47/WP.10 and Corr.1), the Sub-Committee approved it in general and took action as outlined hereunder.

7.15 The Sub-Committee agreed that, whilst it had not been requested to take action on a number of the issues on which the group reached agreement, the tasks identified as “YES” under 'measures needed' in annex 1 to document FP 47/WP.10/Corr.1 constituted a useful basis for the development of recommendations on large passenger ship safety matters. With regard to those tasks identified as “NO” and requiring no further action, the Sub-Committee invited those Members desirous for those tasks to be reconsidered, to submit appropriate proposals to FP 48.

7.16 The Sub-Committee noted that the group had reviewed the proposal by France (FP 47/7/2, paragraph 15) for the definition of 'large passenger ship' and, taking into account the instructions of MSC 75, agreed that general parameters such as ship length and breadth, number of persons on board, duration of voyage, operating environment, etc. should be used to initially discuss and identify the relevant tasks on which fire protection measures should be considered and that, after developing any proposed regulation, the relevant ship parameters should be identified to clarify its applicability.

7.17 With regard to the group’s opinion that the issues relating to enlarged fire doors were beyond their remit, the Sub-Committee decided that the Correspondence Group on Large Passenger Ship Safety it had been recommended to establish should consider the issue and provide justification for a new work programme item (see paragraph 7.21).

7.18 Having considered the above issues, the Sub-Committee also agreed with the following opinions of the group:

.1 that the reduction of smoke and toxic gas production was not specific to large passenger ships and required a sustained approach to the review of the allowable limits; and

.2 the issue of equipment reliability was not limited to fire protection equipment of large passenger ships and that a continuous interaction with industry should be maintained to improve the relevant design standards of ships and equipment.

7.19 The Sub-Committee, having concurred with the group's opinion that, in respect of the stowage of lifejackets, the evacuation aspect should be taken into account to ensure that the stowage of lifejackets would be so arranged as to minimize counter-flow during evacuation, invited the DE Sub-Committee to take this into account.

7.20 In noting the recommendation of the group that evacuation whilst the ship is alongside in port was a pertinent issue and could involve a number of local authorities and that this task should also be addressed from the ISM Code perspective, specifically the Safety Management System, the Sub-Committee recognized that there were also several other aspects of the issue which included, but were not limited to, differences in ports infrastructure, possible evacuation into the water, ship specific configuration and organization; and that the industry was taking action within the context of the emergency preparedness provisions of the Code. It, therefore, agreed that no action was necessary on this task.

7.21 Having considered the above issues, the Sub-Committee agreed to establish a Correspondence Group on Large Passenger Ship Safety, under the co-ordination of Germany[*], and instructed the group, taking into account the guiding philosophy, strategic goals and objectives approved by the Committee (FP 47/7, annex 1) and documents FP 47/WP.10 and Corr.1, to:

.1 develop recommendations for the items identified as 'YES' in the table which is set out in annex 1 to document FP 47/WP.10/Corr.1;

.2 identify the applicability of recommendations using the draft parameters in the table set out in annex 1 to document FP 47/WP.10/Corr.1;

.3 review existing crowd management training guidance from the fire protection and evacuation perspectives, taking into account tasks 3.4, 3.5, 3.6 and 3.9 set out in annex 4 to document FP 47/7;

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.4 develop preliminary performance-based standards for evacuation guidance systems, taking into account the information provided in annex 2 of document FP 47/WP.10 and paragraphs 11.5 and 11.6;

.5 consider the issues related to enlarged fire doors and smoke and toxicity limitations referred to in paragraphs 7.17 and 7.18.1 and make recommendations as appropriate; and

.6 submit a report to FP 48.

7.22 In view of the work needed to finalize consideration of this item, the Sub-Committee agreed to request the Committee to extend its target completion date to 2004.

## 8 PERFORMANCE TESTING AND APPROVAL STANDARDS FOR FIRE SAFETY

8.1 The Sub-Committee recalled that FP 46 had considered documents submitted by Germany (FP 46/12/1) and the United States (FP 46/12), containing comments and proposals on performance testing and approval standards for fire safety systems, and had agreed, in principle, with the tasks identified in document FP 46/12 with a view towards harmonizing the various fire testing and approval standards adopted by the Organization.

8.2 The Sub-Committee also recalled that FP 46 had established a Correspondence Group on Performance Testing and Approval Standards for Fire Safety Systems and approved terms of reference, as set out in paragraph 12.6 of document FP 46/16, and instructed the group to submit a report to FP 47.

### Report of the correspondence group

8.3 In considering the report of the correspondence group (FP 47/8), the Sub-Committee noted that the preliminary action plan developed by the group was organized into short, medium and long term priorities. The Sub-Committee also noted that the group had taken into account the suitability of existing IMO resolutions, recommendations and circulars with a view to identifying needed improvements and, in regard to fire protection systems where no current IMO standards existed, candidate standards from other organizations such as ISO had been identified that could be used as a basis for the development of IMO performance testing and approval standards.

8.4 Having considered, in general, the preliminary action plan contained in the annex to document FP 47/8, the Sub-Committee agreed that the draft plan should clearly outline the priorities, timeframes and expected output for each short, medium and long term categories and sub-items related thereto.

8.5 In discussing whether the work items identified in the annex to document FP 47/8 will necessitate amendments to mandatory instruments, the Sub-Committee recalled that the initial proposal (MSC 74/21/7) had clearly stated that this work programme item involves revisions to the FSS and FTP Codes and might involve revisions to SOLAS chapter II-2 (all mandatory instruments), but did not envisage any requirements for ships to carry new or additional fire safety systems unless specifically authorized by the Committee on the basis of compelling need.

**Other submissions**

8.6 The Sub-Committee briefly discussed other documents pertaining to this agenda item submitted by Denmark (FP 47/8/1), Finland (FP 47/8/5, FP 47/8/6 and FP 47/8/7), Japan (FP 47/8/2), the Netherlands (FP 47/8/8), the Russian Federation (FP 47/8/3), Sweden (FP 47/8/4) and ISO (FP 47/INF.6) and decided to forward these documents to the working group for further consideration.

8.7 The Sub-Committee recalled its previous decision, under agenda item 3, to incorporate within the work on this item the submissions by Denmark (FP 47/3) and Finland (FP 47/3/6) since the issues addressed in the above documents were closely related to the work on performance testing and approval standards (see also paragraph 3.5).

**Establishment of the working group**

8.8 Recognizing the necessity to make progress on these issues and recalling its relevant decision at FP 46, the Sub-Committee established the Working Group on Performance Testing and Approval Standards and, taking into account the comments and decisions made in plenary, instructed it to:

.1 as a high priority, further consider the draft unified interpretations related to resolution A.800(19) contained in documents FP 47/3 and FP 47/3/6 and make recommendations as appropriate;

.2 further consider the preliminary action plan contained in document FP 47/8, taking into account the documents submitted to the session, and prepare a work plan identifying the priorities, timeframes and objectives for each category and sub-item related thereto;

.3 further consider documents FP 47/8, FP 47/8/1, FP 47/8/2, FP 47/8/3, FP 47/8/4, FP 47/8/5, FP 47/8/6, FP 47/8/7, FP 47/8/8, FP 47/14/2 and FP 7/INF.6 and make recommendations as appropriate; and

.4 prepare a recommendation regarding the need for a correspondence group and, if so, prepare the terms of reference for consideration by the Sub-Committee.

**Report of the working group**

8.9 Having received the report of the working group (FP 47/WP.9), the Sub-Committee approved it in general and took action as outlined hereunder.

**Proposed interpretation of paragraph 3.22 of resolution A.800(19)**

8.10 The Sub-Committee considered the proposals contained in documents FP 47/3 (Denmark) and FP 47/3/6 (Finland) regarding paragraph 3.22 of resolution A.800(19) on Revised guidelines for approval of sprinkler systems equivalent to that referred to in SOLAS regulation II-2/12, which specifies that pumps and alternative supply components should be sized so as to be capable of maintaining the required flow to the hydraulically most demanding area of not less than 280 $m^2$.

8.11 In this context, the Sub-Committee addressed the issue of the meaning of the term "required flow". As some water mist systems are intended to operate at a declining pressure, the Sub-Committee recognized that, according to the text of paragraph 3.22, it was not clear if, for such systems, the calculation of the required system flow rate was to be based on the maximum pressure or on a pressure determined by the performance of the system during fire testing.

8.12 After a detailed discussion, the Sub-Committee agreed to the interpretation to paragraph 3.22 of resolution A.800(19), as set out in annex 9, for submission to MSC 77 for approval and instructed the Secretariat to prepare the associated draft MSC cover circular.

8.13 In noting the above decision, the delegations of Denmark and Sweden reserved their positions on this matter and remained in favor of an alternative interpretation that states:

> "Pumps and alternative supply components should be sized so as to be capable of maintaining the required flow to the hydraulically most demanding area of not less than 280 $m^2$ at the highest nozzle pressure required during the test. For application to a small ship with a total protected area of less than 280 $m^2$, the Administration may specify the appropriate area for sizing of pumps and alternative supply components."

**Proposed amendments to resolution A.800(19)**

8.14 The Sub-Committee considered the proposals contained in document FP 47/8/5 (Finland) regarding suggested changes to resolution A.800(19) and, in this context, whether the luxury cabin fire tests should be deleted as a requirement of the standard.

8.15 After a brief discussion, the Sub-Committee agreed that the luxury cabin tests should be retained; in particular, some adjustments should be made to the criteria for the maximum size cabins, that would be permitted to undergo the section 5 cabin fire tests, versus the minimum size luxury cabins, that would be required to undergo the section 6 luxury cabin fire tests. The Sub-Committee also agreed in principle that the luxury cabin fuel package was in urgent need of revision since the foam cushions specified in the standard are no longer available.

8.16 The Sub-Committee further considered the proposal contained in document FP 47/8/5 to amend resolution A.800(19) to include new criteria for the approval testing of systems intended for installation in atriums and other high ceiling spaces, to require testing arrangements for window cooling and to develop test criteria for the approval of sidewall nozzles for use in spaces other than cabins.

18.17 The Sub-Committee agreed in principle with these suggestions and decided to refer them, as well as the need to revise the fuel package for the luxury cabin tests, to a correspondence group for further development.

**Preliminary plan for the harmonization, or new development of, performance testing and approval standards for fire safety systems**

8.18 The Sub-Committee, having noted that the action plan contained in document FP 47/8 did not include timeframes or objectives for the work product to be developed for each category and sub-item in the plan, approved the revised work plan, set out in annex 2 of document FP 47/WP.9, including a proposed schedule and output for each item.

8.19 The Sub-Committee discussed the form in which the harmonization, or new development of, performance testing and approval standards for fire safety systems could be accomplished. Having identified the negative implications of issuing a multiplicity of circulars containing these standards without harmonization, the Sub-Committee decided to work towards the preparation of a single instrument containing all relevant performance testing and approval standards.

8.20 The Sub-Committee noted the fact that the Revised Guidelines for approval of sprinkler systems equivalent to that referred to in SOLAS regulation II-2/12 had been adopted in the form of an Assembly resolution (resolution A.800(19)), when the other standards under review had been approved in the form of MSC circulars.

8.21 Recalling operative paragraph 3 of resolution A.800(19), which allows the MSC to amend the Revised Guidelines by means of an MSC resolution, the Sub-Committee decided that the intended action plan on the harmonization, or new development of, performance testing and approval standards for fire safety systems would aim at the preparation of a single MSC resolution containing all relevant standards and performance testing, previously adopted or approved by means of an Assembly resolution or MSC circulars, respectively.

8.22 The Sub-Committee agreed that, when the MSC resolution is finalized, Administrations should be given time to gain experience with the new test methods and, following a possible reviewing process based on the experience gained, the harmonized performance testing and approval standards for fire safety systems could then be annexed to an existing code, such as the FTP or FSS Codes, as appropriate.

8.23 With regard to the work schedule for developing performance testing and approval standards for fire safety systems, the Sub-Committee noted the expressed readiness of ISO to support the work through the development of appropriate standards by the ISO TC 8 Sub-Committee on Lifesaving and Fire Protection (SC 1).

**Review of MSC/Circ.668, as amended by MSC/Circ.728**

8.24 The Sub-Committee considered document FP 47/8/6 (Finland) regarding proposed changes to MSC/Circ.668, as amended by MSC/Circ.728. This document proposed reconsidering the role of the ventilation opening and the allowance for screening nozzles over this opening, because systems were being designed specifically to pass the test criteria, but which could not be practically designed for shipboard applications.

8.25 The Sub-Committee agreed in principle that changes should be made to the required vent opening and screening nozzle arrangement permitted by paragraph 1 of appendix B to MSC/Circ.668, as amended by MSC/Circ.728, and that this concept be further developed by a correspondence group.

8.26 The Sub-Committee also agreed in principle with the proposal contained in the above document to revise the smallest fire size required by the test method to be referred to a correspondence group.

8.27 With regard to the proposal to devise a means of testing the compatibility of the total flooding water-mist system with the fixed local application water-based system, the Sub-Committee did not agree that any changes were necessary at this time.

8.28 The Sub-Committee also considered the parts of document FP 47/8 addressing possible changes to MSC/Circ.668, as amended by MSC/Circ.728, and agreed in principle that:

.1 toxicity criteria and basic test parameters for additives should be developed and included in the standard;

.2 an equivalency provision should be developed and added to paragraph 4.21 of appendix A to allow water-mist nozzles to be tested for clogging without requiring the contaminated water to be passed through the pump casing, which many times damages the pump;

.3 no changes should be made to the number of fire tests required in table 2 of appendix B;

.4 the required fire test performance criteria for water-mist nozzles should remain fire extinguishment and not fire control; and

.5 scaling rules to allow the extrapolation of tested systems to actual installations with volumes that exceed the tested volume should not be developed at this time, since more research is considered necessary before developing such rules.

8.29 The Sub-Committee, while considering the proposal contained in document FP 47/8/4 (Sweden) regarding a new approach to evaluate the performance of water-mist and water-spray systems during fire testing, agreed that the proposal should be referred to a correspondence group to allow time for further investigation of the methodology.

**Review of MSC/Circ.913**

8.30 With regard to document FP 47/8/2 (Japan), the Sub-Committee considered the proposal to change the salt spray corrosion test requirements for open head water-mist nozzles from a 20% sodium chloride solution to a 5% solution and agreed that the proposed change should be referred to a correspondence group to allow time for further investigation.

8.31 The Sub-Committee also considered annex 2 of document FP 47/8/2 regarding the necessary tests for open head nozzles intended for use in fixed local application water-based fire-extinguishing systems and noted that MSC/Circ.913 required that the component testing for such nozzles be carried out in accordance with the criteria listed in appendix A of MSC/Circ. 668, as amended by MSC/Circ.728. The listed criteria included tests for automatic nozzles with fusible elements, without stating which tests should be applied to open head type nozzles.

8.32 The Sub-Committee reviewed the table on requirements and tests for open-type nozzles (FP 47/8/2, annex 2, table 2) and agreed to the amended list of tests shown in annex 3 of FP 47/WP.9, containing applicable tests in normal text, having decided to refer the tests in italics within square brackets to a correspondence group for further consideration together with the remainder of the document.

8.33 The Sub-Committee also considered the proposal contained in document FP 47/8/2 on the use of fixed water-based local application systems with open head nozzles installed at angles to the main engines or at a side position to allow the installation of such systems in large engine-rooms where the overhead crane makes the installation of nozzles at the ceiling difficult.

8.34 The Sub-Committee agreed to refer this proposal to a correspondence group for further study, noting that test criteria should be developed to determine the extent of coverage and related flow patterns of the nozzles.

8.35 While considering document FP 47/8/7 (Finland) regarding proposed amendments to MSC/Circ.913 for fixed local application water-based fire-extinguishing systems, the Sub-Committee agreed in principle that:

.1 a statement should be added to warn that in engine-rooms fitted with a total flooding foam system, the local application system may interfere with effectiveness of the foam blanket. Appropriate operational measures or interlocks should be considered for such applications;

.2 minor changes to the fire test procedure may be needed to prevent oxygen depletion and enhance flame stability during the tests; and

.3 toxicity criteria and basic test parameters for additives should be developed and included in the standard.

**Review of MSC/Circ.1007**

8.36 The Sub-Committee considered documents FP 47/8/3, FP 47/14/2 and FP 47/14/3 (Russian Federation) on the testing of fixed aerosol fire-extinguishing systems, containing proposed changes to MSC/Circ.1007 that would enable aerosol fire-extinguishing systems to be installed for the protection of larger volumes than those tested. Being of the opinion that, while the test data provided indicated that the aerosol extinguishing agent tested behaved similar to gaseous agents and could thus be expected to disperse throughout the protected space, only one type of agent had been tested. The Sub-Committee therefore agreed that further research was necessary before this concept could be accepted for all types of aerosol agents.

**Establishment of a correspondence group**

8.37 The Sub-Committee, while recalling its previous decisions in paragraphs 8.17, 8.18, 8.25, 8.26, 8.28, 8.29, 8.30, 8.32, 8.34, 8.35 and 8.36, established a correspondence group, under the co-ordination of the United States[*], and instructed it, taking into account all relevant information contained in documents submitted to FP 47 and the discussions thereon outlined in document FP 47/WP.9 (including annexes 2 and 3 thereto), to:

.1 prepare relevant amendments for the following short-term priority category of topics relating to machinery space and cargo pump-room fire-extinguishing systems:

.1.1 water-mist fire-extinguishing systems;

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.1.2 fixed local application fire-extinguishing systems for machinery spaces of category A, taking into account the unified interpretation contained in annex 4 to document FP 47/16;

.1.3 fixed pressure water-spraying fire-extinguishing systems;

.1.4 fixed gas fire-extinguishing systems;

.1.5 aerosol fixed fire-extinguishing systems;

.1.6 fixed high-expansion foam fire-extinguishing systems;

.1.7 fixed low-expansion foam fire-extinguishing systems; and

.1.8 portable foam applicator units;

.2 prepare relevant amendments for water-mist fire-extinguishing systems relating to control stations and accommodation and service spaces;

.3 prepare relevant amendments for vehicle space, ro-ro space and special category space fire-extinguishing systems;

.4 refine, if appropriate, the list of medium-term and long-term priority topics identified in annex 2 to document FP 47/WP.9, and

.5 submit a report to FP 48.

