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Agenda item 9

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**REVIEW AND UPDATE SOLAS REGULATION II-2/9 ON CONTAINMENT OF FIRE TO
INCORPORATE EXISTING GUIDANCE AND CLARIFY REQUIREMENTS**

Existing IACS guidance on SOLAS regulation II-2/9

Submitted by IACS

SUMMARY

Executive summary: This document proposes to consider the existing IACS guidance when amending SOLAS regulation II-2/9 to clarify requirements, eliminate ambiguities and make the regulation more comprehensive.

Strategic direction, if applicable: 7

Output: 7.48

Action to be taken: Paragraph 24

Related documents: SSE 9/14/2; SSE 10/17/1 and SSE 11/INF.3

Background

1 MSC 108 agreed to include the output on "Review and update SOLAS regulation II-2/9 on containment of fire to incorporate existing guidance and clarify requirements" in the provisional agenda of this session.

2 Since the adoption of the current SOLAS regulation II-2/9 in 2000, IACS has developed several unified interpretations to support the safe and consistent implementation of the requirements. Those interpretations are applied by all IACS members and, therefore, are well known within the industry and to the flag States.

3 IACS recommends that those existing guidance documents be considered when amending SOLAS regulation II-2/9 to help clarify requirements, eliminate ambiguities and make the regulation more comprehensive.

Discussion

4 Some of the IACS unified interpretations pertaining to SOLAS regulation II-2/9 have been published as MSC circulars. Document SSE 10/17/1 (IACS) proposes the incorporation of those MSC circulars into the revision of SOLAS regulation II-2/9.

5 The IACS unified interpretations which have not been published as IMO circulars, are listed in the table below and addressed in this document.*

SOLAS reference	IACS UI	Adoption year	Content
II-2/9.2.2.1	SC101/Rev.1	2005	Main vertical zones
II-2/9.2.2.2.3	SC107/Rev.1	2005	Continuous ceiling
II-2/9.2.3.3 and 9.2.4.2	SC45/Rev.1	2005	Fire integrity of bulkheads and decks
II-2/9.4.1.2 and 9.4.2.3	SC119/Rev.1	2005	Balancing ducts
II-2/9.7.2.1	SC192	2004	Arrangement of galley ducts
II-2/9.7.5.1.1.2 and 9.7.5.2.2	SC118/Rev.2	2015	Exhaust duct from galley ranges
II-2/9.7.5.1	SC108/Rev.1	2005	Galley exhaust duct
II-2/9.7.5.2	SC106/Rev.1	2005	Galley exhaust duct

Main vertical zones (SOLAS regulation II-2/9.2.2.1)

6 IACS UI SC101/Rev.1 provides guidance on the number of main vertical zones with a length above 40 m up to 48 m and clarifies that their number is not limited as long as they comply with all the requirements prescribed by SOLAS regulation II-2/9.2.2.1 for main vertical zones.

7 Together with the guidance in *Unified interpretations of SOLAS chapter II-2, the FSS Code, the FTP Code and related fire test procedures* (MSC.1/Circ.1120), IACS UI SC101/Rev.1 may be reflected in SOLAS regulation II-2/9.2.2.1.2 by introducing a new sub-paragraph as follows:

"2.2.1.2.1 If a stairway serves two main vertical zones (MVZ), the maximum length of one main vertical zone is to be measured from the far side of the main vertical zone stairway enclosure. In this case, all boundaries of the stairway enclosure are to be insulated as main vertical zone bulkheads and access doors leading into the stairway are to be provided from the zone. However, the stairway is not to be included in calculating the size of the main vertical zone if it is treated as its own main vertical zone.* The number of MVZ of 48 m length is not limited as long as they comply with all the requirements.

* [Refer to figures in the new MSC.1/Circ.XXXX, proposed to be developed].

Continuous ceiling (SOLAS regulation II-2/9.2.2.2.3)

8 IACS UI SC107/Rev.1 provides guidance in case an air gap remains between cabins after their installation or construction on board. If an air gap between cabins creates an opening in a continuous B-15 class ceiling, then the bulkheads on both sides of the gap must also be constructed to class B-15.

9 The guidance may be reflected in SOLAS regulation II-2/9.2.2.2.3, as follows:

"2.2.2 Bulkheads within a main vertical zone

* Throughout the document, tracked changes are indicated using "grey shading" to highlight new insertions and "strikethrough" to highlight deletion of the text.

