

SUB-COMMITTEE ON SHIP SYSTEMS AND  
EQUIPMENT  
7th session  
Agenda item 6

SSE 7/6/8  
10 January 2020  
Original: ENGLISH  
Pre-session public release:

**REVIEW OF SOLAS CHAPTER II-2 AND ASSOCIATED CODES TO MINIMIZE THE  
INCIDENCE AND CONSEQUENCES OF FIRES ON RO-RO SPACES AND SPECIAL  
CATEGORY SPACES OF NEW AND EXISTING RO-RO PASSENGER SHIPS**

**Comments on document SSE 7/6/1**

**Submitted by ICS, RINA and INTERFERRY**

**SUMMARY**

*Executive summary:* This document comments on document SSE 7/6/1 (Austria et al.), containing considerations for the development of amendments to SOLAS on ro-ro passenger ship fire safety. In particular, this document highlights the need to be cautious in the application of measures that have not been demonstrated to be effective and cost-efficient.

*Strategic direction, if applicable:* Other work

*Output:* OW 36

*Action to be taken:* Paragraph 26

*Related documents:* MSC/Circ.765; MEPC/Circ.315; MSC.1/Circ.1615; MSC 101/14/8, MSC 101/24; SSE 7/6 and SSE 7/6/1

**Introduction**

1 This document is submitted in accordance with 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.1) and comments on document SSE 7/6/1 (Austria et al.).

**Background**

2 At its sixth session (4 to 8 March 2019), the Sub-Committee on Ship Systems and Equipment (SSE) agreed to the draft Interim guidelines for minimizing the incidence and consequences of fires in ro-ro spaces and special category spaces of new and existing ro-ro passenger ships, with a view to approval by MSC 101 (SSE 6/18, paragraph 6.19).

3 During the deliberations at MSC 101, the co-sponsors raised concerns, as outlined in document MSC 101/14/8 (ICS et al.), that the draft Interim guidelines were too inclusive in terms of the application of measures that had not been validated and that care should be taken with regard to the retroactive application of such measures.

4 Following the consideration of various concerns, including those outlined in document MSC 101/14/8, the Committee decided to keep the text prepared by SSE 6, noting that the draft Interim guidelines could be further improved in the future, if necessary. Subsequently, the Committee approved MSC.1/Circ.1615 on the *Interim guidelines for minimizing the incidence and consequences of fires in ro-ro spaces and special category spaces of new and existing ro-ro passenger ships* (MSC 101/24, paragraphs 14.17 to 14.19).

5 In this context, comprehensive proposals are offered in document SSE 7/6/1 (Austria et al.) for revising the relevant provisions of SOLAS chapter II-2, much in line with the Interim guidelines.

### **FSA Experts Working Group**

6 MSC 101 also agreed to the holding of a meeting of the FSA Experts Group at IMO Headquarters from 18 to 20 November 2019 and instructed it to review the FIRESAFE I and II studies regarding the fire safety of ro-ro decks on passenger ships (MSC 101/24, paragraphs 17.7 and 17.8).

7 The report of the intersessional meeting of the Experts Group on Formal Safety Assessment (FSA) provides the view that "the results and recommendations contained in the reports are credible" (SSE 7/6, paragraph 27.9).

8 The co-sponsors are of the opinion that it can be inferred that the FSA Experts Group supported the recommendations made in the FIRESAFE I and II studies, if they were demonstrated to be cost-effective. A logical inference from this would also be that the measures that have not been demonstrated to be cost-effective should not become mandatory requirements.

### **Discussion**

9 The co-sponsors were actively engaged in the development of the Interim guidelines and endorse a vast majority of the recommended measures, including enhanced detection and extinction technologies for both existing and new ships.

10 MSC 101 had agreed to keep the Interim guidelines under review, taking into account operational experience gained with their application. Further, the Member States are invited to recount the experience gained through the use of the Interim guidelines to the Organization (MSC.1/Circ.1615, paragraph 3).