8.38 Having discussed short-term, medium-term and long-term objectives, the Sub-Committee agreed to consider at its forty-eighth session re-establishing the correspondence group in order to cover the relevant items identified in annex 2 to document FP 47/WP.9.

## 9 GUIDELINES FOR THE MANUFACTURE AND INSTALLATION OF OIL MIST DETECTORS

9.1 The Sub-Committee recalled that MSC 75 had instructed the Sub-Committee to undertake the development of guidelines for the manufacture and installation of oil mist detectors, taking into account document MSC 75/22/3 (United Kingdom), with a view to reducing the risk of fire from machinery space flammable oil systems; and included a high priority item on "Guidelines for the manufacture and installation of oil mist detectors" in the Sub-Committee's work programme and provisional agenda for FP 47 with a target completion date of 2004.

9.2 In considering the submission by the United Kingdom (FP 47/9) attaching a Code of practice for atmospheric oil mist detectors, the Sub-Committee noted that the majority of fires which have occurred in engine-rooms are generally caused by a leak or fracture from a flammable liquid system and that significant sectors within the shipping industry have been actively fitting oil mist detection equipment. The Sub-Committee also noted that the United Kingdom had undertaken research into the incidence of low-pressure fuel system failures, in response to recommendations from inquiries by the United Kingdom Marine Accident Investigation Branch (MAIB) into various engine-room fires, and that this research had been previously reported to the Sub-Committee in document FP 42/INF.6.

9.3 The Sub-Committee, having noted the comments by Argentina that the section on testing procedures should address the calibration of oil mist detectors and the comments by France on the need for overriding control of the alarm, agreed to finalize the matter at this session. To this end, the Sub-Committee requested the Secretariat, in consultation with interested delegations, to review the aforementioned document and make recommendations, as appropriate, for consideration by the Sub-Committee at the session.

9.4 Having considered document FP 47/WP.5, the Sub-Committee agreed to the draft MSC circular on Code of practice for atmospheric oil mist detectors, as set out in annex 10, for submission to MSC 77 for approval.

## 10 REVISION OF THE GAS CONCENTRATION LIMIT ON SULPHUR DIOXIDE FOR FLOOR COVERINGS

10.1 The Sub-Committee recalled that MSC 75 had instructed the Sub-Committee to review the current gas concentration limit for sulphur dioxide when testing floor coverings for smoke and toxicity levels in accordance with the FTP Code, taking into account document MSC 75/22/8 (United Kingdom) and MSC/Circ.1008; and had included a high priority item on "Revision of the gas concentration limit on sulphur dioxide for floor coverings" in the Sub-Committee's work programme and provisional agenda for FP 47, with a target completion date of 2004.

10.2 In considering the submission by the United Kingdom (FP 47/10), the Sub-Committee noted that, with the adoption of the interpretation in MSC/Circ.916, requiring a traceable method such as fourier transform infrared spectrometer, gas chromatography, mass sectrometer, etc. to be used for the quantification of certain specific gases, the textile carpet industry in the United Kingdom have identified a certain problem. In particular, that the use of these more sensitive methods, which have replaced the almost universal use of colorimetric (Drager) tubes, has essentially caused the deeper pile carpets to fail the toxicity test specified in Annex 1, part 2, of the FTP Code due entirely to the release of sulphur dioxide ($SO_2$) from the woollen fibres in the carpet.

10.3 After a brief discussion of the issues involved, the Sub-Committee decided to forward the matter to the Working Group on Unified Interpretations established under agenda item 3 and instructed the group to consider whether an amendment to the current gas concentration limit for sulphur dioxide for smoke and toxicity levels specified in the FTP Code is necessary, taking into account document FP 47/10 (see also paragraph 3.9.5).

### Report of the working group

10.4 Having considered the part of the report of the working group (FP 47/WP.8) referring to the above issue and having noted that research was still being conducted in Japan on this matter, the Sub-Committee agreed to further consider the draft MSC resolution on Adoption of amendments to the International Code for Fire Test Procedures, as set out in annex 5 to document FP 47/WP.8, at FP 48, taking into account the aforementioned research.

## 11 USE OF DIRECTIONAL SOUND FOR PASSENGER EVACUATION

11.1 The Sub-Committee recalled that MSC 75 had instructed the Sub-Committee to consider the use of directional sound as an aid to passenger evacuation, taking into account the outcome of MSC 75 and documents MSC 75/4/5 and MSC 75/INF.17 (United Kingdom); and included a high priority item on "Use of directional sound for passenger evacuation" in the Sub-Committee work programme and provisional agenda for FP 47 with a target completion date of 2004.

11.2 The Sub-Committee also noted that the correspondence group established to deal with large passenger ships safety matters also considered directional sound technology issues, as contained in document FP 47/7/2.

11.3 In considering the joint submission by Germany and the United Kingdom (FP 47/11/1) and the submission by ICCL (FP 47/11), the Sub-Committee noted the outcome of the demonstration of directional sound technology carried out on board the **Carnival Conquest** and expressed the view that the additional information provided on directional sound technology (FP 47/11/1) and the comments and issues identified by cruise industry personnel that were present at the demonstration (FP 47/11) would greatly assist the Sub-Committee in its deliberations on this matter.

11.4 After a discussion of the issues involved, the Sub-Committee decided to forward the matter to the Working Group on Large Passenger Ship Safety established under agenda item 7 and instructed the group to further consider issues related to directional sound, taking into consideration the report of the correspondence group (FP 47/7/2) and documents FP 47/11 and FP 47/11/1 and make recommendations as appropriate (see paragraph 7.13.3).

**Report of the working group**

11.5 In considering the part of the report of the working group (FP 47/WP.10) referring to the above matter, the Sub-Committee discussed two issues raised by the delegation of Greece, which were not clarified in annex 2 to document FP 47/WP.10, namely that:

.1 the new performance standards to be developed should not outlaw existing systems installed on board ships; and

.2 any side benefits and additional requirements of existing systems (i.e. marking of fire equipment, no power required for their activation, etc.) should be taken into account when comparing systems in order to have an overall view.

In the opinion of that delegation, the above points should be taken into account by the correspondence group when developing preliminary performance-based standards for evacuation guidance systems.

11.6 The Sub-Committee, in agreeing that in order to establish equivalency between systems, performance-based standards for evacuation guidance systems should be prepared, endorsed the views expressed by the delegation of Greece and instructed the Correspondence Group on Large Passenger Ship Safety to consider the aforementioned issues bearing in mind that, in preparing performance-based standards, reference may be made to annex 2 of document FP 47/WP.10 (see also paragraph 7.21.4).

## 12 CONSIDERATION OF IACS UNIFIED INTERPRETATIONS

**General**

12.1 The Sub-Committee recalled that MSC 75 and MSC 76 had instructed the Sub-Committee to further consider the IACS unified interpretations contained in documents MSC 75/10/3, MSC 75/19/2 and MSC 76/18/2 submitted by IACS; and that MSC 76 had included a high priority item on "Consideration of IACS unified interpretations" in the Sub-Committee's work programme and provisional agenda for FP 47 with a target completion date of 2004.

12.2 The Sub-Committee also noted that MSC 75 and MSC 76 had instructed the Sub-Committee to review the interpretations referred to in the above documents, which fall within the Sub-Committee's purview, and to prepare, on the basis of those unified interpretations, appropriate interpretations of the respective IMO instruments for approval by the Committee and dissemination to Member Governments for the latter to use when applying relevant provisions of such IMO instruments.

**Required location for termination of lubricating oil tank air pipes**

12.3 In considering the submission by IACS (MSC 75/10/3) on matters related to the location for termination of lubricating oil tank air pipes, the Sub-Committee noted that contamination of the lubricating oil by the salt air, water spray or mist, high humidity, etc. and the potential for resulting damage to machinery is possible if SOLAS regulation II-2/4.2.3.1 is applied, which according to IACS now appears to prohibit lubricating oil tank air pipes from terminating within machinery spaces.

12.4 After a brief discussion of the issues involved, the Sub-Committee decided to forward the above matter to the Working Group on Unified Interpretations established under agenda item 3 for further consideration (see paragraph 3.9.6).

**IACS unified interpretations**

12.5 The Sub-Committee also considered the submissions by IACS (MSC 75/19/2 and MSC 76/18/2) containing IACS unified interpretations related to fire safety and, having agreed that such interpretations should not be reviewed in isolation to the work being undertaken on unified interpretations of the revised SOLAS chapter II-2, referred the above documents to the Working Group on Unified Interpretations for further consideration (see paragraph 3.9.6).

**Report of the working group**

12.6 Having considered the part of the report of the working group (FP 47/WP.8) referring to the above issues, the Sub-Committee took action as outlined in the following paragraphs.

**Termination of lubricating oil pipes in machinery spaces**

12.7 In considering matters pertaining to document FP 75/10/3, commenting on SOLAS regulation II-2/4.2.3.1 (2000 SOLAS amendments), which appears to prohibit lubricating oil tank air pipes from terminating within machinery spaces, the Sub-Committee noted the group's view (FP 47/WP.8) that the termination of lubricating oil storage tank air pipes within machinery spaces has been an established practice for many years and is considered acceptable under the IACS Unified Requirement F35. To this end, the Sub-Committee agreed that IACS UR F35 should continue to be accepted pending the approval of a suitable interpretation by the MSC.

**IACS unified interpretations**

12.8 In considering matters related to documents MSC 75/19/2 and MSC 76/18/2, containing fire protection-related IACS unified interpretations, the Sub-Committee noted that the group (FP 47/WP.8) had identified the following IACS interpretations as falling under the remit of the Sub-Committee: annexes 3 to 7 and 10 to 12 of document MSC 75/19/2 and annexes 6 and 11 to 18 of document MSC 76/18/2.

12.9 The Sub-Committee agreed that the aforementioned interpretations should be referred to the correspondence group dealing with unified interpretations of SOLAS chapter II-2, established under agenda item 3, for further consideration (see paragraph 3.25.3). The Sub-Committee also noted the group's view that the interpretations referring to the old SOLAS chapter II-2 should be updated to refer to the new revised SOLAS chapter II-2.

## 13 WORK PROGRAMME AND AGENDA FOR FP 48

### Terms of reference for the Sub-Committee

13.1 The Sub-Committee recalled that MSC 76, having considered the Chairmen's Meeting recommendation that the sub-committees should be requested to review and update, as necessary, their own terms of reference (FP 47/2/2), had instructed the Sub-Committee to prepare updated terms of reference for consideration by MSC 78 and MEPC 50.

13.2 The delegation of Bahamas, supported by several others, proposed that all aspects of taking people from a place of danger to a place of safety should fall under the terms of reference of one sub-committee. They pointed out that, at the moment, this matter comes under the COMSAR, DE and FP Sub-Committees. Some interrelated issues were highlighted and it was further pointed out that all of the relevant experts should be able to take into account each other's views. The delegation of Bahamas also expressed the view that, in their opinion, the present divisions do not help to promote safety. The Committee was invited to note this view.

13.3 After discussion of a proposal by the Chairman suggesting updated terms of reference (FP 47/WP.1, annex), the Sub-Committee agreed that it would need more time to consider the matter in detail and, therefore, invited Members, taking into account the Chairman's proposal, to submit comments and proposals to FP 48.

### Work programme and agenda for FP 48

13.4 Taking into account the progress made during the session and the provisions of the agenda management procedure, the Sub-Committee reviewed its work programme and agenda for its next session (FP 47/WP.3) and prepared a proposed revised work programme and draft provisional agenda for FP 48. While doing so, the Sub-Committee agreed to invite the Committee to:

.1 delete the following work programme items, as work on them has been completed:

.1.1 item 1.1 - Use of smoke helmet type breathing apparatus;

.1.2 item H.5 - Guidelines for the manufacture and installation of oil mist detectors;

.1.3 item L.1 - Revision of resolution A.654(16);

.2 extend the target completion dates of the following work programme items:

.2.1 item 1.2 - Revision of the fire casualty record, to 2004;

.2.2 item H.2 - Large passenger ship safety, to 2004;

.2.3 item H.3 - Revision of the fishing vessel Safety Code and Voluntary Guidelines, to 2004;

.3 replace the number of sessions needed for completion of the following work programme items by the target completion date, as the items have been included in the provisional agenda for FP 48:

| | | | | |
|---|---|---|---|---|
| .3.1 | item H.7 | - | Review of the OSV Guidelines | 2006 |
| .3.2 | item H.9 | - | Review of the 2000 HSC Code and amendments to the DSC Code and the 1994 HSC Code | 2005 |
| .3.3 | item L.1 | - | Recommendation on evacuation analysis for new and existing passenger ships | 2005 |

.4 renumber the work programme items accordingly.

13.5 The Committee was also invited to approve the proposed revised work programme of the Sub-Committee and draft provisional agenda for FP 48, as set out in annex 12.

**Arrangements for the next session**

13.6 The Sub-Committee tentatively agreed to establish, at FP 48, working and drafting groups on the following items:

.1 unified interpretations of SOLAS chapter II-2, the FSS Code and related fire test procedures;

.2 large passenger ship safety; and

.3 performance testing and approval standards for fire safety systems,

and drafting groups on revision of the fishing vessel Safety Code and Voluntary Guidelines and the revision of the fire casualty record.

13.7 The Sub-Committee recalled that, following consideration of agenda items 3, 6, 7 and 8, it had agreed to establish correspondence groups on the following high priority items:

.1 unified interpretations to SOLAS chapter II-2, the FSS Code and related fire test procedures;

.2 revision of the fishing vessel Safety Code and Voluntary Guidelines;

.3 large passenger ship safety; and

.4 performance testing and approval standards for fire safety systems.

13.8 The Sub-Committee noted that its forty-eighth session had been tentatively scheduled to take place from 12 to 16 January 2004.

## 14 ANY OTHER BUSINESS

**Unified interpretations of the 2000 HSC Code**

14.1 The Sub-Committee decided to deal with this matter under agenda item 3 (see paragraphs 3.8 and 3.12).

**Recommendation for the installation of partially weathertight hatchway covers on board containerships**

14.2 The Sub-Committee noted that SLF 45, having agreed (FP 47/2/2) to a draft MSC circular on Interim Guidelines on partially weathertight hatchway covers on board containerships, had forwarded it to MSC 76 for approval.

14.3 The Sub-Committee also noted that it had been instructed by MSC 76 to amalgamate the text prepared by SLF 45 (annex 4 of document SLF 45/14) and DSC 7 (annex 3 of document DSC 7/15) with that expected to be developed by itself at this session as far as fire protection was concerned; and to prepare a revised draft MSC circular annexing comprehensive Guidelines for partially weathertight hatchway covers on board containerships, for submission to MSC 77 with a view to approval.

14.4 Having noted the above information, the Sub-Committee recalled that FP 46 had considered a proposal by Japan (FP 46/16, paragraph 15.8) for a draft recommendation for the installation of fixed gas fire-extinguishing systems in cargo spaces covered by partially weathertight hatchway covers on board containerships and requested Japan to submit further information on their proposal to FP 47 since it did not address the depth of the cargo hold.

14.5 The Sub-Committee, having considered relevant submissions by Japan (FP 47/14/1 and FP 47/INF.3) proposing an increase in the provision of carbon dioxide in fixed gas fire-extinguishing systems for cargo holds of containerships fitted with partially weathertight hatchway covers, requested a group of experts to finalize the provisions relating to fire protection and to prepare the final text of the draft Interim guidelines and an associated draft MSC circular for consideration by the Sub-Committee.

14.6 Having considered the recommendations of the informal group of experts (FP 47/WP.6), the Sub-Committee agreed to the draft MSC circular on Guidelines for partially weathertight hatchway covers on board containerships, as set out in annex 11, for submission to MSC 77 for approval.

**Use of aerosol fire-extinguishing systems**

14.7 The Sub-Committee, having noted with appreciation the documents submitted by the Russian Federation (FP 47/14/2 and FP 47/14/3) providing information on current research regarding the feasibility of using aerosol fire-extinguishing systems for protection the cargo pump-rooms, referred the documents to the working group established under agenda item 8 for information (see paragraph 8.36).

**Sandwich plate systems**

14.8 The Sub-Committee noted with appreciation the document submitted by the United Kingdom (FP 47/INF.7) providing information on a fire engineering analysis of the fire

safety performance of a new composite material (sandwich plate systems**)** made up of a metal-elastomer-metal structural laminate.

**Test laboratories recognized by the Administrations**

14.9 The Secretariat informed the Sub-Committee that the latest annual FP circular on test laboratories recognized by the Administrations had been published as FP/Circ.24 on 6 January 2003.

14.10 The delegation of Denmark advised the Sub-Committee that information on its Administration needed to be updated in FP/Circ.24 and the Secretariat was instructed to issue an addendum to the above FP circular accordingly.

**Halon banking and reception facilities**

14.11 The Sub-Committee noted with appreciation the submission by the United States (FP 47/INF.5) providing information on the activities of the Halons Technical Options Committee (HTOC) of the United Nations Environment Programme (UNEP), in particular that the HTOC had drafted a Merchant Shipping Case Study to provide advice on the projected availability of halons used on board ships.

14.12 The Sub-Committee also noted information provided by the Secretariat that the latest annual FP circular on halon banking and reception facilities had been published as FP/Circ.25 on 6 January 2003.

## 15 ELECTION OF CHAIRMAN AND VICE-CHAIRMAN FOR 2004

15.1 In accordance with the Rules of Procedure of the Maritime Safety Committee, the Sub-Committee unanimously elected Mr. J.C. Cubisino (Argentina) as Chairman and Mr. C. Abbate (Italy) as Vice-Chairman, for 2004.

**Expression of appreciation**

15.2 The Sub-Committee, being informed that its Chairman, Mr. K. Yoshida (Japan), had decided to relinquish his office after 10 years in the service of the Sub-Committee, expressed its deep appreciation to Mr. K. Yoshida for the dedication and outstanding contributions he had made to the Sub-Committee and expressed the hope that he would continue to provide his valuable services to the Sub-Committee and the Organization in general.

15.3 The Sub-Committee, noting that Captain P. Olsson (Germany) would soon retire from his position in the Federal Ministry of Transport of Germany, expressed appreciation for the valuable services he had provided over many years and wished him all the best for his retirement.