2.2.2.3 Bulkheads required to be "B" class divisions, except corridor bulkheads as prescribed in paragraph 2.2.2.2, shall extend from deck to deck and to the shell or other boundaries. However, where a continuous "B" class ceiling or lining is fitted on both sides of a bulkhead which is at least of the same fire resistance as the adjoining bulkhead, the bulkhead may terminate at the continuous ceiling or lining.* If an air gap between cabins results in an opening in the continuous class B-15 ceiling, the bulkheads on both sides of the air gap are to be of class B-15."

* Refer to the *Guidelines on fire safety construction in accommodation areas* (MSC/Circ.917)."

Fire integrity of bulkheads and decks (SOLAS regulations II-2/9.2.3 and 9.2.4)

10 IACS UI SC45/Rev.1 clarifies fire risk categorization of spaces on board cargo ships and tankers.

11 The guidance may be reflected in SOLAS regulations II-2/9.2.3.3 and 9.2.4.2, as follows:

"(1) Control stations

Spaces containing emergency sources of power and lighting.

Battery rooms.

Wheelhouse and chartroom.

Navigation equipment room (radar transmitter).

Spaces containing the ship's radio equipment.

Fire control stations

Control room for propulsion machinery when located outside the machinery space.

Spaces containing centralized fire alarm equipment.";

"(5) Service spaces (low risk)

Lockers and store-rooms (including provision chambers) not having provisions for the storage of flammable liquids and having areas less than 4 m², refrigerated provision chambers (if thermally insulated with non-combustible material) and drying rooms and laundries.

Identifiable space containing electrical distribution boards and having a deck area of 4 m² or less"; and

"(9) Service spaces (high risk)

Galleys, pantries containing cooking appliances, saunas, paint lockers and store-rooms (including provision chambers) having areas of 4 m² or more, refrigerated provision chambers (if thermally insulated with combustible materials), spaces for the storage of flammable liquids, and workshops other than those forming part of the machinery spaces."

Balancing ducts (SOLAS regulations II-2/9.4.1.2 and II-2/9.4.2.3)

12 IACS UI SC119/Rev.1 clarifies that balancing openings between two spaces are allowed on "B" class doors or below cabins' toilet only.

- 13 The guidance may be reflected in SOLAS regulation II-2/9.4.1.2 as follows:

"4.1.2 Openings in "B" class divisions

4.1.2.1 Doors and door frames in "B" class divisions and means of securing them shall provide a method of closure which shall have resistance to fire equivalent to that of the divisions, this being determined in accordance with the Fire Test Procedure Code except that ventilation openings may be permitted in the lower portion of such doors. Where such opening is in or under a door, the total net area of any such opening or openings shall not exceed 0.05 m². Alternatively, a non-combustible air balance duct routed between the cabin and the corridor, and located below the sanitary unit, is permitted where the cross-sectional area of the duct does not exceed 0.05 m². All ventilation openings shall be fitted with a grill made of non-combustible material. Other balancing openings or ducts between two enclosed spaces are prohibited. Doors shall be non-combustible. Doors approved without the sill being part of the frame, which are installed on or after 1 July 2010, shall be installed such that the gap under the door does not exceed 25 mm."

- 14 The guidance may also be reflected in SOLAS regulation II-2/9.4.2.3, as follows:

"4.2 Doors in fire-resisting divisions in cargo ships

4.2.3 In corridor bulkheads, ventilation openings may be permitted in and under the doors of cabins and public spaces. Ventilation openings are also permitted in "B" class doors leading to lavatories, offices, pantries, lockers and store-rooms. Except as permitted below, the openings shall be provided only in the lower half of a door. Where such an opening is in or under a door, the total net area of any such opening or openings shall not exceed 0.05 m². Alternatively, a non-combustible air balance duct routed between the cabin and the corridor, and located below the sanitary unit, is permitted where the cross-sectional area of the duct does not exceed 0.05 m². Other balancing openings or ducts between two enclosed spaces are prohibited. Ventilation openings, except those under the door, shall be fitted with a grille made of non-combustible material."

Arrangement of galley ducts (SOLAS regulation II-2/9.7.2.1)

- 15 IACS UI SC192 clarifies that, on cargo ships of less than 4,000 GT and passenger ships carrying not more than 36 passengers, the provision of fire dampers where a ventilation unit serves some spaces and a galley simultaneously, the expression "in any case" means "for any duct section".

- 16 The guidance may be reflected in SOLAS regulation II-2/9.7.2.1, as follows:

"7.2 Arrangement of ducts

7.2.1 The ventilation systems for machinery spaces of category A, vehicle spaces, ro-ro spaces, galleys, special category spaces and cargo spaces shall, in general, be separated from each other and from the ventilation systems serving other spaces. However, the galley ventilation systems on cargo ships of less than 4,000 gross tonnage and in passenger ships carrying not more than 36 passengers need not be completely separated from other ventilation systems, but may be served by separate ducts from a ventilation unit serving other spaces. ~~In such a case~~ For any duct section, an automatic fire damper shall be fitted in the galley ventilation duct near the ventilation unit."