11 Furthermore, during SSE 6, there had been lengthy discussions on the applicability of the draft Interim guidelines in terms of retroactivity. The Interim guidelines are, therefore, prefaced with recommended application. It is, therefore, imperative that such application should be considered even more carefully before being mandated through amendments to SOLAS chapter II-2.

12 In paragraph 6 of document SSE 7/6/1, it is stated that:

"Based on the results of the FIRESAFE studies and the comments received by the FSA Experts Group, it is suggested to consider any retroactive implementation of RCOs on a case-by-case basis."

13 The co-sponsors have concerns regarding what methodology SSE 7 could deploy to consider the risk control options (RCOs) on a case-by-case-basis that does not conform with the assessments already made in the FIRESAFE studies (see figure 1).

14 As elaborated in document MSC 101/14/8, the co-sponsors still maintain the opinion that the measures that were not found to be cost-effective and properly justified, should not have been included in the Interim guidelines and, therefore, such measures should not be elevated to mandatory requirements.

15 Furthermore, the co-sponsors consider it premature to commence discussions on mandatory measures before the Interim guidelines are sufficiently improved to address the various concerns that were raised at MSC 101 and before sufficient operational experience is gained with the voluntary application of the Interim guidelines.

16 Based on the concerns listed above, the co-sponsors provide detailed considerations of those recommendations in the following paragraphs, which should be addressed before commencing discussions on step two of this output, i.e. the development of draft amendments to mandatory and non-mandatory instruments on fire safety for ro-ro passenger ships.

### ***Types of ro-ro spaces***

17 The Interim guidelines inadvertently introduce a new definition of "ro-ro spaces", as follows:

#### "4.2 Types of ro-ro spaces

Vehicles spaces and ro-ro spaces should be either closed ro-ro spaces or weather decks."

18 With this new definition in the Interim guidelines, the current so-called "open ro-ro space" is recommended not to be used, although the application between new and existing ships is unclear.

19 If this new definition is transferred into SOLAS chapter II-2, as suggested in document SSE 7/6/1, a ban on open ro-ro spaces would be introduced for new ships. The outcome of the FSA studies, however, clearly does not support this measure. The factor for "net cost for averting a fatality" (NCAF) is assessed to be 1.80, where a cost-efficient measure should score an NCAF below 1.0.

20 It could be argued that an FSA, in and by itself, does not offer the only logic or evidence for imposing a measure and most SOLAS requirements have indeed not been subjected to an FSA review. However, the co-sponsors consider that cherry-picking from the various RCOs in this case would go against the structured approach taken on this matter.

21 Any discussions regarding the closing of open ro-ro spaces should also give due consideration on how the perceived structural and operational changes might affect the ship's energy efficiency rating, especially with a view to meeting the short and long term GHG reduction goals that have been agreed by the Organization.

**Table 12: ΔRisk, ΔCosts, ΔBenefits, GCAF, GCAF Factor, and NCAF Factor values for the RCOs on Standard RoPax Newbuildings**

