# Review of IACS Unified Interpretations for Fire Safety and Fire Extinguishing

**Amended Guidance**

Guidance for the Survey and Construction of Steel Ships Part R
Guidance for the Survey and Construction of Passenger Ships

**Reason for Amendment**

Over the years, IACS has adopted a number of Unified Interpretations (UI) for SOLAS requirements related to fire safety and fire extinguishing whenever it has been deemed, and these UIs, for the most part, have then been subsequently incorporated into the ClassNK Rules.

Some of the aforementioned UIs, however, have not been reviewed in quite a long time which means that some of them now inconsistent with current versions of SOLAS requirements on which they are based. IACS, therefore, reviewed the following UIs in order to try and address these inconsistencies.

UI SC64: Interpretation for fire dampers in ventilation ducts
UI SC159: Interpretation for equivalent protection SOLAS II-2/10.7.2

As a result of its review, IACS amended each UI, and relevant requirements are, therefore, amended in accordance with the amended versions of the UIs. In addition, as part of the comprehensive review of the ClassNK Rules, requirements related to paints, varnishes and other finishes are amended for the purpose of making them consistent with Annex 4 of the International Code for Application of Fire Test Procedures (FTP Code).

**Outline of Amendment**

(1) Clarifies requirements related to installation of fire dampers in case where ducts with free sectional areas of 0.075 $m^2$ or less penetrate Class "*A*" divisions in accordance with IACS UI SC64(Rev.2).
(2) Amends relevant requirements so that references to MSC circulars contained therein are to the latest versions in accordance with IACS UI SC159(Rev.1 Corr.1).
(3) Amends relevant requirements related to paints, varnishes and other finishes to make them consistent with Annex 4 of the FTP Code.

“Guidance for the survey and construction of steel ships” has been partly amended as follows:

# Part R FIRE PROTECTION, DETECTION AND EXTINCTION

## R6 SMOKE GENERATION POTENTIAL AND TOXICITY

### R6.2 Finishes

#### R6.2.1 Paints, Varnishes and Other Finishes

Sub-paragraph -1 has been amended as follows.

**1** The wording “exposed interior surfaces” specified in **6.2.1, Part R of the Rules** means the surfaces exposed to accommodation spaces, services spaces, control stations and machinery spaces in addition to the surfaces of corridors and stairway enclosures exposed to accommodation spaces, services spaces, control stations and machinery spaces (other than the exposed surfaces specified in **5.3.1-1, Part R of the Rules** or the exposed surfaces of finishes used in similarly small spaces).
(-2 and -3 are omitted.)

## R9 CONTAINMENT OF FIRE

### R9.7 Ventilation Systems

#### R9.7.3 Details of Fire Dampers and Duct Penetrations

Sub-paragraph -4 has been added as follows.

**4** Ducts with free sectional area of 0.075 $m^2$ or less need to be fitted with fire damper at their passage through Class "*A*" divisions in those cases indicated in requirements **9.7.2-2 Part R of the Rules** and **9.7.2-3 Part R of the Rules**. The fire damper can be omitted if the duct is arranged in compliance with the requirements of **9.7.2-4(2) Part R of the Rules**.

# R10 FIRE FIGHTING

## R10.7 Fire-extinguishing Arrangements in Cargo Spaces

### R10.7.2 Fixed Fire-extinguishing Systems for Dangerous Goods

Sub-paragraph -2 has been amended as follows.

**2** With respect to the requirements of **10.7.2, Part R of the Rules**, a means of water supply complying with the requirements of **19.3.1-2, Part R of the Rules** may be considered as a "fire-extinguishing system which gives equivalent protection" specified in **10.7.2, Part R of the Rules** for the cargoes listed in Table 2 of the latest version of *MSC*.1/*Circ*.1395~~/Rev.4~~.

## Annex R5.3.1-1 DETAILS OF FIRE PROTECTION MATERIALS

## 1 FIRE PROTECTION MATERIALS FOR CARGO SHIPS

Paragraph 1.1 has been amended as follows.

### 1.1 Restricted Use of Combustible Materials and Details of Construction

Following figure and tables show the details on the requirements specified in **4.4.4**, **5.3**, **6.2.1** and **6.3.1, Part R of the Rules** for every subject of members fitted in accommodation spaces, service spaces and control stations. The requirements for Method I*C* and for Method II*C* and III*C* are summarized in accordance with **Table 1** and **Table 2** respectively.

