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## SHIP SYSTEMS AND EQUIPMENT

### Ventilation requirements for totally enclosed lifeboats

Submitted by Bahamas, Canada, Japan, Republic of Korea, United Kingdom,  
United States, ICS, ILAMA and CLIA

#### SUMMARY

<i>Executive summary:</i>	This document comments on the report of the eighth session of the Sub-Committee on Ship Systems and Equipment, and provides a proposal for completing the output on new ventilation requirements for ventilation of survival craft.
<i>Strategic direction, if applicable:</i>	6
<i>Output:</i>	6.39
<i>Action to be taken:</i>	Paragraph 13
<i>Related documents:</i>	MSC 97/19/8, MSC 97/22; MSC 104/3/2, MSC 104/18; SSE 8/20, SSE 8/3/4, SSE 8/INF.4, SSE 8/INF.8, SSE 8/WP.3 and MSC 106/11

#### Background

1 The need for ventilation requirements for totally enclosed lifeboats was proposed by Bahamas and Japan in document MSC 97/19/8. Their document stemmed from the investigation into the sinking of **MOL Comfort** in the Indian Ocean. Japan conducted research on a totally enclosed lifeboat and found that powered ventilation was necessary to support a habitable microclimate with the hatches closed.

2 The Committee considered documents MSC 97/19/8 and MSC 97/INF.11 (Bahamas and Japan), and decided to broaden the scope of the work to include all survival craft. Subsequently, the Committee agreed to include the output "Develop new requirements for ventilation of survival crafts," in the 2016-2017 biennial agenda of the SSE Sub-Committee with a target completion year of 2018 (MSC 97/22, paragraph 19.22). The Committee also agreed that ventilation requirements of totally enclosed lifeboats should be developed as the highest priority, and thereafter consider requirements of other survival craft (MSC 97/22, paragraph 19.24).

3 The SSE Sub-Committee developed requirements for totally enclosed lifeboats over multiple sessions and intersessional correspondence groups. Upon completion of the draft amendments to the LSA Code and the *Revised recommendation on testing of life-saving appliances* (resolution MSC.81(70)) for totally enclosed lifeboats, Bahamas et al. proposed the approval of these draft amendments in document MSC 104/3/2, with a view to entry into force of the amendments on 1 January 2024, and to take the related actions.

4 The Committee noted that the draft amendments to the LSA Code and the Revised recommendation (resolution MSC.81(70)) should be maintained as a package (MSC 104/18, paragraph 3.15.2) and instructed SSE 8 to finalize its work on the draft amendments on new ventilation requirements for all survival craft, with a view to approval by MSC 106 and to advise the Committee on the most suitable date of application of the amendments, in consultation with the industry representatives (MSC 104/18, paragraph 3.16.2).

5 At SSE 8, amendments were completed for partially enclosed lifeboats and liferafts, with the concerns of several delegations noted in annex 6 to document SSE 8/WP.3. Amendments to the LSA Code are presented in annex 1 to document SSE 8/20, and amendments to the Revised recommendation (resolution MSC.81(70)) are presented in annex 2 to document SSE 8/20. In document MSC 106/11, the Committee is invited to approve or approve in principle these amendments, as appropriate, while at the same time maintaining the output on "New requirements for ventilation of survival craft" on the provisional agenda for SSE 9 to allow for new research reports to be considered, if any, which could require adjustments to the agreed draft amendments to the Revised recommendation (SSE 8/20, paragraph 3.24.2).

## Discussion

6 The co-sponsors can support the ventilation requirements for totally enclosed lifeboats but do not support additional ventilation requirements for partially enclosed lifeboats or liferafts as proposed by SSE 8 in annexes 1 and 2 to document SSE 8/20.

7 The Committee had set a target completion year of 2018 for this output. This date has been well past. In the interest of developing requirements for ventilation of partially enclosed lifeboats and liferafts, and the associated test methods, the adoption of the requirements for ventilation of totally enclosed lifeboats has been unnecessarily delayed.