Exhaust duct from galley ranges (SOLAS regulations II-2/9.7.5.1 and 9.7.5.2)

17 IACS UI SC118/Rev.2 provides clarification about the fire dampers to be installed in the "lower end of the duct at the junction between the duct and the galley range hood". These fire dampers, in many cases part of the hood construction and supply, need not pass the fire test in either resolution A.754(18) or appendix 2 of part 3 of annex 1 of the 2010 FTP Code, but should be of steel and capable of stopping the draught. Furthermore, the UI clarifies that the requirements for "A" class apply only to the part of the duct outside of the galley.

18 IACS UI SC108/Rev.1 clarifies that "exhaust ducts from galley ranges" in paragraph 7.5.1 are considered all exhaust ducts in which grease or fat is likely to accumulate.

19 IACS UI SC106/Rev.1 refers to the provisions of paragraph 7.5.2 that grease trap, fire damper, fan shut-off and fire-fighting appliances to galley ranges exhaust ducts apply to exhaust ducts that pass through accommodation spaces or spaces containing combustible materials. The UI clarifies that the term "spaces containing combustible materials" will normally apply also to those spaces within the accommodation, which are not defined as accommodation spaces. For practical purposes, and for alignment with the provisions in paragraph 7.5.1.1, it is suggested to specify service spaces and control stations, noting the presence of furniture, and loose materials and products of any kind.

20 It is further considered that the explanatory sketches currently available in *Revised unified interpretations of SOLAS chapter II-2* (MSC.1/Circ.1276) and which is proposed to be compiled into a new guidance document in document SSE 11/9, would provide useful references in paragraphs 7.5.1 and 7.5.2.

21 The guidance specified in paragraphs 17, 18 and 20 above, may be reflected in SOLAS regulation II-2/9.7.5.1, as follows:

"7.5.1 Requirements for passenger ships carrying more than 36 passengers

7.5.1.1 In addition to the requirements in sections 7.1, 7.2 and 7.3, exhaust ducts from galley ranges shall be constructed in accordance with paragraphs 7.2.4.2.1 and 7.2.4.2.2 and insulated to "A-60" class standard throughout accommodation spaces, service spaces, or control stations they pass through.* They shall also be fitted with:

- .2 a fire damper located in the lower end of the duct at the junction between the duct and the galley range hood which is automatically and remotely operated and, in addition, a remotely operated fire damper located in the upper end of the duct close to the outlet of the duct.; Fire dampers required by this paragraph do not need to pass the fire test in either resolution A.754(18) or appendix 2 of part 3, of annex 1 of the 2010 FTP Code, but shall be of steel and capable of stopping the draught. The requirement to "A" class apply only to the part of the duct outside of the galley;

* [Refer to figures in the new MSC/Circ.XXXX, proposed to be developed]

7.5.1.2 In multi-branch system, the requirements to ducts from galley ranges in which grease or fat is likely to accumulate shall apply to all exhaust ducts from galley ranges."

22 The guidance in paragraphs 17, 19 and 20 above may be reflected in SOLAS regulation II-2/9.7.5.2.2, as follows:

"7.5.2 Requirements for cargo ships and passenger ships carrying not more than 36 passengers

When passing through* accommodation spaces, service spaces, control stations or other spaces containing combustible materials, the exhaust ducts from galley ranges shall be constructed in accordance with paragraphs 7.2.4.1.1 and 7.2.4.1.2. Each exhaust duct shall be fitted with:

- .2 an automatically and remotely operated fire damper located in the lower end of the duct at the junction between the duct and the galley range hood and, in addition, a remotely operated fire damper in the upper end of the duct close to the outlet of the duct. Fire dampers required by this paragraph do not need to pass the fire test in either resolution A.754(18) or appendix 2 of part 3, of annex 1 of the 2010 FTP Code, but shall be of steel and capable of stopping the draught. The requirement to "A" class applies only to the part of the duct outside of the galley;

* [Refer to figures in the new MSC/Circ.XXXX, proposed to be developed]."

Proposal

23 Based on the discussion in paragraphs 4 to 22, IACS proposes that the existing IACS guidance documents be considered when amending SOLAS regulation II-2/9, as amended by resolution MSC.550(108), for the purpose of clarifying requirements, removing ambiguities and making the regulation more comprehensive.

Action requested of the Sub-Committee

24 The Sub-Committee is invited to consider the foregoing, the proposal in paragraph 23 and to take action, as appropriate.