## 16 ACTION REQUESTED OF THE COMMITTEE

16.1 The Maritime Safety Committee is invited to approve this report in general and, in particular, to:

.1 approve the draft MSC circular on Unified interpretations of the revised SOLAS chapter II-2 (paragraph 3.11 and annex 2);

.2 note that the Sub-Committee has completed its work on the development of draft unified interpretations to the 2000 HSC Code and forwarded them to the DE Sub-Committee for co-ordination purposes (paragraph 3.12 and annex 3);

.3 approve the draft MSC circular on Unified interpretations of the Guidelines for the approval of fixed water-based local application fire-fighting systems (MSC/Circ.913) (paragraph 3.17 and annex 4);

.4 approve the draft MSC circular on Unified interpretation of SOLAS regulation II-2/15.2.11, in force before 1 July 2002 (paragraph 3.18 and annex 5);

.5 approve the draft MSC circular on Principles for hot work on board all types of ships (paragraph 4.14 and annex 6);

.6 approve the draft MSC circular on Use of smoke helmet type breathing apparatus (paragraph 4.15 and annex 7);

.7 approve the draft Assembly resolution on Graphical symbols for shipboard fire control plans, for submission to the twenty-third session of the Assembly for adoption (paragraph 5.8 and annex 8);

.8 note the outcome of the Sub-Committee's consideration of the revision of resolution A.654(16) and its recommendation to the DE Sub-Committee (paragraphs 5.9 and 5.10);

.9 note the outcome of the Sub-Committee's consideration of the revision of the fishing vessel Safety Code and Voluntary Guidelines and its recommendation to the SLF Sub-Committee (paragraphs 6.11, 6.14 and 6.15);

.10 note the progress made on matters related to large passenger ship safety (paragraphs 7.14 to 7.22);

.11 approve the draft MSC circular on Unified interpretations of the Revised Guidelines for approval of sprinkler systems equivalent to that referred to in SOLAS regulation II-2/12 (resolution A.800(19)) (paragraph 8.12 and annex 9);

.12 approve the draft MSC circular on Code of practice for atmospheric oil mist detectors (paragraph 9.4 and annex 10);

.13 note the outcome of the Sub-Committee's consideration of updating its terms of reference and the views expressed regarding the need to consolidate responsibility for escape, evacuation and recovery under one sub-committee (paragraphs 13.1 to 13.3);

.14 approve the draft MSC circular on Guidelines for partially weathertight hatchway covers on board containerships (paragraph 14.6 and annex 11); and

.15 approve the draft revised work programme of the Sub-Committee and the draft provisional agenda for FP 48 (paragraphs 13.4 and 13.5 and annex 12).

***

# ANNEX 1

# AGENDA FOR THE FORTY-SEVENTH SESSION INCLUDING A LIST OF DOCUMENTS

## 1 Adoption of the agenda

| | | |
|---|---|---|
| FP 47/1/Rev.1 | Secretariat | Provisional agenda |
| FP 47/1/1 | Secretariat | Annotations to the provisional agenda |

## 2 Decisions of other IMO bodies

| | | |
|---|---|---|
| FP 47/2 | Secretariat | Outcome of COMSAR 6, MEPC 47, DE 45, FSI 10 and MSC 75 |
| FP 47/2/1 | Secretariat | Outcome of BLG 7, NAV 48, SLF 45, DSC 7 and MEPC 48 |
| FP 47/2/2 | Secretariat | Outcome of MSC 76 |

## 3 Unified interpretations of SOLAS chapter II-2, the FSS Code and related fire test procedures

| | | |
|---|---|---|
| FP 47/3 | Denmark | Proposal for clarification of the interpretation of paragraph 3.22 of resolution A.800(19) |
| FP 47/3/1 | Japan | Interpretations of the revised SOLAS chapter II-2 and MSC/Circ.913 |
| FP 47/3/2 | Germany | Comprehensive proposals for unified interpretations of the revised SOLAS chapter II-2 |
| FP 47/3/3 | Russian Federation | Testing of A-0 bulkheads |
| FP 47/3/4 | Hong Kong, China | Proposal for the required number and location of the EEBDs inside machinery spaces and cargo pump-rooms |
| FP 47/3/5 | Italy | Fire test procedures |
| FP 47/3/6 | Finland | Interpretation of paragraph 3.22 of resolution A.800(19) |
| FP 47/3/7 | Denmark | Proposal for an interpretation of SOLAS regulations II-2/15.2.11, II-2/15.3 and II-2/15.4, in force before 1 July 2002, on screening of piping for flammable oils |
| FP 47/3/8 | Chairman | Update of referred standards |
| FP 47/3/9 | France | Proposed unified interpretations of the FTP Code |
| FP 47/INF.2 | Japan | SOLAS chapter II-2 and MSC/Circ.913 relating to fixed water-based local application fire-fighting systems |
| FP 47/WP.8 | | Report of the working group |
| MSC 75/10/2 | Sweden | Unified interpretation to the revised SOLAS chapter II-2 |
| FP 46/WP.9 | | Report of the working group |

**4 Analysis of fire casualty records**

| | | |
|---|---|---|
| FP 47/4 | Russian Federation | Casualty report on a fire extinguished by an aerosol fire-extinguishing system |
| FP 47/WP.4 | | Report of the working group |
| FP 46/WP.3 | | Report of the working group |
| FSI 10/WP.1 | | Report of the working group |

**5 Revision of resolution A.654(16)**

| | | |
|---|---|---|
| FP 47/5 | Secretariat | Incorporation of ISO 17631 in revised resolution A.654(16) |
| FP 47/WP.2 | Secretariat | Draft Assembly resolution on Graphical symbols for shipboard fire control plans |
| FP 46/INF.8 | ISO | International Standard for shipboard plans for fire protection, life-saving appliances, and means of escape |

**6 Revision of the fishing vessel Safety Code and Voluntary Guidelines**

| | | |
|---|---|---|
| FP 47/6 | Bangladesh | Report of the correspondence group (part 1) |
| FP 47/6/1 | Bangladesh | Report of the correspondence group (part 2) |
| FP 47/WP.7 | | Report of the drafting group |

**7 Large passenger ship safety**

| | | |
|---|---|---|
| FP 47/7 | Secretariat | Outcome of MSC 75 |
| FP 47/7/1 | ICCL | Cruise Ship Safety Forum Recommendations |
| FP 47/7/2 | Germany | Report of the correspondence group |
| FP 47/WP.10 and Corr.1 | | Report of the working group |
| MSC 75/WP.12 | | Report of the working group |

**8 Performance testing and approval standards for fire safety systems**

| | | |
|---|---|---|
| FP 47/8 | United States | Report of the correspondence group |
| FP 47/8/1 | Denmark | Proposal for amending the International Code for Fire Safety Systems |
| FP 47/8/2 | Japan | Review of the Guidelines for the approval of fixed water-based local application fire-fighting systems |
| FP 47/8/3 | Russian Federation | Fixed aerosol fire-extinguishing system |
| FP 47/8/4 | Sweden | A new approach regarding performance testing of total compartment water mist and water spray systems for machinery spaces and pump rooms |
| FP 47/8/5 | Finland | Fire test procedures for equivalent sprinkler systems in accommodation, public space and service areas on passenger ships |
| FP 47/8/6 | Finland | Fire tests for total-flooding fire-extinguishing systems in machinery spaces |

**8 Performance testing and approval standards for fire safety systems (Cont'd)**

| | | |
|---|---|---|
| FP 47/8/7 | Finland | Fire tests for local application fire-fighting systems in machinery spaces |
| FP 47/8/8 | Netherlands | Storage of fire-extinguishing $CO_2$ medium and associated pressure components |
| FP 47/INF.6 | ISO | Update on standardization work in ISO |
| FP 47/WP.9 | | Report of the working group |

**9 Guidelines for the manufacture and installation of oil mist detectors**

| | | |
|---|---|---|
| FP 47/9 | United Kingdom | Atmospheric oil mist detectors |
| FP 47/WP.5 | Secretariat | Code of practice for atmospheric oil mist detectors |

**10 Revision of the gas concentration limit on sulphur dioxide for floor coverings**

| | | |
|---|---|---|
| FP 47/10 | United Kingdom | Proposal for a revised limit |

**11 Use of directional sound for passenger evacuation**

| | | |
|---|---|---|
| FP 47/11 | ICCL | Directional sound system |
| FP 47/11/1 | Germany and United Kingdom | Use of directional sound as an aid to passenger evacuation |

**12 Consideration of IACS unified interpretations**

| | | |
|---|---|---|
| MSC 75/10/3 | IACS | Required location for termination of lubricating oil tank air pipes |
| MSC 75/19/2 and Corr.1 | IACS | IACS unified interpretations |
| MSC 76/18/2 | IACS | IACS unified interpretations |

**13 Work programme and agenda for FP 48**

| | | |
|---|---|---|
| FP 47/2/2, | Secretariat | Outcome of MSC 76 annex 2 |
| FP 47/WP.1 | Chairman | Proposed updated terms of reference for the Sub-Committee on Fire Protection |
| FP 47/WP.3 | Chairman | Work programme and agenda for FP 48 |

**14 Any other business**

| | | |
|---|---|---|
| FP 47/14 | Secretariat | Interpretations of the 2000 HSC Code |
| FP 47/14/1 | Japan | Recommendation for the installation of partially weathertight hatch covers |
| FP 47/14/2 | Russian Federation | Fixed aerosol fire extinguishing systems |
| FP 47/14/3 | Russian Federation | Use of aerosol fire-extinguishing systems for the protection of cargo-pump rooms of tankers |
| FP 47/14/4 | Australia | Interpretation of the 2000 HSC Code |

**14 Any other business (Cont'd)**

| | | |
|---|---|---|
| FP 47/INF.3 | Japan | Recommendation for the installation of partially weathertight hatch covers |
| FP 47/INF.4 | Japan | Preliminary study on the Interim Guidelines for evacuation analyses for new and existing passenger ships |
| FP 47/INF.5 | United States | Availability of halons used on board ships |
| FP 47/INF.7 | United Kingdom | Fire equivalence of SOLAS chapter II-2 for the Sandwich Plate System (SPS) |
| FP 47/WP.6 | Group of experts | Draft MSC circular on Guidelines on partially weathertight hatchway covers on board containerships |
| DE 45/12 | United Kingdom | Proposed draft interpretations |
| DE 45/12/1 | Australia | Aspects of the 2000 HSC Code requiring interpretation |

**Report to the Maritime Safety Committee**

| | |
|---|---|
| FP 47/16 | Report to the Maritime Safety Committee |
| FP 47/WP.11 | Draft report |

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# ANNEX 2

## DRAFT MSC CIRCULAR

## UNIFIED INTERPRETATION OF THE REVISED SOLAS CHAPTER II-2

1 The Maritime Safety Committee, at its [seventy-seventh session (28 May to 6 June 2003)], with a view to ensuring uniform application of the fire protection, fire detection and fire extinction provisions of the 1974 SOLAS Convention, as amended by resolution MSC.99(73), containing vague wording which is open to diverging interpretations, approved the unified interpretations relating to emergency escape breathing devices (EEBD) and fixed local application fire-extinguishing systems set out in the annex.

2 Member Governments are invited to use the annexed unified interpretations as guidance when applying relevant provisions of the revised SOLAS chapter II-2 for ships constructed on or after [1 July 2003] and to bring them to the attention of all parties concerned.

ANNEX

**UNIFIED INTERPRETATIONS OF SOLAS REGULATIONS II-2/10.5.6.3, II-2/13.3.4 AND II-2/13.4.3**

**Regulation 10.5.6.3.1 Fire hazard portions of internal combustion machinery**

Hot surfaces such as exhaust pipes with or without insulation likely to be removed frequently for maintenance and high-pressure fuel oil systems installed nearby the hot surfaces should be protected. For typical diesel engines, the area on top of the engine, fuel oil injection pumps and turbo chargers should be protected. Where the fuel oil injection pumps are installed under the steel platform, the pumps need not be protected.

**Regulation 10.5.6.3.2 Boiler fronts**

The area around the burners with or without insulation likely to be removed frequently for maintenance should be protected. Oil-fired inert gas generators should be also protected in the same manner.

**Regulation 10.5.6.3.3 Fire hazard portions of incinerators**

The area around the burner(s) with or without insulation likely to be removed frequently for maintenance should be protected.

**Regulation 10.5.6.3.4 Purifiers for heated fuel oil**

Purifiers, except separate heater and pipelines, should be protected.

**Regulation 13.3.4 Emergency escape breathing devices (EEBD)**

The minimum number of EEBDs to be kept within accommodation spaces should be as follows:

.1 for cargo ships: two (2) EEBDs and one (1) spare EEBD;

.2 for passenger ships carrying not more than 36 passengers: two (2) EEBDs for each main vertical zone, except those defined in the regulation 13.3.4.5, and a total of two (2) spare EEBDs; and

.3 for passenger ships carrying more than 36 passengers: four (4) EEBDs for each main vertical zone, except those defined in the regulation 13.3.4.5, and a total of two (2) spare EEBDs.

**Regulation 13.4.3 Emergency escape breathing devices (EEBD)**

1 This interpretation applies to machinery spaces where crew is normally employed or may be present on a routine basis.

2 In machinery spaces for category A containing internal combustion machinery used for main propulsion, EEBDs should be positioned as follows:

.1 one (1) EEBD in the engine control room, if located within the machinery space;

.2 one (1) EEBD in workshop areas. If there is, however, a direct access to an escape way from the workshop, an EEBD is not required; and

.3 one (1) EEBD on each deck or platform level near the escape ladder constituting the second means of escape from the machinery space (the other means being an enclosed escape trunk or watertight door at the lower level of the space).

Alternatively, different number or location may be determined by the Administration taking into consideration the layout and dimensions or the normal manning of the space.

3 For machinery spaces of category A other than those containing internal combustion machinery used for main propulsion, one (1) EEBD should, as a minimum, be provided on each deck or platform level near the escape ladder constituting the second means of escape from the space (the other means being an enclosed escape trunk or watertight door at the lower level of the space).

4 For other machinery spaces, the number and location of EEBDs are to be determined by the Administration.

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# ANNEX 3

## DRAFT UNIFIED INTERPRETATIONS FOR CHAPTER 7 OF THE 2000 HSC CODE

### Section 7.3 Insulation values of spaces with special characteristics of two or more groupings

Where a space has the special characteristics of two or more space groupings, the structural fire protection time of the divisions should be the highest for the space groupings concerned. For example, the structural fire protection time of the divisions of emergency generator rooms should be the highest value for the space when the space is considered as being a control station (D) and a machinery space (A).

### Section 7.3.1 Separating partial bulkheads of spaces

If a space is divided by partial bulkheads into two (or more) smaller areas such that they form enclosed spaces, then the enclosed spaces should be surrounded by bulkheads and decks in accordance with tables 7.4-1 and 7.4-2, 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.

### Section 7.3.1 Acceptance of cabinets

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.

### Section 7.3.2 Prevention of heat transmission, details of insulation

1 To prevent heat transmission at intersections and terminal points, the insulation of the deck or bulkhead should be carried past the intersection or terminal point for a distance of at least 450 mm in the case of steel and aluminium structures. (Refer to figures 7.3-1 and 7.3-2).

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 should continue on the deck or bulkhead with the insulation of the lesser structural fire protection time for a distance of at least 450 mm.

3 In the event the lower part of the fire insulation has to be cut for drainage, the construction should be in accordance with the structural details shown in figure 7.3-3.

### Table 7.4-1 Ventilation openings

Ventilation openings may be accepted in entrance doors to public toilets provided they are positioned in the lower portion of the door, and fitted with closable grilles operable from outside the space and made of non-combustible or fire-restricting material.

### Section 7.4.1.3 Appendages not intended to be of fire-restricting or non-combustible material

This paragraph is only intended to apply to the main structure of the craft. Appendages such as air propellers, air ducts to propellers, transmission shafts, rudders and other control surfaces,

struts, spars, flexible skirts, etc., are not intended to be of fire restricting or non-combustible material, therefore, paragraph 7.4.1.3 should not apply to them.

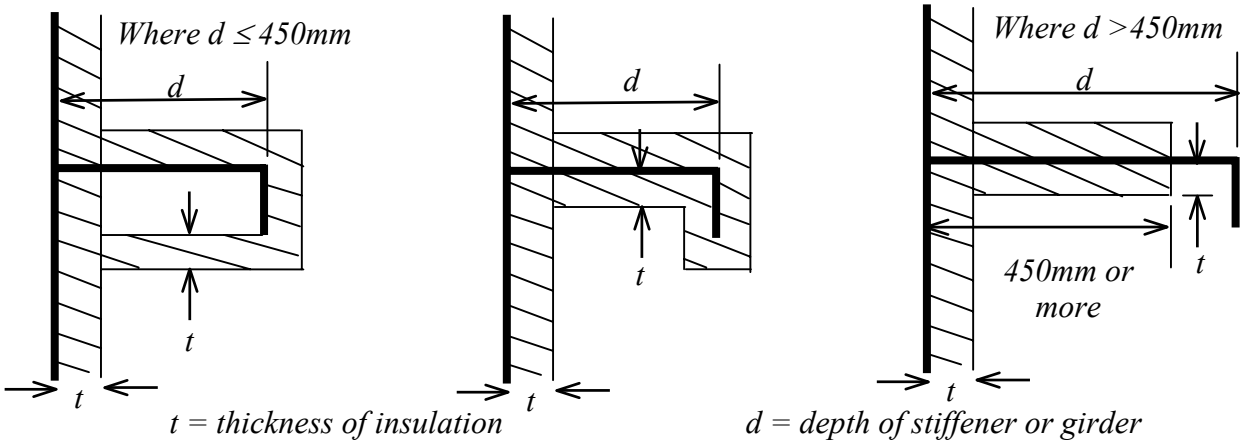


**Figure 7.3-1**

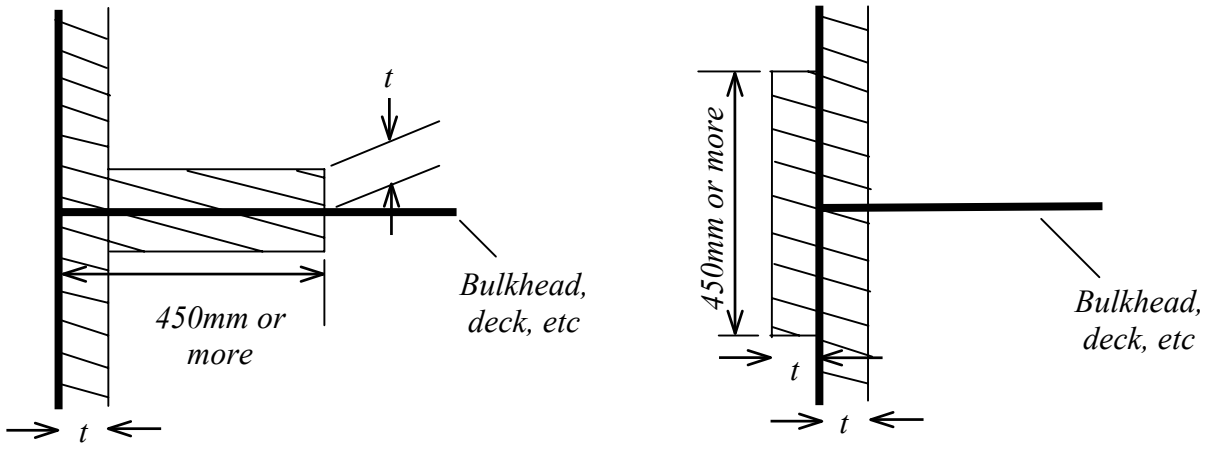


**Figure 7.3-2**

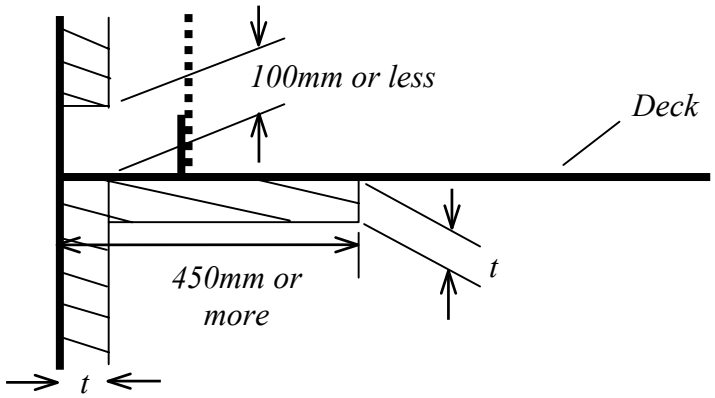


**Figure 7.3-3**

**Section 7.4.2.1 Structures in contact with seawater**

Structures in contact with seawater should be insulated to the required standard to a level 300 mm below the waterline in the craft lightweight condition.