Fig. 1

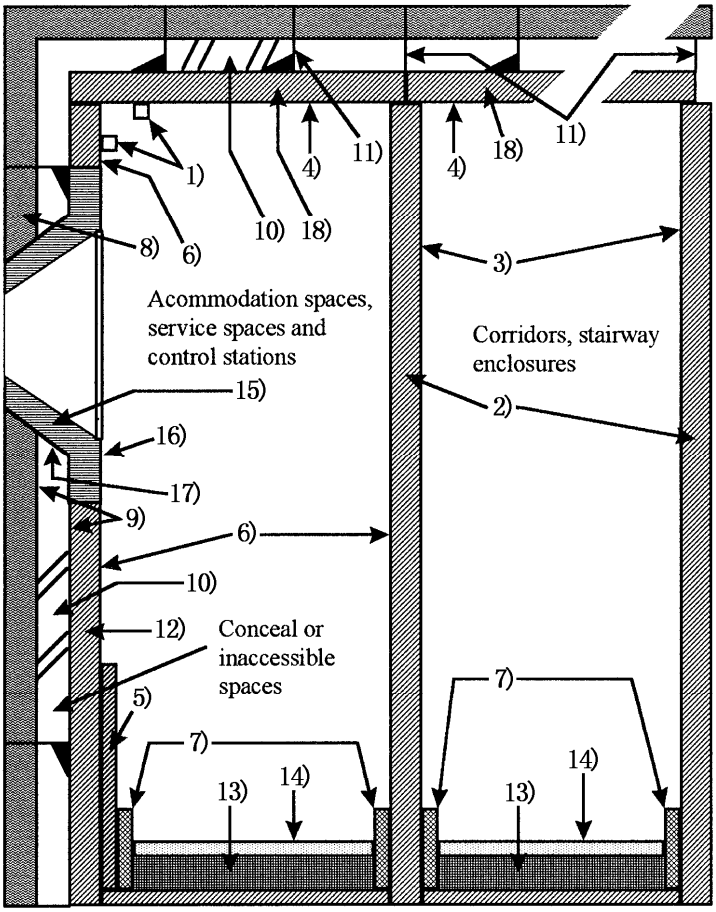

Table 1 has been amended as follows.

Table 1 Method I*C*

| Requirements | | Non ~~C~~combustible material | Non ~~C~~combustible material | Low flame spread | Equivalent volume | Calorific value | Smoke production | Not readily ignited |
|---|---|---|---|---|---|---|---|---|
| Part R of the Rules | | **5.3.1-2** | **5.3.1-1** | **5.3.2-4** | **5.3.2-1** | **5.3.2-2** | **~~6.2.1~~ ~~6.3.1~~** | **4.4.4** |
| 1) | Moulding | | | | ○ | | | |
| 2) | Panel | ○ | | | | | | |
| 3) | Painted surface or Veneer or Fabric or Foils | | | ○ | ○ | ○ | ○(2) | |
| 4) | Painted surface or Veneer or Fabric or Foils | | | ○ | ○ | ○ | ○(2) | |
| 5) | Decoration | | | | ○ | | ○ | |
| 6) | Painted surface or Veneer or Fabric or Foils | | | | ○ | ○ | ○(2) | |
| 7) | Skirting board | | | | ○ | | | |
| 8) | Insulation | | ○(1) | | | | | |
| 9) | Surfaces and paints in concealed or inaccessible spaces | | | ○ | | | | |
| 10) | Draught stop | ○ | | | | | | |
| 11) | Grounds and supports | ○ | | ○ | | | | |
| 12) | Lining | ○ | | | | | | |
| 13) | Primary deck covering 1st layer | | | | | | ○ | ○ |
| 14) | Floor finishing | | | ○(3) | | | ○ | |
| 15) | Window box | ○ | | | | | | |
| 16) | Window box surface | | | ○ | ○ | ○ | ○ | |
| 17) | Window box surface in concealed or inaccessible spaces | | | ○ | | | | |
| 18) | Ceiling panel | ○ | | | | | | |

Notes:

(1) Vapour barriers ~~and adhesives~~ used ~~in conjunction with insulation, as well as the insulation of~~ on pipes ~~fittings,~~ for cold services (see **R5.3.1-2**) ~~systems, need not~~ may be ~~of non-~~combustible materials~~, but their exposed~~ providing that their surfaces ~~are to have~~ has low flame spread characteristics~~"~~. **(5.3.1-1, Part R of the Rules)**

(2) Applicable to paints, varnishes and other finishes **(6.2.1, Part R of the Rules)**

(3) Only in corridors and stairway enclosures

Table 2 has been amended as follows.