	Newbuildings	RCO	ΔRisk Averted fat.	ΔCost Present Value	ΔCost-ΔBenefits Present Value	GCAF			NCAF	
						GCAF	GCAF Factor	Rank	NCAF	NCAF Factor
Standard RoPax	EI1	Robust connection boxes	1.18E-01	33 116 €	- 252 224 €	280 700 €	0.04	8	- 2 137 943 €	-0.31
	EI2	Only ship cables	2.48E-02	84 579 €	- 24 499 €	3 405 536 €	0.49	16	986 454 €	0.14
	EI3	IR camera	6.09E-02	23 431 €	- 123 693 €	384 858 €	0.05	11	- 2 031 677 €	-0.29
	EI4	Training for awareness	1.13E-01	4 000 €	- 266 932 €	35 500 €	0.01	3	- 2 369 027 €	-0.34
	EI5	Only crew connections	5.41E-02	2 000 €	- 128 799 €	36 989 €	0.01	4	- 2 382 094 €	-0.34
	EI6	Cable reeling drums	2.15E-02	582 896 €	- 531 006 €	27 174 351 €	3.88	21	24 755 268 €	3.54
	Det1	Combined heat & smoke and alarm system design & integration	1.10E-01	17 500 €	- 195 107 €	158 641 €	0.02	7	- 1 768 682 €	-0.23
	Det2*	Ban / closure of side (PS & SB) openings (open ro-ro spaces)	2.41E-01	3 081 722 €	- 3 034 825 €	12 788 165 €	1.83	18	12 593 556 €	1.80
	Det3	Increased frequency fire patrols	4.99E-02	728 655 €	- 617 854 €	14 609 862 €	2.09	20	12 388 264 €	1.77
	Dec1	Alarm system design & integration (smoke)	6.19E-02	20 000 €	- 115 771 €	323 091 €	0.05	9	- 1 870 236 €	-0.27
	Dec2	Improved markings/signage for wayfinding and localisation	3.50E-02	3 300 €	- 64 682 €	94 265 €	0.01	5	- 1 847 659 €	-0.26
	Dec3	Preconditions for early activation of drencher system	1.18E-01	214 310 €	- 57 701 €	1 818 952 €	0.26	12	- 489 738 €	-0.07
	Su1	Remote control	5.21E-02	101 431 €	- 20 185 €	1 948 102 €	0.28	13	- 387 670 €	-0.06
	Su3	Rolling shutters (PS & SB side) (Open ro-ro spaces)	8.10E-02	1 140 034 €	- 1 099 305 €	14 073 797 €	2.01	19	13 570 990 €	1.94
	Su4	Efficient activation routines	7.18E-02	200 €	- 168 485 €	2 787 €	0.00	2	- 2 348 200 €	-0.34
	Su5	Fresh water activation/flushing	5.66E-02	7 000 €	- 128 675 €	123 643 €	0.02	6	- 2 272 807 €	-0.32
	Su6	CCTV	3.15E-02	61 431 €	- 10 498 €	1 948 163 €	0.28	14	- 332 930 €	-0.05
	Su7	CCTV + Remote control	7.74E-02	162 862 €	- 16 525 €	2 105 231 €	0.30	15	- 213 612 €	-0.03
	Cont1**	Ban/closure of side & end openings (closed and open ro-ro spaces)	2.89E-01	3 573 722 €	- 3 484 145 €	12 382 980 €	1.77	17	12 072 595 €	1.72
	Cont2	Fire monitors on weather deck	3.19E-01	112 035 €	- 304 627 €	351 615 €	0.05	10	- 956 055 €	-0.14
	Evac1c	Optimal distance / Closing LSA near openings	1.22E-01	61 431 €	-	- €	0.00	1	- €	0.00

**Figure 1 - FIRESAFE II - WP2 combined assessment, 2018**

### Training

22 Having consulted with ro-ro passenger ship operators on the listed measures in the Interim guidelines, the co-sponsors have come to the conclusion that certain measures are currently not adequate even for voluntary application. For instance, the following recommendation in paragraph 10.1.8.1 of the annex to document SSE 7/6/1 cannot be complied with, since such competence is not readily available even among shore-based fire-fighting professionals:

"The company shall ensure adequate training and good access to any specialized fire-fighting equipment for alternatively powered vehicles."

### Electrical protection

23 The co-sponsors maintain the view that SSE 6, in its finalization of the draft Interim guidelines, did not possess sufficient knowledge to debate new and existing ships' electrical systems and specifications (MSC 101/14/8, paragraph 4.2). This is also reflected in the paragraph 33 of document SSE 7/6/1, as follows:

"It is recognized that further work needs to take place on these items because some of them may not be suitable for mandatory implementation".

24 The co-sponsors, therefore, re-iterate that sufficient experience on the implementation of the Interim guidelines should be gained before proceeding with the amendment of the SOLAS Convention or the FSS Code, unless there is substantial evidence at hand.

### Means of escape

25 Document SSE 7/6/1 also suggests, as an additional amendment, that transverse walkways shall be provided every 40 m on the ro-ro cargo deck. This has not been previously deliberated and should, therefore, not be included as an amendment to SOLAS.

### Action requested of the Sub-Committee

26 The Sub-Committee is invited to consider the discussion and, in particular, the concerns in paragraphs 10 to 26 above, and take action, as appropriate.