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CONSTRUCTION
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Agenda item 11

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GUIDELINES FOR USE OF FIBRE-REINFORCED PLASTICS (FRP) WITHIN SHIP STRUCTURES

Comments on the report of the Correspondence Group

Submitted by the United States

SUMMARY

Executive summary: This document provides comments on the report of the Correspondence Group on the Revision of the Interim Guidelines for use of Fibre-Reinforced Plastic (FRP) (MSC.1/Circ.1574).

Strategic direction, if applicable: 2

Output: 2.6

Action to be taken: Paragraph 18

Related documents: MSC 95/10/7; SDC 4/12, SDC 4/WP.5; SDC 10/12, SDC 10/12/1, SDC 10/12/2, SDC 10/17 and SDC 11/11

Introduction

1 This document is submitted in accordance with the provisions of paragraph 6.12.5 of the *Organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies* (MSC-MEPC.1/Circ.5/Rev.5) and comments on document SDC 11/11 (Sweden) containing the report of the Correspondence Group on the Revision of the Interim Guidelines for use of Fibre-Reinforced Plastic (FRP) (MSC.1/Circ.1574).

Background

2 MSC 98 approved the *Interim guidelines for use of Fibre-Reinforced Plastic (FRP) elements within ship structures: Fire safety issues* (Guidelines) (MSC.1/Circ.1574). Due to the complexities and novel nature of the Guidelines, the circular included a note recommending that the circular "be reviewed four years after their approval in order to make any necessary amendments based on experience gained."

3 The Guidelines are based on the work done at MSC, SDC and FP, and support the fire safety analysis used in SOLAS regulation II-2/17 (Alternative design and arrangements). The Guidelines do not cover aspects of other SOLAS chapters, notably structural concerns (such as progressive structural collapse) and are only covering "elements" that do not contribute to the structural integrity or global strength of the vessel. The discussion on definition of "elements" was included in the report of a previous Correspondence Group (SDC 4/12) and agreed within the FP Working Group (SDC 4/WP.5). As reported in that document, "an element, for the purpose of these guidelines, is a structure which may be removed without compromising the safety of the ship" (SDC 4/WP.5, paragraph 4).

4 After issuing the Guidelines, MSC 98 subsequently agreed to maintain an output on the post-biennial agenda, and this output has been maintained in the post-biennial agenda since SDC 7 and all subsequent meetings.

Discussions at SDC 10

5 At SDC 10, document SDC 10/12 (Germany and CESA) questioned the ability to allow FRP to be used in structures outside the scope of the Guidelines in wider applications including ship structure and fire rated divisions. SDC 10/12/1 (CESA) provided draft terms of reference (ToR), which included the scope expansion. An extensive discussion at plenary followed, highlighting that the scope of the output approved by MSC was limited to the fire safety hazards, the health hazards and recyclability of FRP (SDC 10/17, paragraph 12.4).

6 When considering potential conflicts between the use of FRP with existing SOLAS regulation II-2/11, SDC 10 agreed that "the scope of the output should not be expanded, and that FRP Interim Guidelines under development should not contradict current SOLAS provisions..." (SDC 10/17, paragraph 12.5). This position was clarified by the SDC Chair during the morning session on 24 January 2024.*

7 The United States is of the opinion that the Sub-Committee's focus should be on refining the current Guidelines without expanding their scope to cover ship load-bearing divisions. The ToR of the Correspondence Group intentionally did not endorse explicitly the view to expand the Guidelines beyond their original non-structural elements. The ToR, instead, instructed the Correspondence Group to draft updates based on lessons learned regarding fire safety, health safety, fire testing and recyclability, and to identify relevant IMO instruments.

Correspondence Group established at SDC 10

8 The United States notes that the Correspondence Group was divided on a number of topics, including the Group's understanding of their own ToR, as reflected in paragraph 11 of document SDC 11/11. As a result, the Coordinator concluded that the Group could consider changes which expand the scope of the Guidelines to include load-bearing divisions, or elements which contribute to global strength (SDC 11/11, paragraph 12). An extensive number of changes related to that expansion in scope were included in the [DRAFT PROPOSAL](#), provided as an external link in the Correspondence Group report (SDC 11/11).

9 As noted in paragraphs 19 and 39 of document SDC 11/11, the DRAFT PROPOSAL was unable to be reviewed and edited by the Group. This was primarily due to time constraints associated with meeting the submission deadline for this session.

10 The United States does not believe that those changes which modify the scope of the Guidelines were within the ToR of the Correspondence Group. Furthermore, it is believed that changes to the scope of the Guidelines are not within the Sub-Committee's limited scope and would likely need specific approval by the Committee.

* See SDC 10 session audio recording beginning at 11:56:20 a.m. through 12:24 p.m.

11 The United States supports the work done at the Correspondence Group addressing fire safety, health safety and fire testing that did not involve changes to the scope of the Guidelines. An example includes changes in appendix D6 of the DRAFT PROPOSAL, which corrects flaws in the 2010 Fire Test Procedures Code (2010 FTP Code) for "unloaded" specimens; however, it is the United States' view that other changes, including those for "loaded" specimens, or changes to the remaining document may change the scope of the Guidelines.

Addressing structural concerns and amendments to the 2010 FTP Code

12 The United States understands that the Guidelines strictly support the fire safety analysis done under SOLAS regulation II-2/17. As such, going beyond elements, or into structural or load-bearing components, would possibly conflict with the fundamental fire safety objectives and functional requirements in SOLAS chapter II-2, part A (SDC 3/17/1 (United States)).

13 The expanded scope would likely require extensive evaluation and consideration with regard to other SOLAS chapters beyond II-2, and currently no other chapters besides II-2 are addressed by SOLAS regulation II-2/17 or the Guidelines. Concerns, such as the risk of progressive structural collapse or global loss of structural integrity, are minimally or not yet addressed by the Guidelines. Including structural concerns substantially risks lengthening the time needed to complete this agenda item.

14 Interested parties who wish to address structural concerns (such as progressive structural collapse) may consider developing guidance for the use of FRP in alternative design and arrangements for SOLAS chapters II-1 and III (MSC.1/Circ.1212/Rev.2) and propose a new output to the Committee.

15 The United States supports completing the work on the updates to the Guidelines, and establishment of the Working Group as recommended in document SDC 11/11. However, it is believed that the Sub-Committee should clarify that the Working Group should not change the scope of the original Guidelines and should consider only the DRAFT PROPOSAL'S changes that do not address load-bearing divisions or elements contributing to global strength.

16 The United States supports the work at the Sub-Committee on Ship Systems and Equipment (SSE) in regard to the agenda item on "Revision of the 2010 FTP Code to allow for new fire protection systems and materials" and believe that any draft amendment proposals to the 2010 FTP Code fire tests should be made available to them.

Proposal

17 Based on the discussion above, the United States proposes that the Sub-Committee:

- .1 clarify that expanding the scope of MSC.1/Circ.1574 beyond non-structural elements was not agreed to, and it should not include load-bearing divisions and elements contributing to global strength or similar proposals (paragraph 7). As such, application to structural elements requires a new output agreed by the Committee (paragraph 14); and
- .2 not incorporate the DRAFT PROPOSAL recommendations in document SDC 11/11 which address load-bearing divisions or elements contributing to global strength.

Action requested of the Sub-Committee

18 The Sub-Committee is invited to consider the above discussion and the proposal in paragraph 17 and to take action, as appropriate.