Table 2 Method II*C* and III*C*

| Requirements | | Non Combustible material | Non Combustible material | Low flame spread | Equivalent volume | Calorific value | Smoke production | Not readily ignite |
|---|---|---|---|---|---|---|---|---|
| Part R of the Rules | | **5.3.1-2** | **5.3.1-1** | **5.3.2-4** | **5.3.2-1** | **5.3.2-2** | ~~**6.2.1**~~ ~~**6.3.1**~~ | **4.4.4** |
| 1) | Moulding | | | | ◯(3) | | | |
| 2) | Panel | ◯(4) | | | | | | |
| 3) | Painted surface or Veneer or Fabric or Foils | | | ◯ | ◯ | ◯ | ◯(5) | |
| 4) | Painted surface or Veneer or Fabric or Foils | | | ◯ | ◯(3) | ◯(2) | ◯(5) | |
| 5) | Decoration | | | | ◯(3) | | ○ | |
| 6) | Painted surface or Veneer or Fabric or Foils | | | | ◯(3) | ◯(2) | ◯(5) | |
| 7) | Skirting board | | | | ◯(3) | | | |
| 8) | Insulation | | ◯(1) | | | | | |
| 9) | Surfaces and paints in concealed or inaccessible spaces | | | ◯ | | | | |
| 10) | Draught stop | ◯(4) | | | | | | |
| 11) | Grounds and supports | ◯(4) | | ◯ | | | | |
| 12) | Lining | ◯(4) | | | | | | |
| 13) | Primary deck covering 1st layer | | | | | | ◯ | ◯ |
| 14) | Floor finishing | | | ◯(6) | | | ◯ | |
| 15) | Window box | ◯(4) | | | | | | |
| 16) | Window box surface | | | ◯(3) | ◯(3) | ◯(2) | ◯ | |
| 17) | Window box surface in concealed or inaccessible spaces | | | ◯ | | | | |
| 18) | Ceiling panel | ◯(4) | | | | | | |

Notes:

(1) Vapour barriers ~~and adhesives~~ used ~~in conjunction with insulation, as well as the insulation of~~ on pipes ~~fittings,~~ for cold services (see **R5.3.1-2**) ~~systems, need not~~ may be ~~of non-~~combustible materials~~, but their exposed~~ providing that their surface~~s are to have~~ has low flame spread characteristics~~"~~. **(5.3.1-1, Part R of the Rules)**

(2) Where the material is fitted on non-combustible bulkheads, ceiling on lining in accommodation and service spaces. **(5.3.2-2, Part R of the Rules)**

(3) To be applied to those accommodation and service spaces bounded by non-combustible bulkheads, ceiling and linings. **(5.3.2-3(1), Part R of the Rules)**

(4) Only in corridors and stairway enclosures serving accommodation and service spaces and control stations. **(5.3.1-2(2), Part R of the Rules)**

(5) Applicable to paints, varnishes and other finishes **(6.2.1, Part R of the Rules)**

(6) Only in corridors and stairway enclosures

"Guidance for the survey and construction of passenger ships" has been partly amended as follows:

## Annex 7-1 INTERPRETATION OF PROVISION OF CHAPTER II-2, *SOLAS* CONVENTION ON PASSENGER SHIPS

# 1 INTERPRETATION OF PROVISION OF CHAPTER II-2, *SOLAS* CONVENTION

## 1.1 Interpretation

Table 7-1-A1 has been amended as follows.