**Section 7.4.3.2 Surface protection of insulation**

The fire insulation in such spaces may be covered by metal sheets (not perforated) or by vapour proof glass cloth accurately sealed at the joint.

**Section 7.4.3.3 Furniture and furnishings in public spaces and crew accommodation**

Fire test procedures referenced in the FTP Code (resolutions MSC.61(67), as amended by resolution MSC.101(73)), and MSC/Circ.916, 964, 1004, 1008 and 1036) should be applied to items and materials covered by this paragraph as follows:

.1 case furniture (FTP Code, annex 1, parts 1 and 10);

.2 frames of all other furniture (FTP Code, annex 1, parts 1 and 10);

.3 draperies, textiles and other suspended textile materials (FTP Code, annex 1, part 7);

.4 upholstered furniture, e.g. passenger seating (FTP Code, annex 1, part 8);

.5 bedding components (FTP Code, annex 1, part 9); and

.6 deck finish materials (FTP Code, annex 1, parts 2 and 6).

**Section 7.4.3.3.1 Types of case furniture**

Different possible types of case furniture are: desks, wardrobes, dressing tables, bureaux and dressers.

**Section 7.4.3.4 Low flame spread surfaces**

This paragraph does not apply to items and materials referred to in paragraph 7.4.3.3.

Consistent with paragraph 7.9.3.4 and clauses 1 and 5.1 of annex 2 to the FTP Code, partitions, windows and sidescuttles made of glass are considered to be non-combustible and to comply with the requirements for low-flame spread surfaces.

**Section 7.4.4.1 Public spaces accommodated on two levels**

Where stairways are fitted in a public space consisting of only two decks, the following conditions should be met:

.1 all levels are used for the same purpose;

.2 the area of the opening between the lower and upper part of the space should be at least 10% of the deck area between the upper and lower part of the space;

.3 the design should be such that persons within the space should be generally aware, or could easily be made aware of, a developing fire or other hazardous situation located within that space;

.4 sufficient means of escape are provided from both levels of the space directly leading to an adjacent safe area or compartment; and

.5 the whole space is served by one section of the sprinkler system.

**Section 7.4.4.3 Location of draught stops**

Draught stops are not required in public spaces with open ceilings (perforated ceilings) where the opening is 40% or more and the ceiling is arranged in such a way that a fire behind the ceiling can be easily seen and extinguished.

**Section 7.5.2 Use of aluminium in lubricating oil sump tanks**

The use of aluminium in lubricating oil sump tanks for engines, or in lubricating oil filter housings fitted integral with the engines, is accepted.

**Section 7.6.1 Accessibility, marking and indication of ventilation controls**

The controls should be easily accessible as well as prominently and permanently marked and should indicate whether the shut-off is open or closed.

**Section 7.6.3.2 Meaning of 'lower end' and 'upper end' of the duct in galley range ducts**

'Lower end of the duct' means a position at the junction between the duct and the galley range hood.

**Section 7.6.3.4 Means of closing for multi-branch systems in galley range ducts**

The means for closing the ends of multi-branch systems should be remote controlled from a position close to the remote controls listed in this regulation.

**Section 7.6.3.5 Location of hatches for inspection and cleaning in galley range ducts**

1 One hatch should be provided close to the exhaust fan.

2 In the galley exhaust duct the grease will accumulate more in the lower end. Therefore, hatches should be fitted also in this part of the duct. For interpretation of 'lower end' see that for section 7.6.3.2.

**Section 7.6.4 Accessibility of dampers**

Fire and smoke dampers should be easily accessible. Where they are placed behind ceilings or linings, they should be provided with an inspection door on which a plate is fitted providing the identification number of the damper. Such plates with identification numbers should also be placed on any required remote controls.

**Section 7.6.6 Means of closing fire and smoke dampers**

Manual closing may be achieved by mechanical means of release or by remote operation of the fire or smoke damper by means of a fail-safe electrical switch or pneumatic release (i.e. spring-loaded, etc.).

**Section 7.7 Requirements for fixed fire-extinguishing systems not required by paragraph 7.7 of the Code**

Where a fixed fire-extinguishing system not required by paragraph 7.7 of the Code is installed, it should meet the requirements of this section.

**Section 7.7.1 Control stations not normally occupied**

Control stations not normally occupied (e.g. emergency generator rooms) need not be provided with manually operated call points.

**Section 7.7.1.1.4 Definition of section**

A section is a group of fire detectors and manually operated call points as displayed at the indicating unit(s) required by this paragraph.

**Section 7.7.1.1.9 Extension of detector sections**

The same section of detectors may serve spaces on more than one deck if such spaces are located in the fore or aft end of the craft or they are so arranged that they constitute common spaces on different decks (e.g. fan rooms, galleys, public spaces, etc.).

**Section 7.7.1.1.10 Restriction of loops**

For fire detection systems with remotely and individually identifiable fire detectors, the requirement set out in this section is considered met when a loop covering accommodation spaces, service spaces, and control stations, does not include machinery spaces of a major fire hazard.

**Section 7.7.1.1.14 Acceptable activating arrangements**

The following arrangement may be acceptable:

1 to activate a paging system;

2 to activate the fan stops;

3 to activate the closure of fire doors;

4 to activate the closure of fire and smoke dampers; and

5 to activate the sprinkler system.

**Section 7.7.1.1.15 Installation of loops and definitions**

1 A loop should not pass through a space twice. Where this is not practical, (e.g. for large public spaces) the part of the loop which by necessity passes through the space for a second time should be installed at the maximum possible distance from the other parts of the loop.

2 Definitions:

.1 *Loop*: electrical circuit linking detectors of various sections in a sequence and connected (input and output) to the indicating unit(s).

.2 *Zone address identification capability*: a system with individually identifiable fire detectors.

**Section 7.7.1.2.3 Location of detectors**

Distances smaller than 0.5 m from bulkheads may be accepted in corridors, lockers and stairways.

**Section 7.7.3 Remote control of the system**

The system should be remotely controlled in such a way that it is fully serviceable from the operating compartment without any intervention of personnel outside that space in normal conditions.

**Section 7.7.3.2.3 Construction of pipelines passing through accommodation**

Pipelines may pass through accommodation spaces provided they are of substantial thickness and that their tightness is verified with a pressure test, after their installation, at a pressure head not less than 5 $N/mm^2$. In addition, pipelines passing through accommodation areas should only be joined by welding and should not be fitted with drains or other openings within such spaces. Pipelines should not pass through refrigerated spaces.

**Section 7.7.3.2.5 Location of closing devices**

Openings that may admit air to, or allow gas to escape from, a protected space should be capable of being closed from outside the protected space.

**Section 7.7.3.2.6 Consideration of volume of air receivers when calculating the quantity of extinguishing medium**

The volume of starting air receivers, converted to free air volume, should be added to the gross volume of the machinery space when calculating the necessary quantity of extinguishing medium. Alternatively, a discharge pipe connected to a safety valve may be fitted provided it leads directly to the open air.

**Section 7.7.3.2.7 Warning of release of extinguishing medium to ro-ro spaces and other spaces where personnel can enter**

1 Ro-ro spaces and other spaces where personnel can be expected to enter, and where the access is facilitated by doors or hatches, should be provided with an automatic warning for the release of the extinguishing medium.

2 The pre-discharge alarm should be automatically activated (e.g. by opening of the release cabinet door).

3 Reference is made to the Code on Alarms and Indicators, 1995 (resolution A.830(19)).

**Section 7.7.3.2.10 Separation of spaces**

Two spaces can be considered as separated spaces where divisions comply with tables 7.4-1 and 7.4-2, as appropriate, or the divisions are of steel construction.

**Section 7.7.3.2.12 Means for checking the quantity of medium in containers**

1 Means for checking the quantity of medium in containers should be so arranged that it is not necessary to move the containers completely from their fixing position. This may be achieved for instance by providing hanging bars above each bottle row for a weighing device or by using suitable surface indicators.

2 Surface indicators containing radioactive material should be of a type accepted by the Administration.

**Section 7.7.3.2.14 Location, accessibility, use and ventilation of $CO_2$ - storage spaces**

1 Spaces for storage of the cylinders or tanks for extinguishing gas should not be used for other purposes. Access to these spaces should be possible from the open deck; spaces situated below the deck should be directly accessible by a stairway or ladder from the open deck. The space should be located no more than one deck below the open deck.

2 Spaces where the entrance from the open deck is not provided, or which are located below deck, are to be fitted with mechanical ventilation. The exhaust duct (suction) should lead to the bottom of the space. Such spaces should be ventilated with at least 6 air changes per hour.

**Section 7.7.4 Portable fire extinguishers**

Reference should be made to IMO resolution A.602(15) on Revised Guidelines for marine portable fire extinguishers.

**Section 7.7.4 Mass and capacity of portable fire extinguishers**

1 The mass of portable fire extinguishers should not exceed 23 kg.

2 Each powder or carbon dioxide extinguisher should have a capacity of at least 5 kg, and each foam extinguisher a capacity of at least 9 litres.

**Section 7.7.4 Equivalents of portable fire extinguishers**

Reference is made to ISO 7165:1999 - Fire protection equipment - Portable fire extinguishers - Performance and construction.

**Section 7.7.4 Examination and testing of portable fire extinguishers**

1 Fire extinguishers should be examined annually by a competent person.

2 Each fire extinguisher should be provided with a sign indicating that it has been examined.

3 Fire extinguisher cylinders and propellant bottles should be hydraulic pressure tested every 10 years.

**Section 7.7.4 Type and location of portable fire extinguishers**

1 Carbon dioxide fire extinguishers should not be placed in accommodation spaces. In control stations and other spaces containing electrical or electronic equipment or appliances necessary for the safety of the craft, fire extinguishers should be provided with extinguishing media which are neither electrically conductive nor harmful to the equipment and appliances.

2 Fire extinguishers should be ready for use and located in easily visible places such that they can be reached quickly and easily at any time in the event of a fire. In addition, the fire extinguisher should be located such that their serviceability is not impaired by the weather, vibration or other external factors. Portable fire extinguishers should be provided with devices to identify whether they have been used.

**Section 7.7.5.1 Independently driven pumps**

Independently driven pumps are pumps powered by independent sources of power.

**Section 7.7.5.3 Drainage of fire mains and shutting off fire main branches**

Fire mains should be capable of being drained. Valves should be installed in the main so that fire main branches can be isolated when the main is used for purposes other than fire-fighting.

**Section 7.7.5.4 Location of hydrants**

One hydrant should be located in the vicinity and outside of each entrance to a machinery space.

**Section 7.7.5.5 Length of fire hoses**

Fire hoses should have a length of:

.1 at least 10 m;

.2 not more than 15 m in machinery spaces; and

.3 not more than 20 m for other spaces and open decks.

**Section 7.7.5.5 Additional hoses and nozzles when carrying dangerous goods**

Ships carrying dangerous goods should be provided with 3 additional hoses and 3 additional nozzles.

**Section 7.8.1.1 Vehicle decks located totally within ro-ro spaces**

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 craft's 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.

**Section 7.8.2 Fixed fire-extinguishing systems**

Reference should be made to IMO resolution A.123(V) and complementary devices for fire-extinguishing systems including instructions for maintenance and operation.

1 The pumps should be capable of maintaining:

.1 half the total required application rate with any one pump unit out of function, for category A craft; and

.2 the total required application rate with any one pump unit room out of function, for category B craft.

2 Fixed fire-extinguishing systems should fulfil the following requirements:

.1 the valve manifold should be provided with a pressure gauge and each of the valves should be marked;

.2 instructions for maintenance and operation of the installation should be set up in the room where the valves are located; and

.3 the piping system should be provided with a sufficient number of drainage valves.

**Section 7.8.3.1 Fixed fire detection systems, if fitted, in special category spaces**

The fire detection system, excluding manual call points, may be switched off with a timer during loading/unloading of vehicles to avoid "false" alarms.

**Section 7.8.4.1.1 Construction of water fog applicators**

A water fog applicator may consist of a metal L-shaped pipe, the long limb being approximately 2 m in length and capable of being fitted to a fire hose, and the short limb being approximately 250 mm in length and fitted with a fixed water fog nozzle or capable of being fitted with a water spray nozzle.

**Section 7.8.4.1.3 Location of portable fire extinguishers including suitability and capacity**

Fire extinguishers in special-category spaces should be suitable for A and B class fires. The extinguishers should have a capacity of 12 kg dry powder or equivalent.

**Section 7.8.4.1.3 Weight and capacity of fire extinguishers**

1 The weight of portable fire extinguishers should not exceed 23 kg.

2 Each powder or carbon dioxide fire extinguisher should have a capacity of at least 5 kg, and each foam extinguisher a capacity of at least 9 ℓ.

**Section 7.8.5.1 Ventilation System**

Reference is made to MSC/Circ.729 on Design Guidelines and operational recommendations for ventilation systems in ro-ro cargo spaces.

**Section 7.8.6 Size of pumping and drainage arrangements**

1 Pumping and drainage arrangements should be such as to prevent the accumulation of water on any such decks.

2 In respect of scuppers and drainage pumps, the following should be complied with:

.1 when calculating the amount of water, the capacity of both the water spraying system pumps and required number of fire hose nozzles should be taken into account;

.2 the drainage system should have a capacity of not less than 125% of the capacity specified in paragraph 2.1 above; and

.3 bilge wells should be of sufficient holding capacity and should be arranged at the side shell of the ship at a distance from each other of not more than 40 m in each watertight compartment.

**Section 7.8.7.1 Degree of protection for electrical equipment**

1 For equipment above a height of 450 mm above the deck:

The degree of protection for electrical equipment required by this section should have an enclosure having an ingress protection of at least IP 55 as defined in IEC Publication 529 - Classification of degree of protection provided by enclosures, or by apparatus for use in zone 2 areas as defined in IEC Publication 79 - Electrical apparatus for explosive gas atmospheres (Temperature class T 3).

2 For equipment at or below a height of 450 mm above deck:

The electrical equipment referred to in this section should be certified "safe type" and wiring, if fitted, should be suitable for use in zone 1 areas as defined in IEC Publication 79 - Electrical apparatus for explosive gas atmospheres - (Gas group II A and temperature class T 3).

**Section 7.8.7.2 Degree of protection for electrical equipment in exhaust ventilation ducts and exhaust fans**

1 The electrical equipment referred to in these regulations should be certified "safe type" and wiring, if fitted, should be suitable for use in zone 1 areas as defined in IEC Publication 79 - Electrical apparatus for explosive gas atmospheres (Gas group II A and temperature class T 3).

2 Exhaust fans should be of a non-sparking type in accordance with IACS unified requirement F 29, as revised.

**Section 7.8.8.1 Vehicle decks without structural fire protection**

Vehicle decks located totally within ro-ro spaces may be accepted without structural fire protection provided these decks are not part of the vessel's main load-carrying structure and provided satisfactory measures to ensure that the safety of the craft, including fire fighting abilities and integrity of fire resisting divisions, are not affected by a partial or total collapse of these internal decks.

**Section 7.9.3.4 Open spaces**

"Open spaces" as referred to in paragraph 7.9.3.4 of the Code is interpreted as excluding grouping E in tables 7.4-1 and 7.4-2.

**Section 7.10.1.2 Construction of water fog applicators**

A water fog applicator might consist of a metal L-shaped pipe, the long limb being approximately 2 m in length and capable of being fitted to a fire hose, and the short limb being approximately 250 mm in length fitted with a fixed water fog nozzle or capable of being fitted with a water spray nozzle.

**Section 7.10.2 Storage of fire-fighter's outfits and marking of location**

The storage of fire-fighter's outfits and personal equipment should be permanently and clearly marked.

**Section 7.10.3.1.1 Fire-fighter’s protective clothing**

Reference is made to ISO 6942:2002 – Protective Clothing - Protection against heat and fire - Evaluation of materials and material assemblies when exposed to source of radiant heat.

**Section 7.10.3.1.2 Fire-fighter’s boots and gloves**

Reference is made to IEC 903 - 1988 - Specification for gloves and mitts of insulating material for live working.