8 The need for amending the ventilation requirements for liferafts and partially enclosed lifeboats has not been demonstrated. By design, partially enclosed lifeboats and liferafts include hatches and flaps that can be opened to provide sufficient air quality and ventilation.

9 There is evidence to support that the current ventilation in liferafts is adequate. In document SSE 8/INF.4, Japan notes that they have conducted research on a new test procedure evaluating the natural ventilation of liferafts. Although the work is still ongoing, the available data shows that the liferaft likely provides adequate ventilation by opening the entrances/openings. China also conducted research on test methods for ventilation of liferafts (SSE 8/3/4 and SSE 8/INF.8). Based on this research, China concluded that, for a typical self-righting liferaft with a capacity of 20 persons, the natural ventilation system with two ventilation openings set in opposite directions, with the total cross section of 4% floor area of the liferaft, could meet the design criteria of 5,000 ppm. This result suggests that current liferaft designs provide adequate ventilation, without the need for an additional test.

10 Regarding the draft amendments prepared by SSE 8, the proposed ventilation performance tests for partially enclosed lifeboats and liferafts are confusing and unclear. The text of draft amendments to paragraphs 5.23.1.2.1 and 6.18.1.2.1 of resolution

MSC.81(70), as proposed in annex 2 to document SSE 8/20, requires all entrances to be closed while ventilation openings remain fully open. This requirement is contradictory and fails to consider that in many partially enclosed lifeboat and liferaft designs, the entrances are the ventilation openings. It is unclear whether openings should remain open if they serve as both entrances and ventilation. Furthermore, insufficient details are provided for designing the ventilation performance test repeatably. Specifically, the draft amendments for liferafts include ambiguously defined test forms and heat sources intended to simulate the volume of persons inside the liferaft and their body heat. The draft amendments also require the CO<sub>2</sub> exhale rate to be simulated at no less than 383 ml/min per person, without providing any details on how to practically conduct the test. Additionally, the proposed ventilation test for liferafts (SSE 8/20, annex 2, paragraph 5.23.1.1) references the ventilation test for totally enclosed lifeboats (SSE 8/20, annex 2, paragraph 6.14.9). The lifeboat ventilation performance test is inappropriate and impracticable for inflatable liferafts. These test methods have obvious flaws and have not been validated. It would be premature to adopt these amendments at this stage.

11 Compelling need should be demonstrated before introducing such burdensome and impracticable requirements for ventilation of partially enclosed lifeboats and liferafts. The Sub-Committee appears to be aware that the draft amendments are not complete, and is asking the Committee to maintain the output on "New requirements for ventilation of survival craft" on the provisional agenda for SSE 9 to allow for new research reports to be considered, which could require adjustments to the agreed draft amendments to the Revised recommendation (SSE 8/20, paragraph 3.24.2).

### Proposal

12 As noted by the Sub-Committee, the discussion related to the ventilation of partially enclosed lifeboats and liferafts is not yet complete. However, the requirements for ventilation of totally enclosed lifeboats have been agreed for quite some time. Therefore, the scope of this output should be limited to totally enclosed lifeboats, as was originally proposed by Bahamas and Japan (MSC 97/19/8).

### Action requested of the Committee

13 The Committee is invited to:

- .1 agree to limit the scope of this output to totally enclosed lifeboats;
- .2 approve the draft amendments to the International Life-Saving Appliances Code for totally enclosed lifeboats, as presented in paragraph 3 of annex 1 to document SSE 8/20, with a view to subsequent adoption;
- .3 approve the draft amendments to paragraphs 6.10.1, 6.14.1 and 6.14.9 of the *Revised recommendation on testing of life-saving appliances* (resolution MSC.81(70)) for totally enclosed lifeboats, as presented in annex 2 to document SSE 8/20; and
- .4 instruct SSE 9 to finalize draft amendments to the *Revised standardized life-saving appliance evaluation and test report forms (survival craft)* (MSC.1/Circ.1630) for totally enclosed lifeboats.