Table 7-1-A1 Interpretation of *SOLAS* II-2

| Number | *SOLAS* | Interpretation |
|---|---|---|
| (Omitted) | | |
| 6.2.1 | Paints, varnishes and ***other finishes***[*1] used on ***exposed interior surfaces***[*2] ***shall not be capable of producing excessive quantities of smoke and toxic products***[*3], this being determined in accordance with the Fire Test Procedures Code[*4]. | With respect to materials and components used for bulkheads in accommodation spaces, as defined in regulation **3.1**, see **Fig. 7-1-A3**.<br>*1: The wording "other finishes" means those combustible flooring of deck covering and combustible veneers applied on surfaces of bulkheads, linings and ceilings. However, those surface materials used for handrailing, moulding and non-skid strips of stairs or other surface materials used only for equally small areas of application may not be required to satisfy these requirements.<br>*2: The wording "exposed surfaces" specified in this provision are those of bulkheads, decks, floor coverings, wall linings and ceilings as appropriate. The requirements described within these provisions are not meant to apply to plastic pipes, electric cables, and furniture.<br>*3: Materials of "not be capable of producing excessive quantities of smoke and toxic products" means "fire retardant paints", "fire retardant veneers" or "fire retardant surface flooring" passed the test of "Smoke and toxicity test" and "Test for surface flammability" carried out in accordance with the **FTP Code**, or non-combustible materials.<br>*3: Mat, e.g. carpet, rug, etc., may not satisfy this regulation (regulation **II-2/6.2**). (However, in case where the mat is provided with cabins containing furniture of restricted fire risk, the requirements of regulation **II-2/3.40.4** are to be noted.) However, glue is not to use except for the purpose of determining a position and stopping a move. In case where mat covers all of floor, the mat is to be of having flame prevention mark required by "Nippon Bohen Kyokai", or of equivalent. Tatami mat may be used if the grounds/materials under the floor which constructed by the non-combustible materials are as show in **Fig. 7-1-A3**.<br>*4: This requirement applies to the surfaces exposed to accommodation spaces, services spaces, control stations and machinery spaces in addition to the surfaces of corridors and stairway enclosures exposed to accommodation spaces, |

| | | |
|---|---|---|
| | | services spaces, control stations and machinery spaces (other than the exposed surfaces specified in **5.3.1-1, Part R of the Rules** or the exposed surfaces of finishes used in similarly small spaces). |
| (Omitted) | | |
| 9.7.3.1 | Ducts passing through "*A*" class divisions shall meet the following requirements:<br>.1 where a thin plated duct with a free cross-sectional area equal to, or less than, 0.02$m^2$ pass through "*A*" class divisions, the opening shall be fitted with a steel sheet sleeve having a thickness of at least 3*mm* and a length of at least 200*mm*, divided preferably into 100*mm* on each side of a bulkhead or, in the case of a deck, wholly laid on the lower side of the decks penetrated.<br>.2 where ventilation ducts with a free cross-sectional area exceeding 0.02$m^2$, but not more than 0.075$m^2$, pass through "*A*" class divisions, the openings shall be lined with a steel sheet sleeves. The ducts and sleeves shall have a thickness of at least 3*mm* and a length of at least 900*mm*. When passing through bulkheads, this length shall be divided preferably into 450*mm* on each side of the bulkhead. These ducts, or sleeves lining such ducts, shall be provided with fire insulation. The insulation shall have at least the same fire integrity as the division through which the duct passes; and<br>.3 ***automatic fire dampers**** shall be fitted in all ducts with a free cross-sectional area exceeding 0.075$m^2$ that pass through "*A*" class divisions. Each damper shall be fitted close to the division penetrated and the duct between the damper and the division penetrated shall be constructed of steel in accordance with paragraphs **7.2.4.2.1** and **7.2.4.2.2**. The fire damper shall operate automatically, but shall also be capable of being closed manually from both sides of the division. The damper shall be fitted with a visible indicator which shows the operating position of the damper. Fire dampers are not required, however, where ducts pass through spaces surrounded by "*A*" class divisions, without serving those spaces, provided those ducts have the same fire integrity as the divisions which they penetrate. A duct of cross-sectional area exceeding 0.075 $m^2$ shall not be divided into smaller ducts at the penetration of an "*A*" class division and then recombined into the original duct once through the division to avoid installing the damper required by this provision. | Ducts with free sectional area of 0.075 $m^2$ or less need to be fitted with fire damper at their passage through Class "*A*" divisions in those cases indicated in requirements **9.7.2.2** and **9.7.2.3**. The fire damper can be omitted if the duct is arranged in compliance with the requirements of **9.7.2.4.2.1** and **9.7.2.4.2.2**.<br><br>*: "Fire dampers" are to be in accordance with following requirements:<br>(1) Manual closing may be achieved by mechanical means of release or by remote operation of the fire damper by means of a fail-safe electrical switch or pneumatic release (spring-loaded, etc.) on both sides of the division.<br>(2) Fire dampers mean those complied with the standards defined in "**GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MARINE USE**".<br>(3) Automatic closing devices are to comply with Notification No. 1097-3-2 (1 June 1981) "Construction of automatic fire damper with thermal fuse" of Ministry of Construction of Japanese Government or equivalent thereto.<br>Ventilation inlets and outlets located outside boundaries are to be fitted with closing appliances as required by regulation **5.2.1.1** and need not comply with regulation **9.7.3**. |
| (Omitted) | | |