**Section 7.10.3.1.4 Fire-fighter's safety lamp**

Electric safety lamps intended to be used in hazardous areas should be of an explosion proof type. Reference is made to IEC Publication 7979 - Electrical apparatus for explosive gas atmospheres (Gas group II A and temperature class T 3).

**Section 7.10.3.1.5 Fire-fighter's hand axe**

The handle of the axe should be provided with high-voltage insulation.

**Section 7.10.3.2.2 Spare charges and recharging of air cylinders for breathing apparatus**

Two spare charges suitable for use with the apparatus should be provided for each required apparatus.

**Section 7.10.3.3 Fireproof lifeline for breathing apparatus**

Each breathing apparatus should be provided with a flexible fireproof lifeline approximately 30 m in length. The lifeline should be subjected to a test by static load of 3.5 kN for 5 min.

**Section 7.11.1.3 Safe evacuation from the alternative safe area**

Safe evacuation from the alternative safe area should be completed within the structural fire protection time for areas of major fire hazard.

**Section 7.13.1 Fixed sprinkler system**

A stairway open at one deck should be considered part of the space to which it is open, and consequently, should be protected by a sprinkler system, if provided.

**Section 7.17.1 Requirements for carriage of dangerous goods**

Reference to the IMDG Code, General Introduction, sections 17 and 18

1 Reference is made to section 17 of the General Introduction to the International Maritime Dangerous Goods Code (IMDG Code) for operational measures in association with the requirements of this regulation.

2 Reference is made to section 18 of the General Introduction to the International Maritime Dangerous Goods Code (IMDG Code) for a definition of the term "limited quantities".

**Section 7.17.2.2 Meaning of "purpose built container spaces"**

A purpose built container space is a cargo space fitted with cell guides for stowage and securing of containers.

**Section 7.17.2.3 Extended meaning of "ro-ro cargo spaces"**

Ro-ro cargo spaces include special category spaces and vehicle deck spaces.

**Section 7.17.3.1 Water supplies for open-top container cargo spaces in ships**

1 The water spray system required by paragraphs 9.2, 9.3 and 9.4 of MSC/Circ.608/Rev.1 on Interim guidelines for open-top containerships, will also satisfy the requirement for dangerous goods.

2 The amount of water required for fire-fighting purposes in the largest hold should allow simultaneous use of the water spray system plus four jets of water from hose nozzles (MSC/Circ.608/Rev.1).

**Section 7.17.3.1.2 Required capacity of water supply for fire-extinguishing**

The total required capacity of the water supply should satisfy SOLAS regulations II-2/19.3.1.2 and II-2/19.3.1.3 (if applicable), simultaneously calculated for the largest designated cargo space. The capacity requirement for SOLAS regulation II-2/19.3.1.2 should be met by the total capacity of the main fire pump(s) not including the capacity of the emergency fire pump, if fitted. If a drencher system is used to satisfy SOLAS regulation II-2/19.3.1.3, then the drencher pump should also be taken into account in this total capacity calculation.

**Section 7.17.3.1.3 Size of pumping and drainage arrangements**

1 Reference is made to IMO resolution A.123(V) on Recommendation on fixed fire-extinguishing systems for special category spaces.

2 With respect to drainage and pumping arrangements, reference is made to SOLAS regulation II-2/20.6.1.4.1.3.

3 The quantity of water referred to in this regulation should be not less than 5 $l$/min/m$^2$ of the horizontal area of cargo spaces.

**Section 7.17.3.1.4 Acceptance of high expansion foam systems in case of dangerous goods**

A high expansion foam system, complying with SOLAS regulation II-2/10.4.1.1.2, is acceptable except if cargoes dangerously react with water (see the IMDG Code).

**Section 7.17.3.2 Sources of ignition**

Reference is made to the International Standard IEC Publication 92-506: Electrical installations in ships - Part 506: Special features - Ships carrying specific dangerous goods and materials hazardous only in bulk.

**Section 7.17.3.4 Ventilation requirements for individual cargoes and open-top container cargo holds**

If adjacent spaces are not separated from cargo spaces by gastight bulkheads or decks, ventilation requirements should apply as for the cargo space itself, required under SOLAS regulation II-2/19.3.4.2 and its interpretations.

**Section 7.17.3.4 Requirements for Individual Cargoes**

1 Cargoes liable to give off vapours or gases which can form an explosive mixture with air (see the BC Code, Appendix B, e.g. IMO Class 4.3 materials): Two separate fans should be permanently fitted or being of a portable type adapted for being permanently fitted prior to loading and during voyage. The fans should be either explosion proof or arranged such that the escaping gas flow is separated from electrical cables and components. The total ventilation should be at least six air changes per hour, based upon the empty space. Ventilation should be such that any escaping gases cannot reach living spaces on or under deck.

2 Cargoes liable to spontaneous combustion (only applicable to Seed Cake (b) and (c)): Two separate fans should be permanently fitted or being of a portable type adapted for being permanently fitted prior to loading and during voyage. The fans should be either explosion proof or arranged such that the escaping gas flow is separated from electrical cables and components. The total ventilation should be at least six air changes per hour, based upon the empty space. Ventilation should be such that any escaping gases cannot reach living spaces on or under deck

3 For open-top container ships: Power ventilation should be required only for the lower part of the cargo hold for which purpose ducting is required. The ventilation capacity should be at least two air changes per hour based on the empty hold volume below weather deck.

**Section 7.17.3.4.2 Degree of protection of exhaust fans and use of wire mesh guards**

1 Exhaust fans should be of non-sparking type in accordance with IACS unified requirement F 29, as revised.

2 The purpose of "suitable wire mesh guards" is to prevent foreign objects from entering into the fan casing. The standard wire mesh guards should have a size of 13 mm x 13 mm.

**Section 7.17.3.5 Arrangements of bilge drainage systems for cargo spaces**

1 If the bilge drainage system for cargo spaces is additional to the system served by pumps in the machinery space, the capacity of the system should be not less than 10 $m^3$/h per cargo space served. If the additional system is a common system, the capacity need not exceed 25 $m^3$/h. The additional bilge system need not be arranged with redundancy. Whenever flammable or toxic liquids are carried, the bilge line into the machinery space should be isolated either by fitting a blank flange or by a closed lockable valve.

2 If bilge drainage of cargo spaces is arranged by gravity drainage, the drainage should be either lead directly overboard or to a closed drain tank located outside the machinery spaces. The tank should be provided with vent pipe to a safe location on the open deck.

3 Enclosed spaces outside machinery spaces containing bilge pumps serving cargo spaces intended for carriage of flammable or toxic liquids should be fitted with separate mechanical ventilation giving at least 6 air changes per hour. Electrical equipment in the space should comply with the IACS unified interpretation SC 79. If the space has access from another enclosed space, the door should be self-closing.

4 Drainage from a cargo space into bilge wells in a lower space is only permitted if that space satisfies the same requirements as the cargo space above.

**Section 7.17.3.6.1 Type and suitability of protective clothing**

1 When selecting the protective clothing the danger of the chemicals according to the class and liquid or gaseous state should be taken into account.

2 The required protective clothing is for emergency purposes.

3 For solid bulk cargoes the protective clothing should satisfy the equipment requirements specified in Appendix E of the BC Code for the individual substances. For packaged goods the protective clothing should satisfy the equipment requirements specified in emergency procedures (EmS) of the Supplement to IMDG Code for the individual substances.

**Section 7.17.3.6.2 Spare bottles for breathing apparatus**

Spare charges for the breathing apparatus should be provided as required in SOLAS regulation II-2/10.10.2.5.

**Section 7.17.3.8 Fixed fire-extinguishing system**

1 Reference is made to IMO resolution A.123(V) on Recommendation on fixed fire-extinguishing systems for special category spaces.

2 With respect to pumping and drainage arrangement, reference is made to SOLAS regulations II-2/20.6.1.4 and 20.6.1.4.1.3.

**Table 7.17-2 Certification of special dangerous goods**

The terminology "solid dangerous goods in bulk" covers only those cargoes listed in Appendix B of the Bulk Cargo Code except cargoes of Materials Hazardous in Bulk. Other solid dangerous goods in bulk may only be permitted subject to acceptance by the Administrations involved.

**Tables 7.17-2 and 7.17-3 Class**

The term "Class" refers to the classification of dangerous goods as specified in the IMDG Code.

**Section 7.17.4 Document of compliance**

1 Reference is made to MSC/Circ.1027 - Document of compliance with the special requirements for ships carrying dangerous goods under the provisions of SOLAS regulation II-2/19 of SOLAS 1974.

2 The terminology "solid dangerous goods in bulk" covers only those cargoes listed in Appendix B of the Bulk Cargo Code except cargoes of Materials Hazardous in Bulk. Other solid dangerous goods in bulk may only be permitted subject to acceptance by the Administrations involved.

3 There are no special requirements in the above-mentioned SOLAS regulation II-2/19 for the carriage of dangerous goods of classes 6.2 and 7, or for the carriage of dangerous goods in limited quantities, as stated in chapter 3.4 of the IMDG Code.

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# ANNEX 4

## DRAFT MSC CIRCULAR

## UNIFIED INTERPRETATIONS OF THE GUIDELINES FOR THE APPROVAL OF FIXED WATER-BASED LOCAL APPLICATION FIRE-FIGHTING SYSTEMS (MSC/CIRC.913)

1 The Maritime Safety Committee, at its [seventy-seventh session (28 May to 6 June 2003)], with a view to ensuring uniform application of the Guidelines for the approval of fixed water-based local application fire-fighting systems (MSC/Circ.913), containing vague wording which is open to diverging interpretations, approved the unified interpretations relating to fixed water-based local application fire-extinguishing systems set out in the annex.

2 Member Governments are invited to use the annexed unified interpretations as guidance when applying relevant provisions of the aforementioned guidelines and to bring them to the attention of all parties concerned.

ANNEX

**UNIFIED INTERPRETATIONS OF THE GUIDELINES FOR THE APPROVAL OF FIXED WATER-BASED LOCAL APPLICATION FIRE-FIGHTING SYSTEMS (MSC/CIRC.913)**

**General Interpretations**

For the application of these Guidelines, the terms related to location are clarified as follows:

.1 *Protected space* is a machinery space where a local application fire-fighting system (hereinafter, referred to as "the system") is installed.

.2 *Protected area* is an area (an installation or a part of installation) within a protected space which is required to be protected by the system.

**3 Principal requirements for the system***

**Interpretation to paragraph 3.2**:

The activation of the system should not require engine shutdown, closing fuel oil tank outlet valves, evacuation of personnel and sealing of the space. Any of these actions should lead to loss of electrical power or reduction of manoeuvrability. Item 3.2 is not intended to place requirements on electrical equipment.

**Interpretation to paragraph 3.8**:

When the nozzle direction is intended not to be vertically downward, in addition to the type approval test in accordance with MSC/Circ.913, tests should be carried out in the conditions of actual direction of nozzles to verify the fire-extinguishing capabilities equivalent to that specified in MSC/Circ.913.

**Interpretation to paragraph 3.9**:

This minimum rating should be applied only to the components in the protected space.

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* Refers to paragraph 3 of the Guidelines for the approval of fixed water-based local application fire-fighting systems, as annexed to MSC/Circ.913.

# ANNEX 5

## DRAFT MSC CIRCULAR

## UNIFIED INTERPRETATION OF SOLAS REGULATION II-2/15.2.11, IN FORCE BEFORE 1 JULY 2002

1 The Maritime Safety Committee, at its [seventy-seventh session (28 May to 6 June 2002)], with a view to ensuring uniform application of the requirements of SOLAS chapter II-2 containing vague expressions open to diverging interpretations, approved the following interpretation of SOLAS regulation II-2/15.2.11, in force before 1 July 2002, stating that oil fuel piping shall be screened or otherwise suitably protected to avoid, as far as practicable, oil spray or oil leakages onto hot surfaces or into machinery intakes. The requirements have been in force since 1 July 1998 and ships constructed before that date shall comply with regulation II-2/15.2.11 not later than 1 July 2003.

2 **Interpretation of SOLAS regulation II-2/15.2.11**

Spray shields should be fitted around flanged joints, flanged bonnets and any other flanged or threaded connections in fuel oil piping systems under pressure exceeding 0.18 $N/mm^2$ which are located above or near units of high temperature, including boilers, steam pipes, exhaust manifolds, silencers or other equipment required to be insulated by SOLAS regulation II-2/15.2.10.

3 Member Governments are invited to use the above interpretation as guidance when applying relevant provisions of SOLAS chapter II-2 to fire protection construction, installation, arrangements and equipment to be installed on board ships to which SOLAS regulation II-2/15.2.11, in force before 1 July 2002, applies, in order to fulfil the requirements of the 1974 SOLAS Convention, and to bring the interpretation to the attention of all parties concerned.

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# ANNEX 6

## DRAFT MSC CIRCULAR

## PRINCIPLES FOR HOT WORK ON BOARD ALL TYPES OF SHIPS

1 The Maritime Safety Committee, at its [seventy-seventh session (28 May to 6 June 2003)], having considered on board hot work issues initiated by the Sub-Committee on Flag State Implementation (FSI) and further examined by the Sub-Committee on Fire Protection (FP), recognized that recommendations should be provided to make shore-based managers and seafarers aware of the potential risks associated with hot work, so that hot work instructions are available on board all types of ships and are properly implemented.

2 The Committee, further recognizing that resolution A.864(20) on Recommendations for entering enclosed spaces aboard ships and MSC/Circ.807 on Guidelines on riding repairs for cases involving hot work may not adequately cover the issue of hot work and noting that existing guidelines, specific to hot work, such as those produced by the International Labour Organization (ILO), the International Association of Ports and Harbours (IAPH), the International Chamber of Shipping (ICS) and the Oil Company International Marine Forum (OCIMF), when duly applied, should provide sufficient guidance in the development of hot work on board instructions and guidance, agreed that the role of IMO regarding the development and implementation of appropriate hot work guidelines should be limited to the identification and listing of basic principles, which could simply make reference to the existing guidelines, based on best industry practices.

3 The Committee, therefore, developed a user-friendly, non-detailed list of common principles, as set out in annex, applicable to hot work situations on board all types of ships, which seafarers, shipoperators, management and auditors of the ISM Code system could keep in mind when developing specific on-board instructions to suit their operational needs.

4 The annexed list of principles takes account of existing guidelines such as the publication ‘Accident Prevention on Board Ship at Sea and in Port’ (ILO) as well as the ‘International Safety Guide for Oil Tankers and Terminals (ISGOTT)’ (ICS, OCIMF and IAPH).

5 Member Governments are invited to bring the annexed list of principles to the attention of shipowners, ship operators, shipmasters, ship-repairers and other interested parties of the shipping industry, recommending the use of the principles when on board hot work is planned.

ANNEX

# LIST OF PRINCIPLES FOR HOT WORK ON BOARD ALL TYPES OF SHIPS

## 1 General

1.1 Hot work means any work requiring the use of electric arc or gas welding equipment, cutting burner equipment or other forms of naked flame, as well as heating or spark generating tools, regardless of where it is carried out on board a ship.

1.2 The Safety Management System (SMS) on board should include adequate guidance on control of hot work and should be robust enough to ensure compliance. Absence of guidance should be regarded as prohibition, rather than approval.

1.3 Whenever possible, a space such as a workshop where conditions are deemed safe, should be designated for hot work to be performed and first consideration given to performing any hot work in that space.

1.4 Hot work performed outside that space should be subject to the following considerations.

## 2 Hot work outside the designated space

2.1 The master or designated safety officer should be responsible for deciding whether hot work is justified and whether it can be conducted safely.

2.2 A permit-to-work system should be employed.

2.3 Hot work procedures should take account of national laws or regulations or other national safety and health rules.

2.4 A responsible officer, not involved in the hot work, should be designated to ensure safe procedures are followed.

2.5 A written plan for the operation should be agreed by all who will have responsibilities in connection with the hot work.

2.6 The work area should be carefully prepared and isolated before hot work commences.

2.7 Fire safety precautions should be reviewed, including fire equipment preparations, setting a fire watch in adjacent compartments and areas, and fire-extinguishing measures.

2.8 Isolation of the work area and fire precautions should be continued until the risk of fire no longer exists.

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# ANNEX 7

## DRAFT MSC CIRCULAR

## USE OF SMOKE HELMET TYPE BREATHING APPARATUS

1 The Maritime Safety Committee, at its [seventy-seventh session (28 May to 6 June 2003)], having taken into account the fact that, with the entry into force of the revised SOLAS chapter II-2 on 1 July 2002, new ships may no longer be fitted with smoke helmet type breathing apparatus and that ships built prior to the entry into force of the new requirements will still be able to carry this type of equipment, recognized that owners and operators who are still allowed to fit ships with smoke helmet type breathing apparatus as part of the minimum fire-fighting equipment inventory will encounter the following problems:

.1 the equipment is not easy to use and requires significant training and very few, if any shore based training centres continue to provide instruction in the use of this equipment; and

.2 particular difficulties are experienced when co-ordinating simultaneous use of both self-contained breathing apparatus (SCBA) and smoke helmets to form an effective fire-fighting party.

2 The Committee additionally recognized that, compared to SCBA, smoke helmet type breathing apparatus have the following operational drawbacks/risks:

.1 toxic fumes and smoke could be introduced into the air supply if the bellows are not placed in a safe environment;

.2 there is a large commitment on personnel resources if the equipment is to be used effectively. This situation is significantly exacerbated by reduced crew numbers;

.3 there is a high risk that the air supply line may be damaged or trapped;

.4 the equipment restricts freedom of movement since the entry and exit points must be the same;

.5 the range of operation is limited by the length of hose; and

.6 maintenance and procurement of spare parts is difficult.

3 Member Governments are invited to bring the above information on the problems associated with the use of smoke helmet type breathing apparatus to the attention of ship owners, ship operators, shipmasters and other interested parties of the shipping industry and to recommend that existing ships be fitted with additional SCBAs to replace, or make redundant, existing smoke helmet type breathing apparatus where these form part of the minimum equipment required.

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**ANNEX 8**

**DRAFT ASSEMBLY RESOLUTION**

**GRAPHICAL SYMBOLS FOR SHIPBOARD FIRE CONTROL PLANS**

THE ASSEMBLY,

RECALLING Article 15(i) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

BEARING IN MIND that regulation II-2/15.2.4 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended, requires that fire control plans be permanently exhibited for the guidance of the ship's officers and that a duplicate set of fire control plans or a booklet containing such plans be permanently stored in a prominently marked weathertight enclosure outside the deckhouse for the assistance of shore-side fire-fighting personnel,

RECOGNIZING that the use of international symbols for shipboard fire control plans would greatly increase their usefulness, both for the crew of the ship and for shore-based fire brigades,

RECALLING ALSO resolution A.654(16) on Graphical symbols for fire control plans,

NOTING that ISO had, in close co-operation with IMO, developed standard ISO 17631:2002 – Ships and marine technology – Shipboard plans for fire protection, life-saving appliances and means of escape, providing fire protection symbols which generally conform to the corresponding symbols set out in resolution A.654(16),

NOTING IN PARTICULAR that MSC/Circ.1050 invited Member Governments to bring standard ISO 17631:2002 to the attention of shipbuilders, ship owners, ship operators, shipmasters, shore-based fire-fighting personnel and other parties concerned with the preparation or use of shipboard fire control plans, so that they may use it, on a voluntary basis, for the preparation or use of the shipboard fire control plans required by SOLAS regulation II-2/15.2.4, pending the outcome of the work related to the revision of resolution A.654(16),

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its [seventy-seventh] session,

1. ADOPTS the Graphical symbols for shipboard fire control plans, set out in the Annex to the present resolution;

2. URGES Member Governments to bring the aforementioned graphical symbols to the attention of shipbuilders, ship owners, ship operators, shipmasters, shore-based fire-fighting personnel and other parties concerned with the preparation or use of shipboard fire control plans with a view to encouraging their use for the preparation of the shipboard fire control plans required by SOLAS regulation II-2/15.2.4, for ships constructed on or after [1 January 2004];

3. INVITES Member Governments to bring standard ISO 17631:2002 to the attention of shipbuilders, ship owners, ship operators and shipmasters so that they may use the additional guidance contained therein for the preparation of shipboard fire control plans;

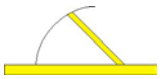
4. AGREES that ships constructed before [1 January 2004] may continue to carry fire control plans that use the graphical symbols contained in resolution A.654(16);

5. REQUESTS the Maritime Safety Committee to keep this resolution under review and to amend it as necessary.

ANNEX

# GRAPHICAL SYMBOLS FOR SHIPBOARD FIRE CONTROL PLANS*

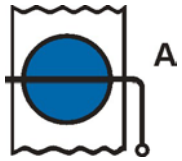
Graphical symbols for structural fire protection

| No. | Graphical symbol | Reference | Comments on use |
|---|---|---|---|
| 1.1 |  | A-class division | |
| 1.2 |  | B-class division | |
| 1.3 |  | Main vertical zone | |
| 1.4 |  | A-class hinged fire door | The symbol should be at the door position and should show the actual direction of the door.<br><br>Add **WT** to the right side of the symbol in the case of a watertight door.<br><br>Add **SWT** to the right side of the symbol in the case of a semi-watertight door. |
| 1.5 |  | B-class hinged fire door | The symbol should be at the door position and should show the actual direction of the door.<br><br>Add **WT** to the right side of the symbol in the case of a watertight door.<br><br>Add **SWT** to the right side of the symbol in the case of a semi-watertight door. |

* A legend of symbols and explanations should be a constituent part of any fire control plan and contain a list of the graphical symbols used in the plan, together with the appropriate explanations, and may include additional special information such as the type of extinguishing media used in fixed fire-extinguishing systems.

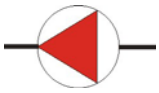
| No. | Graphical symbol | Reference | Comments on use |
|---|---|---|---|
| 1.6 |  | A-class hinged self-closing fire door | The symbol should be at the door position and should show the actual direction of the door.<br><br>Add **WT** to the right side of the symbol in the case of a watertight door.<br><br>Add **SWT** to the right side of the symbol in the case of a semi-watertight door. |
| 1.7 |  | B-class hinged self-closing fire door | The symbol should be at the door position and should show the actual direction of the door.<br><br>Add **WT** to the right side of the symbol in the case of a watertight door.<br><br>Add **SWT** to the right side of the symbol in the case of a semi-watertight door. |
| 1.8 |  | A-class sliding fire door | The symbol should be at the door position and should show the actual direction of the door.<br><br>Add **WT** to the right side of the symbol in the case of a watertight door.<br><br>Add **SWT** to the right side of the symbol in the case of a semi-watertight door. |
| 1.9 |  | B-class sliding fire door | The symbol should be at the door position and should show the actual direction of the door.<br><br>Add **WT** to the right side of the symbol in the case of a watertight door.<br><br>Add **SWT** to the right side of the symbol in the case of a semi-watertight door. |

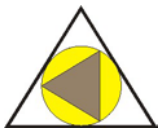
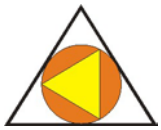
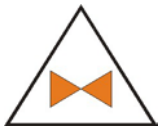
| No. | Graphical symbol | Reference | Comments on use |
|---|---|---|---|
| 1.10 |  | A-class self-closing sliding fire door | The symbol should be at the door position and should show the actual direction of the door.<br><br>Add **WT** to the right side of the symbol in the case of a watertight door.<br><br>Add **SWT** to the right side of the symbol in the case of a semi-watertight door. |
| 1.11 |  | B-class self-closing sliding fire door | The symbol should be at the door position and should show the actual direction of the door.<br><br>Add **WT** to the right side of the symbol in the case of a watertight door.<br><br>Add **SWT** to the right side of the symbol in the case of a semi-watertight door. |
| 1.12 |  | Ventilation remote control or shut-off | Colour of the circle and a letter at the right side of the symbol should indicate as follows:<br><br>**A** = blue for accommodation and service spaces;<br><br>**M** = green for machinery spaces;<br><br>**C** = yellow for cargo spaces. |
| 1.13 |  | Remote control for skylight | |
| 1.14 |  | Remote control for watertight doors or fire doors | Add **WT** to the right side of the symbol to indicate remote control for watertight doors or **FD** to indicate remote control for fire doors. |

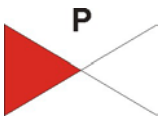
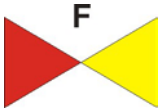
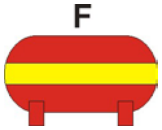
| No. | Graphical symbol | Reference | Comments on use |
|---|---|---|---|
| 1.15 |  | Fire damper | Colour of the circle and a letter at the right side of the symbol should indicate as follows:<br><br>**A** = blue for accommodation and service spaces;<br><br>**M** = green for machinery spaces;<br><br>**C** = yellow for cargo spaces.<br><br>Identification number of the damper may be shown at the bottom of the symbol. |
| 1.16 |  | Closing device for ventilation inlet or outlet | Colour of the circle and a letter at the right side of the symbol should indicate as follows:<br><br>**A** = blue for accommodation and service spaces;<br><br>**M** = green for machinery spaces;<br><br>**C** = yellow for cargo spaces.<br><br>Identification number of the closing device may be shown at the bottom of the symbol. |
| 1.17 |  | Remote control for fire damper(s) | Colour of the circle and a letter at the right side of the symbol should indicate as follows:<br><br>**A** = blue for accommodation and service spaces;<br><br>**M** = green for machinery spaces;<br><br>**C** = yellow for cargo spaces.<br><br>Identification number of the damper may be shown. |

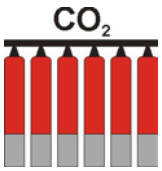
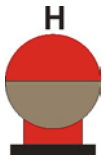
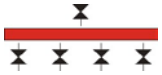
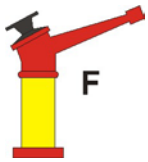
| No. | Graphical symbol | Reference | Comments on use |
|---|---|---|---|
| 1.18 |  | Remote control for closing device(s) for ventilation inlet and outlet | Colour of the circle and a letter at the right side of the symbol should indicate as follows:<br><br>**A** = blue for accommodation and service spaces;<br><br>**M** = green for machinery spaces;<br><br>**C** = yellow for cargo spaces.<br><br>Identification number of the closing device(s) may be shown. |

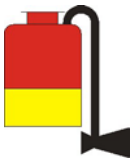
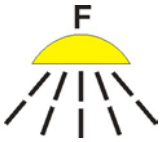
**Graphical symbols for fire-protection appliances**

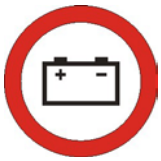
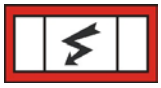
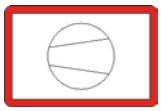
| No. | Graphical symbol | Reference | Comments on use |
|---|---|---|---|
| 2.1 |  | Fire protection appliances or Structural fire protection plan | |
| 2.2 |  | Remote control for fire pump(s) | |
| 2.3 |  | Fire pump(s) | The type, quantity of water delivered per time unit, and pressure head shall be indicated either at the right side of the symbol or in the legend. |
| 2.4 |  | Remote control for emergency fire pump or fire pump supplied by the emergency source of power | |
| 2.5 |  | Emergency fire pump | The type, quantity of water delivered per time unit, and pressure head shall be indicated either at the right side of the symbol or in the legend. |

| No. | Graphical symbol | Reference | Comments on use |
|---|---|---|---|
| 2.6 |  | Fuel pump(s) remote shut-off | |
| 2.7 |  | Lube oil pump(s) remote shut-off | |
| 2.8 |  | Remote control for bilge pump(s) | |
| 2.9 |  | Remote control for emergency bilge pump | |
| 2.10 |  | Remote control for fuel oil valves | |
| 2.11 |  | Remote control for lube oil valves | |
| 2.12 |  | Remote control for fire pump valve(s) | |
| 2.13 |   | Remote release station | Indicate at the bottom of the symbol the protected space. Extinguishing media should be colour coded in the lower part of the symbol and be indicated by a letter at the right side of the symbol as follows: grey – **$CO_2$** for carbon dioxide or **N** for nitrogen, brown – **H** for gas other than $CO_2$ or N (type of gas to be indicated), white – **P** for powder, green – **W** for water. |

| No. | Graphical symbol | Reference | Comments on use |
|---|---|---|---|
| 2.14 |  | International shore connection | |
| 2.15 |  | Fire hydrant | |
| 2.16 |  | Fire main section valve | Indicate the reference number of the valve at the right side of the symbol. |
| 2.17 |  | Sprinkler section valve | Indicate the reference number of the valve at the right side of the symbol.<br><br>This symbol may also be applied to equivalent water-extinguishing systems.<br><br>Valves for automatic dry-pipe sprinkler systems should be indicated in the legend. |
| 2.18 |  | Powder section valve | Indicate the reference number of the valve at the right side of the symbol. |
| 2.19 |  | Foam section valve | Indicate the reference number of the valve at the right side of the symbol. |
| 2.20 |  | Fixed fire-extinguishing installation | Extinguishing media should be colour-coded in the centre part of the symbol and indicated by a letter on top of the symbol as follows: grey – **$CO_2$** for carbon dioxide or **N** for nitrogen, yellow – **F** for foam, brown – **H** for gas other than $CO_2$ or N (type of gas to be indicated), white – **P** for powder, green – **W** for water. |

| No. | Graphical symbol | Reference | Comments on use |
|---|---|---|---|
| 2.21 |  | Fixed fire-extinguishing battery | Extinguishing media should be colour-coded in the lower part of the symbol and indicated by a letter on top of the symbol as follows: grey – **$CO_2$** for carbon dioxide or **N** for nitrogen, yellow – **F** for foam, brown – **H** for gas other than $CO_2$ or N (type of gas to be indicated), white – **P** for powder, green – **W** for water. |
| 2.22 |  | Fixed fire-extinguishing bottle, placed in protected area | Extinguishing media should be colour-coded in the lower part of the symbol and indicated by a letter on top of the symbol as follows: grey – **$CO_2$** for carbon dioxide or **N** for nitrogen, yellow – **F** for foam, brown – **H** for gas other than $CO_2$ or N (type of gas to be indicated), white – **P** for powder, green – **W** for water. |
| 2.23 |  | High expansion foam supply trunk (outlet) | Indicate at the bottom of the symbol the protected space, if necessary. |
| 2.24 |  | Water spray system valves | Indicate at the bottom of the symbol the protected space, if necessary. |
| 2.25 |  | Inert gas installation | |
| 2.26 |  | Monitor | Extinguishing media should be colour-coded in the centre part of the symbol and indicated by a letter on top of the symbol as follows: yellow – **F** for foam, white – **P** for powder, green – **W** for water. |
| 2.27 |  | Fire hose and nozzle | Indicate the hose length at the right side of the symbol; where only one type of hose is used, the information can be shown in the legend. Extinguishing media should be colour-coded in the lower part of the symbol and indicated by a letter on top of the symbol as follows: yellow – **F** for foam, white – **P** for powder, green – **W** for water. |

| No. | Graphical symbol | Reference | Comments on use |
|---|---|---|---|
| 2.28 |  | Fire extinguisher | Indicate type of extinguishing media (**$CO_2$** for carbon dioxide, **F** for foam, **H** for gas other than $CO_2$ (type of gas to be indicated), **P** for powder, **W** for water) and capacity (kg for gas and powder, litres for water and foam) at the right side of the symbol. Media should be colour-coded in the lower part of the symbol as follows: grey for carbon dioxide, yellow for foam, brown for gas other than $CO_2$, white for powder, green for water. |
| 2.29 |  | Wheeled fire extinguisher | Indicate type of extinguishing media (**$CO_2$** for carbon dioxide, **F** for foam, **H** for gas other than $CO_2$ (type of gas to be indicated), **P** for powder, **W** for water) and capacity (kg for gas and powder, litres for water and foam) at the right side of the symbol. Media should be colour-coded in the lower part of the symbol as follows: grey for carbon dioxide, yellow for foam, brown for gas other than $CO_2$, white for powder, green for water. |
| 2.30 |  | Portable foam applicator unit or relevant spare tank(s) | |
| 2.31 |  | Fire locker | Indicate the number of the fire locker at the right side of the symbol. The principal contents of each fire locker should be indicated in the legend. |
| 2.32 |  | Space or group of spaces protected by fire-extinguishing system | Indicate type of extinguishing media (**$CO_2$** for carbon dioxide, **F** for foam, **H** for gas other than $CO_2$ (type of gas to be indicated), **P** for powder, **W** for water, **S** for sprinkler or high pressure water extinguishing system) and capacity (kg for gas and powder, litres for water and foam) at the top of the symbol. Add suffix "L" for fixed local application fire fighting system. Media should be colour-coded in the symbol as follows: grey for carbon dioxide, yellow for foam, brown for gas other than $CO_2$, white for powder, green for water, orange for sprinkler or high pressure water extinguishing system. |

| No. | Graphical symbol | Reference | Comments on use |
|---|---|---|---|
| 2.33 |  | Water fog applicator | |
| 2.34 |  | Emergency source of electrical power (generator) | |
| 2.35 |  | Emergency source of electrical power (battery) | |
| 2.36 |  | Emergency switchboard | |
| 2.37 |  | Air compressor for breathing devices | |
| 2.38 |  | Control panel for fire detection and alarm system | |
| 2.39 |  | Push button/switch for general alarm | |
| 2.40 |  | Manually operated call point | The use of this symbol is optional at the discretion of the competent authority. |

| No. | Graphical symbol | Reference | Comments on use |
|---|---|---|---|
| 2.41 |  | Space or group of spaces monitored by smoke detector(s) | The space(s) shall be identified. |
| 2.42 |  | Space or group of spaces monitored by heat detector(s) | The space(s) shall be identified. |
| 2.43 |  | Space or group of spaces monitored by flame detector(s) | The space(s) shall be identified. |
| 2.44 |  | Space monitored by gas detector(s) | |

**Graphical symbols for means of escape and escape related devices**

| | | | |
|---|---|---|---|
| 3.1 |  | Primary escape route | |
| 3.2 |  | Secondary escape route | |
| 3.3 |  | Emergency escape breathing device (EEBD) | Indicate the quantity of the EEBDs stowed at the right side of the symbol. |

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# ANNEX 9

## DRAFT MSC CIRCULAR

## UNIFIED INTERPRETATIONS OF THE REVISED GUIDELINES FOR APPROVAL OF SPRINKLER SYSTEMS EQUIVALENT TO THAT REFERRED TO IN SOLAS REGULATION II-2/12 (RESOLUTION A.800(19))

1 The Maritime Safety Committee, at its [seventy-seventh session (28 May to 6 June 2002)], with a view to ensuring uniform application of the Revised Guidelines for approval of sprinkler systems equivalent to that referred to in SOLAS regulation II-2/12 (resolution A.800(19)), containing vague wording which is open to diverging interpretations, approved the unified interpretations relating to the approval of fixed sprinkler systems set out in the annex.

2 Member Governments are invited to use the annexed unified interpretations as guidance when applying relevant provisions of the aforementioned guidelines and to bring them to the attention of all parties concerned.

ANNEX

**UNIFIED INTERPRETATIONS OF THE REVISED GUIDELINES FOR APPROVAL OF SPRINKLER SYSTEMS EQUIVALENT TO THAT REFERRED TO IN SOLAS REGULATION II-2/12 (RESOLUTION A.800(19))**

**Paragraph 3.22**

The required flow to be used for calculating the size of the pumps and alternative supply components should be determined to ensure availability of flows and pressures required for acceptable performance within the most demanding area, but not less than 280 $m^2$ in accordance with one of the two following options:

Option 1: Pump driven systems tested with constant pressure and flowrate should provide the tested pressures and flows within the most demanding 280 $m^2$.

Option 2: Pump driven systems tested with decreasing pressure need to comply with the following three conditions:

.1 the system should provide the maximum pressure and flowrate to a minimum of nine nozzles;

.2 the system should provide the maximum pressure and flowrate to a minimum of 100 $m^2$; and

.3 the system should provide not less than the minimum pressure and flowrate for the most demanding 280 $m^2$.

***

# ANNEX 10

## DRAFT MSC CIRCULAR

## CODE OF PRACTICE FOR ATMOSPHERIC OIL MIST DETECTORS

1 The Maritime Safety Committee, at its [seventy-seventh session (28 May to 6 June 2003)], taking into account that most engine-room fires are the result of the formation of oil mist, that sectors within the shipping industry have been actively fitting oil mist detection equipment and following the recommendation of the forty-seventh session of the Sub-Committee on Fire Protection, approved a Code of practice for atmospheric oil mist detectors set out in the annex.

2 Member Governments are invited to bring the attached Code of practice to the attention of shipbuilders, shipowners, ship operators, shipmasters and other parties concerned with the manufacture and installation of oil mist detectors.

ANNEX

## CODE OF PRACTICE FOR ATMOSPHERIC OIL MIST DETECTORS

1 In an ideal world, the simple solution for preventing oil mist fires is to ensure no leaks occur in the first instance, but the harsh reality is that oil mist fires do occur and the problem needs to be addressed. One practical answer is to install an oil mist detection system that will detect an oil mist before it can reach levels where it saturates the atmosphere to such an extent that there is a risk of fire.

2 It is generally accepted that oil mist can be formed in one of two ways:

.1 minute leaks in oil lines which, under pressure, produce a very fine atomised spray; or

.2 oil, when allowed to come into contact with a hot surface, will boil off producing a fine vapour.

3 In the first instance, the danger occurs when the particle size formed is between 3 to 10 microns and is allowed to form a mist in the atmosphere. When oil vapour reaches the range of flammability, the condition can be classed as truly hazardous and, if no action is taken, a fire may result. The ignition temperature for this type of oil mist can be extremely low depending on the type of oil being atomised.

4 Oil mists generated by being boiled off can produce particles between 3 to 10 microns. This mist is visible and is known as a blue smoke. Temperature and area of surface contact affect the rate of oil mist generation. At this stage, a temperature as low as 150˚C could result in ignition.

5 Sources of oil mist include pump seals, leaking injectors; loose or incorrectly fitted pipe fittings, weld fractures and poor maintenance of machinery.

6 Possible heat sources causing the ignition include heat exchangers, exhaust pipes, turbocharger, electrical contacts, static electricity, faulty wiring and high- and low-pressure turbines.

7 Types of detection systems:

.1 single sampling units; and

.2 multiple sampling systems

8 Location of detectors and sampling lines

8.1 In each case, the number of detectors or sampling points to be used is dependent on the size and layout of the particular application. For a single point application, the unit may be mounted next to the application or connected via a sampling line. Multiple sampling systems are fitted in a suitable location away from the application. Sample lines are fed to a common manifold with a suitable control unit to allow alternative samples to be taken from continuously flowing sample streams, thus one unit can be utilised to monitor several points. The oil mist may be drawn into the unit by its own built in fan or by an independent blower.

8.2 To determine suitable positions for mounting detectors or for fitting sampling lines, a smoke test would be required to verify air movements in relation to application. In general, air will move towards ventilation extractors and turbo chargers, so any detector or sampling line should be positioned as close as possible to the machinery. Likewise, detectors or sampling lines should not be sighted next to ventilation blowers as these will prevent mist formation from being drawn into the unit. On installation, a smoke test should be carried out with all engines, ventilation and machinery fully operational to ensure that detectors/sampling lines are correctly positioned.

8.3 If detector units are to be located close to the source of application, care should be taken to avoid locating the unit in places where: vibration is excessive; extremes of temperature may be experienced; it would be difficult for maintenance personnel to gain access; high levels of humidity and water may occur; and there is a risk of electromagnetic interference.

8.4 Locating of any detector in an explosive atmosphere should not undertaken unless the unit is certified intrinsically safe for the hazard area.

9 Setting alarm levels

9.1 This may be determined by the requirements of the end user. In general, there are likely to be two stages: first an early warning that something is wrong; and then a secondary alarm indicating a full alarm. These should be advisory and the monitor should be able to define the areas where oil mist has been detected. In certain circumstances, alarms may be used to shut down individual sections of the plant if deemed necessary, but there should be an overriding control.

9.2 The alarm level set initially should take into account the atmospheric condition when there is no problem, for example there is always a small amount of mist generated within an oil purifier room. The initial level set will change with each application, but should not exceed concentrations of greater than 2 ppm atmospheric oil content. Alarm levels will be indicated as the level rises to certain preset percentages of this set value.

10 Test procedure

10.1 As with most electronic equipment, units should be fixed by the components used in the design stage and have built-in calibration routines to correct slight deviations.

10.2 The manufacturer should calibrate the detector against a known oil mist measurement. No adjustment to the calibration should be possible by the user. It is not satisfactory to set up a system against an electronic procedure or a piece of filter glass. If deemed necessary, a calibration certificate should be issued.

11 Maintenance

There is very little maintenance which can be carried out on the units in relation to the electronic components. The main areas which will require attention are in line filters either in the sample line or within the unit itself. These will require either cleaning or replacement depending on the type, and recommendations of the detector manufacturer. Sensor faces will also require cleaning periodically with approved cleaner to clean any oil film build up. Some detectors may have built-in fault diagnostic circuitry which will give an indication that cleaning is required or that filters need attention due to fall off in flow.

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# ANNEX 11

## DRAFT MSC CIRCULAR

## GUIDELINES FOR PARTIALLY WEATHERTIGHT HATCHWAY COVERS ON BOARD CONTAINERSHIPS

1 The Maritime Safety Committee, at its [seventy-seventh session (28 May to 6 June 2003)], recognizing the need to standardize the conditions for the fitting of partially weathertight hatchway covers on containerships and to develop recommendations on installation of such covers on containerships, and having considered proposals by the forty-fifth session of the Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety (SLF), the seventh session of the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers (DSC) and the forty-seventh session of the Sub-Committee on Fire Protection (FP), approved the Guidelines for partially weathertight hatchway covers on board containerships, as set out in the annex.

2 Member Governments are invited to bring the annexed Guidelines to all the parties concerned for their application, as appropriate, urging them, in particular, to apply the measures for construction and equipment contained in sections 1 and 2 of the Guidelines to ships constructed on or after [1 January 2004] and to implement the operational measures contained in section 3 of the Guidelines as soon as possible for all ships.

ANNEX

# GUIDELINES FOR PARTIALLY WEATHERTIGHT HATCHWAY COVERS ON BOARD CONTAINERSHIPS

## 1 LOCATION OF HATCHWAYS, HEIGHT OF COAMINGS AND WEATHERTIGHTNESS OF HATCHWAY COVERS

### 1.1 Introduction

Requirements relating to the height of coamings and to the weathertightness of hatchway covers located above the superstructure deck are left to the discretion of the Administration, pursuant to regulation 14(2) of the International Convention on Load Lines (LL), 1966. This section of the Guidelines is intended to serve as a guide when decisions are made on whether to accept partially weathertight hatchway covers on board containerships, in accordance with regulation 14(2) of the 1966 LL Convention.

### 1.2 Design considerations and criteria

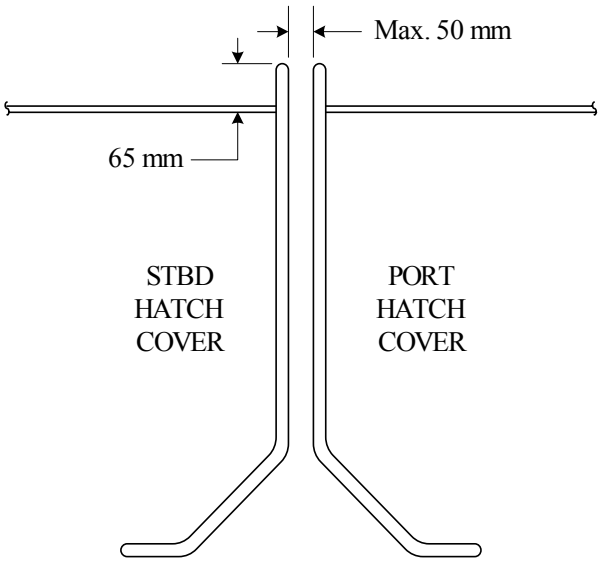
1.2.1 Coamings and hatchway covers to exposed hatchways situated above the second superstructure tier or its equivalent, or above the third tier or its equivalent, in the forward quarter of the ship's length, may be regarded as being situated above the superstructure deck, for the purpose of giving effect to regulation 14(2) of the 1966 LL Convention. Partially weathertight hatch covers fitted to hatchways situated in such locations may be accepted subject to the following conditions.

1.2.2 Coamings and hatchway covers may be fitted to hatchways located on exposed decks situated at least two standard superstructure heights above the actual freeboard deck or an assumed freeboard deck, on the basis of which a calculation of the freeboard may be made corresponding to the draught, which should be not less than that which would correspond to the freeboard actually assigned to the ship. If any part of the hatchway is forward of a point located a quarter of a ship's length (0.25L) from the forward perpendicular, this hatchway should be located on an exposed deck which is situated at least three standard superstructure heights above the actual or assumed freeboard. It should be noted that use is made of a notional freeboard deck solely for the purpose of measuring the height of the deck on which hatchways are located; it may consist of an imaginary or a virtual deck which, under such circumstances, is not used for the actual assignment of the freeboard. The freeboard of the ship should be assigned on the basis of an actual deck, referred to as the *freeboard deck*, which should be determined in accordance with the provisions of the 1966 LL Convention and of IACS Unified Interpretation LL39 contained in LL.3/Circ.77.

1.2.3 The height of the hatchway coamings should not be less than 600 mm.

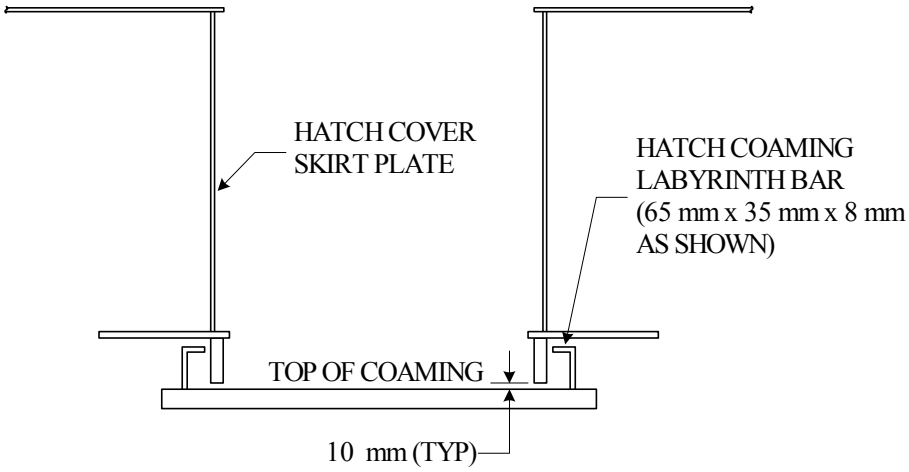
1.2.4 Non-weathertight gaps between the hatchway covers should be regarded as unprotected openings with respect to the requirements relating to intact stability and damage stability calculations. The gaps should also be as small as possible and proportional to the capacity of the bilge pumping system and the estimated amount of water penetration, as well as to the capacity and the operational efficiency of the fire-extinguishing system, and in any case should be not more than 50 mm.

1.2.5 Labyrinths, gutters or other equivalent means should be fitted close to the edges of each hatch cover at right angles with the openings in order to reduce to a minimum the quantity of water that might penetrate into the hold from the upper surface of each cover. Figures 1.2.5-1 and 1.2.5-2 are examples of labyrinth and gutter arrangements.




INTERFACE BETWEEN PORT AND STARBOARD HATCH COVERS
(LOOKING AFT)

**Figure 1.2.5-1**




HATCH COVER INTERFACE WITH HATCH COAMING LABYRINTH BAR
(LOOKING INBOARD)

**Figure 1.2.5-2**

1.2.6 Scantlings for hatchway covers and the components of clamping devices used to secure the covers to the structure supporting them and the coamings, should be at the very least equivalent to those applying to weathertight hatchway covers and be in accordance with the relevant provisions of a recognized organization[1] or with the appropriate national standards established by the Administration and which provide for an equivalent level of safety.

## 2 INCREASE OF CARBON DIOXIDE FIRE-EXTINGUISHING MEDIA FOR FIXED GAS FIRE-EXTINGUISHING SYSTEMS

### 2.1 Introduction

This section of the Guidelines is intended to serve as a guide when decisions are made on whether to accept partially weathertight hatchway covers on board containerships in accordance with SOLAS regulations II-2/10.7.1.1 and II-2/20.6.1.1, and the relevant provisions of the Fire Safety Systems Code (chapter 5, paragraph 2.2.1.1), taking into account the leakage of carbon dioxide fire-extinguishing media through clear gaps between hatchway covers.

### 2.2 Increase of carbon dioxide fire-extinguishing media

If a container cargo hold fitted with partially weathertight hatchway covers is protected by a fixed carbon dioxide fire-extinguishing system, the amount of carbon dioxide for the cargo space should be increased in accordance with one of the following formulae, as appropriate:

$$CO_2^{INC}{}_{30\%} = 60 \cdot A_T \cdot \sqrt{B/2} \qquad (2.2-1)$$

$$CO_2^{INC}{}_{45\%} = 4 \cdot A_T \cdot \sqrt{B/2} \qquad (2.2-2)$$

where:

$CO_2^{INC}{}_{30\%}$: increase of carbon dioxide for cargo spaces not intended for carriage of motor vehicles with fuel in their tanks for their own propulsion (kg);

$CO_2^{INC}{}_{45\%}$: increase of carbon dioxide for cargo spaces intended for carriage of motor vehicles with fuel in their tanks for their own propulsion (kg);

$A_T$: total maximum area of clear gaps ($m^2$); and

$B$: breadth of cargo space protected by the carbon dioxide fire-extinguishing systems (m).

[1] Recognized organization means an organization that has been recognized in accordance with SOLAS regulation XI/1.

## 3 STOWAGE AND SEGREGATION OF CARGO TRANSPORT UNITS CONTAINING DANGEROUS GOODS

### 3.1 Introduction

This section of the Guidelines is intended to serve as a guide when decisions are made on the stowage and segregation of cargo transport units (CTUs) containing dangerous goods on containerships fitted with partially weathertight hatchway covers. For the purpose of the stowage and segregation of CTUs containing dangerous goods on containerships fitted with partially weathertight hatchway covers, the effect of clear gaps, as defined below, should be taken into consideration. The effects of other structures such as labyrinths are not considered, as no clear path exists into the hold.

### 3.2 Definitions

For the purpose of the application of this section of the Guidelines:

.1 "clear gap" means a clear unobstructed passage between hatchway covers that provides a path for dangerous goods to enter the cargo hold;

.2 "effective gutterbar" means a gutterbar the height of which is not less than 50 mm and also includes labyrinth bar; and

.3 "sensitive vertical line" means a vertical line under deck within one container space from a clear gap in athwartships direction(s) as specified by "C" in figures 3.2.3-1 and 3.2.3-2 or equivalent.

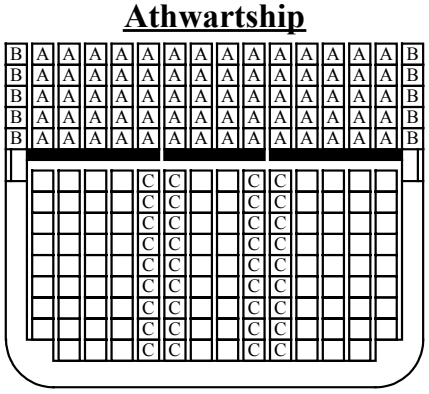



**Illustration of vertical lines**
**Figure 3.2.3-1**

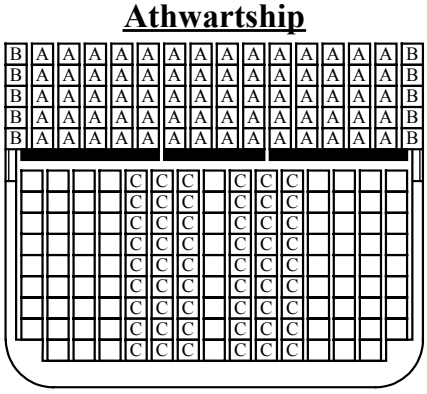



**Illustration of vertical lines**
**Figure 3.2.3-2**

Note: Vertical row positions "on-deck", not directly above clear gaps between hatchway covers, are specified by "A". Vertical row positions with less than 50% footing on the hatch, are specified by "B". Where containers are placed in the outermost vertical row positions with more than 50% footing on the hatch cover are deemed to qualify as position(s) "A".

### 3.3 Partially weathertight hatchway covers fitted with effective gutterbars

Partially weathertight hatchway covers fitted with effective gutterbars can be regarded as "resistant to fire and liquid" for the purposes of stowage and segregation of CTUs containing

dangerous goods on containerships fitted with such hatchway covers. Therefore, no special provision, other than those set out in paragraph 3.4, applies to the stowage and segregation of CTUs containing dangerous goods on or under the hatchway covers fitted with effective gutterbars. Gutterbars showing any visible structural damage, which would reduce their effectiveness, do not meet the definition in paragraph 3.2.2.

## 3.4 **Special requirement for "on-deck" stowage**

### 3.4.1 *Prohibition of stowage directly above clear gaps*

CTUs containing dangerous goods should not be stowed in the vertical lines specified by "X" in figure 3.4.1, above cargo holds fitted with partially weathertight hatchway covers having a clear gap, unless the cargo hold complies with the relevant requirements for the class and flash point of the dangerous goods in SOLAS regulation II-2/19. When "not in the same vertical line unless separated by a deck" is required in the IMDG Code and CTUs containing dangerous goods are stowed in position "X" in figure 3.4.1, CTUs containing incompatible dangerous goods should not be stowed under deck in vertical lines indicated by "C" in figures 3.2.3-1 or 3.2.3-2.

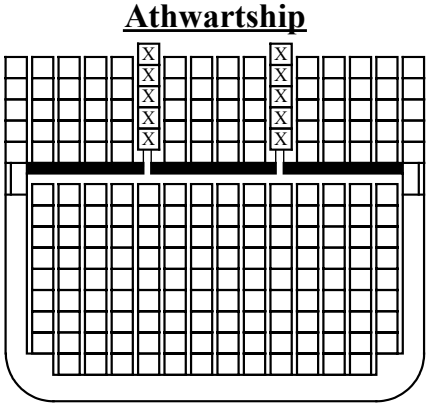



**Illustration of prohibited stowage of dangerous goods**
**Figure 3.4.1**

### 3.4.2 *Special requirement for on deck stowage of CTUs above hatchway covers without effective gutterbars*

Where hatchway covers are not fitted with effective gutterbars, CTUs containing dangerous goods should not be stowed in the vertical lines specified by "A" in figures 3.2.3-1 and 3.2.3-2, above cargo holds fitted with partially weathertight hatchway covers, unless the cargo hold complies with the relevant requirements for the class and flash point of the dangerous goods in SOLAS regulation II-2/19.

### 3.4.3 *On deck stowage of CTUs above cargo hold with effective gutterbars*

Where hatchway covers are fitted with effective gutterbars, CTUs containing dangerous goods can be stowed in all vertical lines specified by "A" and "B" in figures 3.2.3-1 and 3.2.3-2 except as provided in paragraph 3.4.1, above cargo holds fitted with partially weathertight hatchway covers, regardless of whether the cargo hold under the hatchway cover complies with the relevant requirements in SOLAS regulation II-2/19.

## 3.5 **Special requirement for segregation**

### 3.5.1 *Special requirement for segregation and stowage of CTUs on partially weathertight hatchway covers without effective gutterbars*

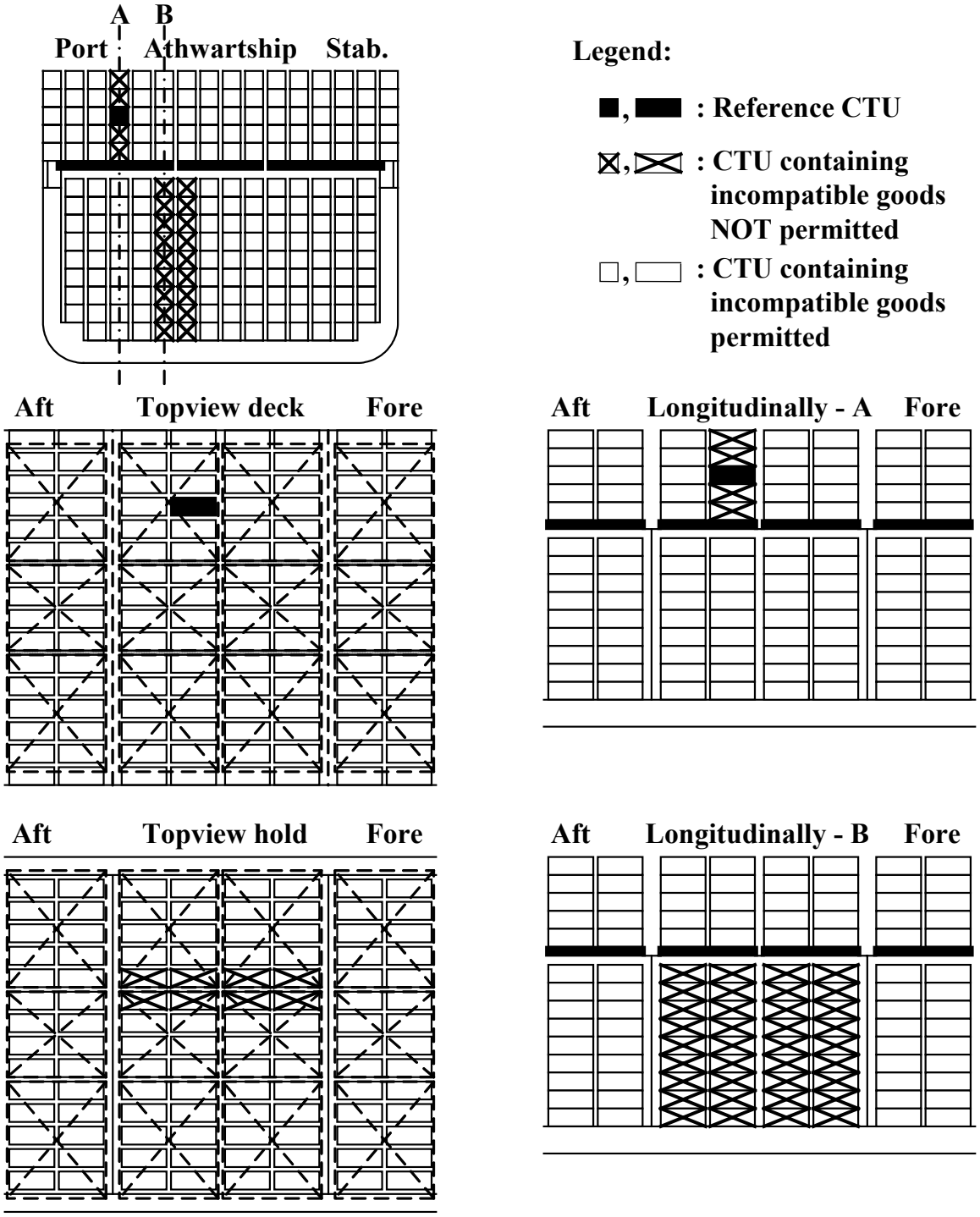
Where "not in the same vertical line unless separated by a deck" is required in the IMDG Code the following applies:

.1 when the reference CTU is stowed on deck in positions specified by "A" in figures 3.2.3-1 and 3.2.3-2, CTUs containing incompatible dangerous goods should not be stowed within the relevant sensitive vertical lines under deck. Examples are illustrated in figures 3.5.1-1 and 3.5.1-2; and

.2 when the reference CTU is stowed under deck in positions as specified by "C" in figures 3.2.3-1 and 3.2.3-2, CTUs containing incompatible dangerous goods should not be stowed on the hatches above the hold. Example is illustrated in figure 3.5.1-3.

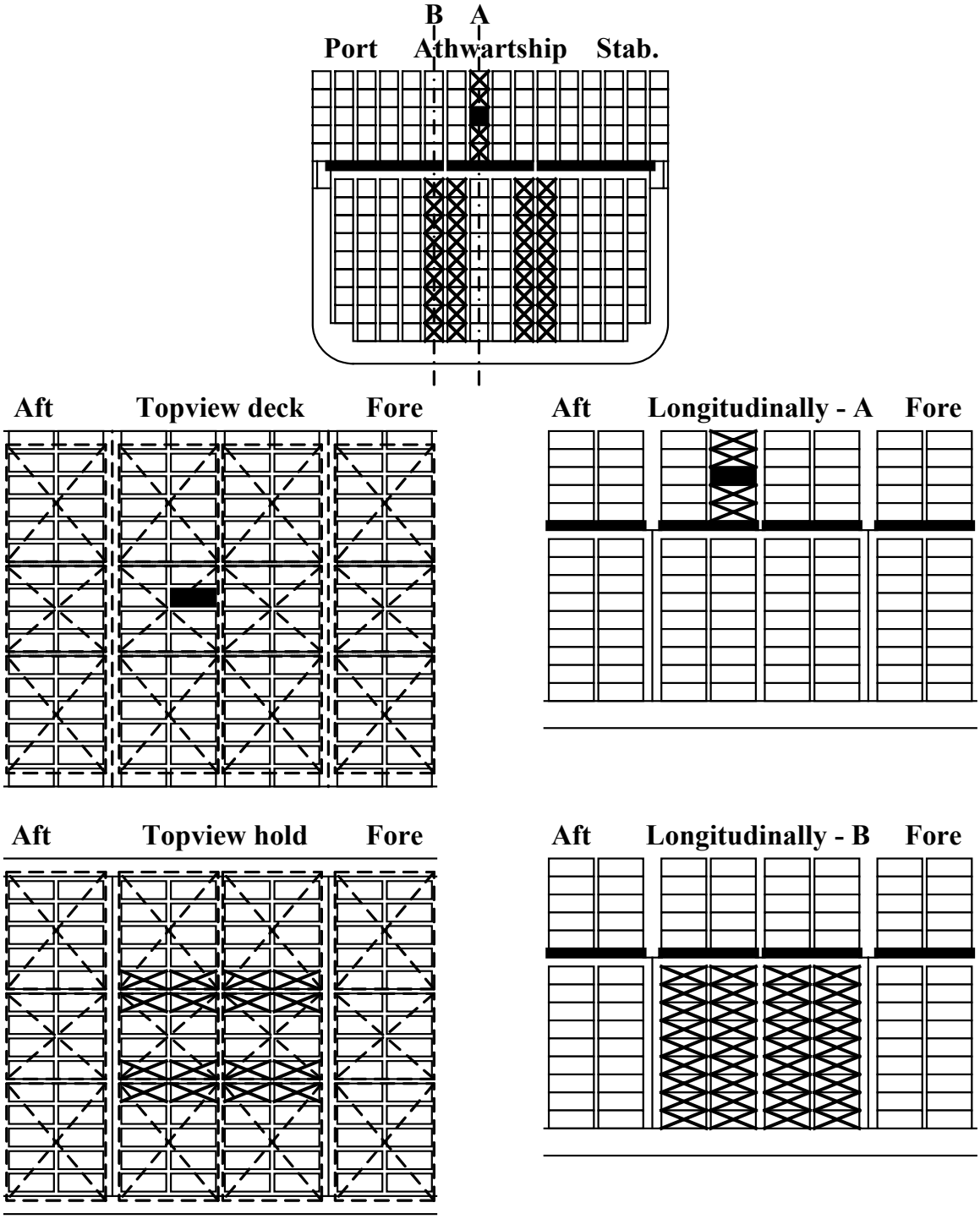
### 3.5.2 *Segregation of CTUs related to hatchway covers with effective gutterbars*

Where hatchway covers are fitted with effective gutterbars, segregation of CTUs containing dangerous goods on board containerships should be in accordance with the segregation requirements in paragraph 7.2.3.2 of the IMDG Code for containerships.



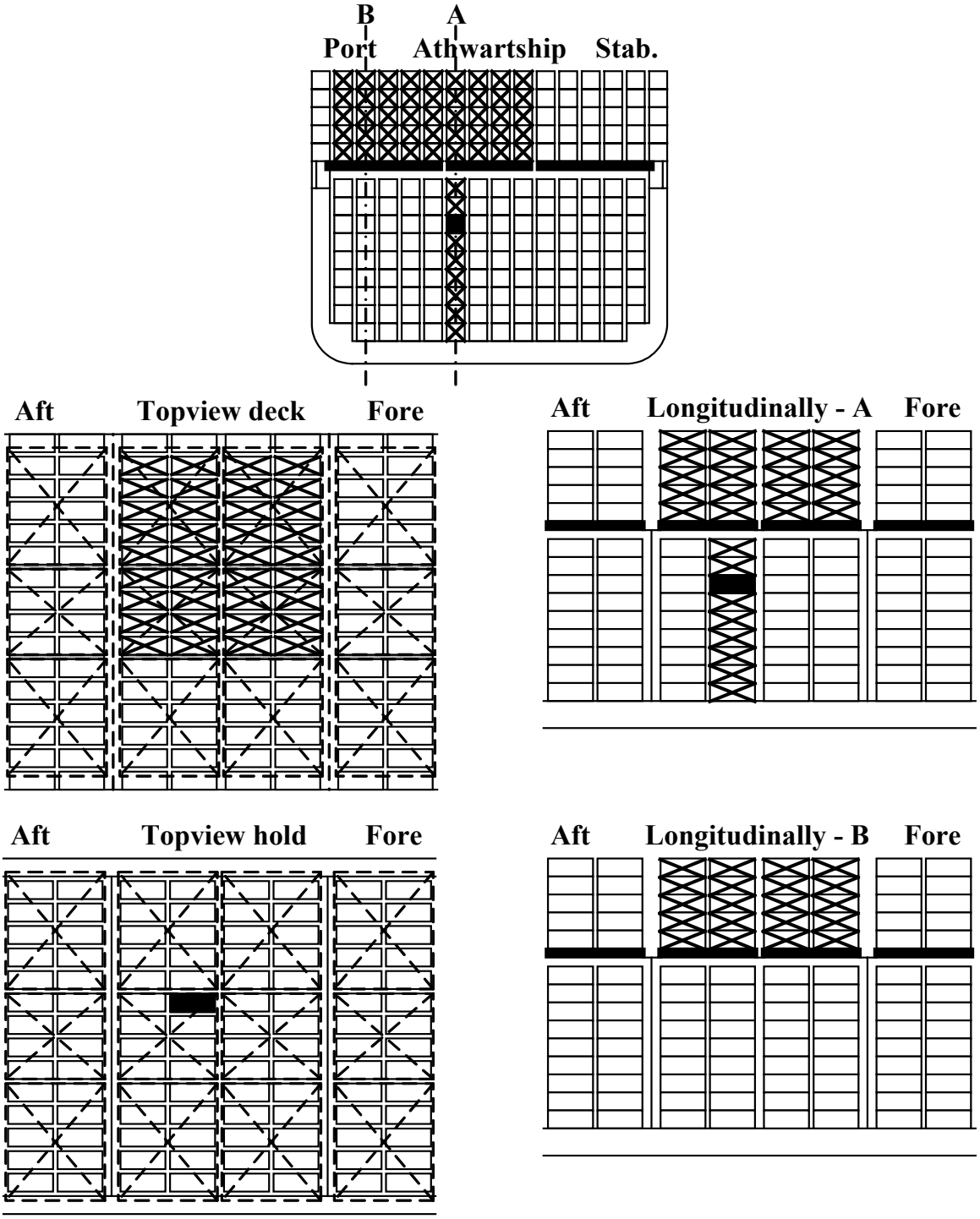

**Example of segregation within sensitive vertical lines (reference CTU is above left hatchway cover)**

**Figure 3.5.1-1**




**Example of segregation within sensitive vertical lines**
**(reference CTU is above centre hatchway covers)**

**Figure 3.5.1-2**




**Example of segregation within sensitive vertical lines**
**(reference CTU is in sensitive vertical line under deck)**

**Figure 3.5.1-3**

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# ANNEX 12

## PROPOSED REVISED WORK PROGRAMME OF THE SUB-COMMITTEE AND PROVISIONAL AGENDA FOR FP 48

### Proposed Revised Work Programme of the Sub-Committee

| | | Target completion date/number of sessions needed for completion | Reference |
|---|---|---|---|
| 1 | **Analysis of fire casualty records** | Continuous | FSI 8/19, section 11; FP 47/16, section 4 |
| | ~~.1 **use of smoke helmet type breathing apparatus**~~ | ~~2003~~ | ~~FP 46/16, paragraph 13.1.4.1; MSC 75/24, paragraph 22.18~~ |
| | ~~.2~~ .1 **revision of the fire casualty record** | ~~2003~~ 2004 | MSC 75/24, paragraph 22.18; FP 47/16, paragraph 4.16 |
| H.1 | **Unified interpretations of SOLAS chapter II-2, the FSS Code and related fire test procedures** | 2004 | FP 43/18, paragraphs ~~5.7, 7.25 and~~ 5.3.5.1; FP 47/16, section 3 |
| H.2 | **Large passenger ship safety** | ~~2003~~ 2004 | MSC 74/24, paragraph 21.4; FP 47/16, section 7 |
| H.3 | **Revision of the fishing vessel Safety Code and Voluntary Guidelines** (co-ordinated by SLF) | ~~2003~~ 2004 | MSC 74/24, paragraph 21.5; FP 47/16, section 6 |
| H.4 | **Performance testing and approval standards for fire safety systems** | 2005 | MSC 74/24, paragraph 21.12; FP 47/16, section 8 |
| ~~H.5~~ | ~~**Guidelines for the manufacture and installation of oil mist detectors**~~ | ~~2004~~ | ~~MSC 75/24, paragraph 22.20~~ |

**Notes:** 1 "H" means a high priority item and "L" means a low priority item. However, within the high and low priority groups, items have not been listed in any order of priority.

2 The struck-out text indicates proposed deletions and the shaded text shows proposed additions or changes.

3 Items printed in bold letters have been selected for the provisional agenda for FP 48.

| | | Target completion date/number of sessions needed for completion | Reference |
|---|---|---|---|
| ~~H.6~~ H.5 | **Revision of the gas concentration limit on sulphur dioxide for floor coverings** | 2004 | MSC 75/24, paragraph 22.21; FP 47/16, section 10 |
| ~~H.7~~ H.6 | **Review of the OSV Guidelines** (co-ordinated by DE) | ~~3 sessions~~ 2006 | MSC 75/24, paragraph 22.4; FP 47/16, paragraph 13.3.3.1 |
| ~~H.8~~ H.7 | **Use of directional sound for passenger evacuation** | 2004 | MSC 75/24, paragraph 22.19; FP 47/16, section 11 |
| ~~H.9~~ H.8 | **Review of the 2000 HSC Code and amendments to the DSC Code and the 1994 HSC Code** | ~~2 sessions~~* 2005 | MSC 76/23, paragraphs 8.19 and 20.4; FP 47/16, paragraph 13.3.3.2 |
| ~~H.10~~ H.9 | **Consideration of IACS unified interpretations** | 2004 | MSC 76/23, paragraph 20.3; FP 47/16, section 12 |
| ~~L.1~~ | ~~**Revision of resolution A.654(16)**~~ | ~~2003~~ | ~~FP 41/22, section 12; FP 46/16, section 8~~ |
| ~~L.2~~ L.1 | **Recommendation on evacuation analysis for new and existing passenger ships** | ~~2 sessions~~ 2005 | MSC 73/21, paragraph 4.16; FP 47/16, paragraph 13.3.3.3 |
| ~~L.3~~ L.2 | Smoke control and ventilation | 2 sessions | FP 39/19, section 9; FP 46/16, section 4 |

~~* The work on the item should commence in 2004 as part of the next scheduled review of the 2000 HSC Code.~~

**Proposed provisional agenda for FP 48***

Opening of the session

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 Unified interpretations of SOLAS chapter II-2, the FSS Code and related fire test procedures

4 Large passenger ship safety

5 Performance testing and approval standards for fire safety systems

6 Revision of the fishing vessel Safety Code and Voluntary Guidelines

7 Revision of the gas concentration limit on sulphur dioxide for floor coverings

8 Review of the OSV Guidelines

9 Use of directional sound for passenger evacuation

10 Review of the 2000 HSC Code and amendments to the DSC Code and the 1994 HSC Code

11 Consideration of IACS unified interpretations

12 Recommendation on evacuation analysis for new and existing passenger ships

13 Analysis of fire casualty records: revision of the fire casualty record

14 Work programme and agenda for FP 49

15 Election of Chairman and Vice-Chairman for 2005

16 Any other business

17 Report to the Maritime Safety Committee

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* Agenda item numbers do not necessarily indicate priority.