

**RULES  
FOR THE CLASSIFICATION OF  
SHIPS**

*Part 17 – FIRE PROTECTION  
January 2020*

*Amendments No. 3  
July 2021*

**CROATIAN REGISTER OF SHIPPING**

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By the decision of the General Committee of Croatian Register of Shipping,

Amendments No. 3 to the  
**RULES FOR THE CLASSIFICATION OF SHIPS**  
Part 17 – FIRE PROTECTION

have been adopted on 28th June 2021 and shall enter into force on 1st July 2021

## **INTRODUCTORY NOTES**

These amendments shall be read together with the requirements in the Rules for the Classification of Ships, Part 17 – Fire Protection, edition January 2020, as last amended by Amendments No. 2, edition January 2021.

Table 1 contains review of amendments, where items changed or added in relating to previous edition are given, with short description of each modification or addition. All major changes throughout the text are shaded.

This Part of the Rules includes the requirements of the following international Organisations:

#### International Maritime Organization (IMO)

**Conventions:** International Convention for the Safety of Life at Sea, 1974 (SOLAS 74) and all subsequent amendments up to and including the 2018 amendments (MSC.437(99)).  
Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS PROT 1988).

**Resolutions:** A.123(V), A.567(14), A.654(16), A.752(18), A.756(18), A.800(19), A.951(23), A.952(23), A.1021(26) and A.1116(30); MSC.98(73), MSC.206(81), MSC.217(82), MSC.256(84), MSC.265(84), MSC.266(84), MSC.269(85), MSC.284(86), MSC.291(87), MSC.292(87), MSC.307(88), MSC.308(88), MSC.311(88), MSC.327(90), MSC.338(91), MSC.339(91), MSC.365(93), MSC.367(93), MSC.380(94), MSC.392(95), MSC.403(96), MSC.404(96), MSC.408(96), MSC.409(97), MSC.410(97), MSC.421(98) and MSC.437(99).

**Circulars:** MSC/Circ.353, MSC/Circ.387, MSC/Circ.451, MSC/Circ.474, MSC/Circ.485, MSC/Circ.553, MSC/Circ.606, MSC/Circ.608 Rev.1, MSC/Circ.670, MSC/Circ.677, MSC/Circ.730, MSC/Circ.731, MSC/Circ.777, MSC/Circ.798, MSC/Circ.808, MSC/Circ.848, MSC/Circ.849, MSC/Circ.858, MSC/Circ.910, MSC/Circ.917, MSC/Circ.917/Corr.1, MSC/Circ.1002, MSC/Circ.1003, MSC/Circ.1005, MSC/Circ.1009, MSC/Circ.1035, MSC/Circ.1036, MSC/Circ.1037, MSC/Circ.1050, MSC/Circ.1081, MSC/Circ.1082, MSC/Circ.1084, MSC/Circ.1085, MSC/Circ.1086, MSC/Circ.1087, MSC/Circ.1120, MSC/Circ.1129, MSC/Circ.1142, MSC/Circ.1165, MSC/Circ.1167 and MSC/Circ.1168;  
MSC.1/Circ.1002/Corr.1, MSC.1/Circ.1002/Corr.2, MSC.1/Circ.1120/Corr.1, MSC.1/Circ.1203, MSC.1/Circ.1237, MSC.1/Circ.1240, MSC.1/Circ.1242, MSC.1/Circ.1266, MSC.1/Circ.1267, MSC.1/Circ.1268, MSC.1/Circ.1269, MSC.1/Circ.1270, MSC.1/Circ.1270/Corr.1, MSC.1/Circ.1275, MSC.1/Circ.1275/Corr.1, MSC.1/Circ.1276, MSC.1/Circ.1312, MSC.1/Circ.1312/Corr.1, MSC.1/Circ.1314, MSC.1/Circ.1316, MSC.1/Circ.1317, MSC.1/Circ.1318, MSC.1/Circ.1319, MSC.1/Circ.1320, MSC.1/Circ.1322, MSC.1/Circ.1324, MSC.1/Circ.1368, MSC.1/Circ.1369/Add.1, MSC.1/Circ.1370, MSC.1/Circ.1384, MSC.1/Circ.1385, MSC.1/Circ.1386, MSC.1/Circ.1387, MSC.1/Circ.1388, MSC.1/Circ.1395/Rev.4, MSC.1/Circ.1422, MSC.1/Circ.1430/Rev.2, MSC.1/Circ.1431, MSC.1/Circ.1432, MSC.1/Circ.1433, MSC.1/Circ.1434, MSC.1/Circ.1435, MSC.1/Circ.1436, MSC.1/Circ.1437, MSC.1/Circ.1456, MSC.1/Circ.1458, MSC.1/Circ.1459, MSC.1/Circ.1471, MSC.1/Circ.1472, MSC.1/Circ.1480, MSC.1/Circ.1487, MSC.1/Circ.1488, MSC.1/Circ.1491, MSC.1/Circ.1492, MSC.1/Circ.1499, MSC.1/Circ.1501, MSC.1/Circ.1505, MSC.1/Circ.1510, MSC.1/Circ.1511, MSC.1/Circ.1514, MSC.1/Circ.1515, MSC.1/Circ.1516, MSC.1/Circ.1527, MSC.1/Circ.1528, MSC.1/Circ.1533, MSC.1539/Rev.1, MSC.1/Circ.1550, MSC.1/Circ.1552, MSC.1/Circ.1554, MSC.1/Circ.1555, MSC.1/Circ.1556, MSC.1/Circ.1573, MSC.1/Circ.1581, MSC.1/Circ.1582/Rev.1, MSC.1/Circ.1616, MSC.1/Circ.1634;  
BLG.1/Circ.23

#### International Association of Classification Societies (IACS)

##### Unified requirements (UR):

F1(2002), F2(2012), F3(1971), F5(1973), F6(1996), F7 (rev. 3, June 2020; corr. 1 Nov. 2020), F13(1977), F16(2000), F20(2015), F21(1974), F26(2004), F27(1978), F29(2005), F32(1976), F33(1981), F35(2005), F41(1993), F42(1995), F43(2002) and F44(2010);

##### Unified Interpretations (UI):

SC16(2006), SC17(2020), SC25(2005), SC30(2005), SC32(2005), SC35(2013), SC39(2005), SC41(2005), SC42(2007), SC43(2007), SC45(2005), SC46(2005), SC48(2005), SC49(2010), SC52(2005), SC54(2005), SC55(2005), SC57(2005), SC58(2005), SC60(2005), SC62(2005), SC64(2005), SC70(2010), SC73(2005), SC75(2005), SC79(2015), SC84(2005), SC85(2005), SC87(2021), SC89(2018), SC90(2005), SC91(2020), SC92(2005), SC97(2005), SC98(2005), SC99(2014), SC100(2014), SC101(2005), SC102(2005), SC103(2005), SC106(2005), SC107(2005), SC108(2005), SC109(2005), SC110(2005), SC111(2005), SC114(2005), SC118(2015), SC119(2005), SC120(2006), SC121(2005), SC125(2020), SC126(2005), SC127(2005), SC129(2005), SC130(2005), SC132(2013), SC140(2011), SC146(2005), SC147(2021), SC148(2015), SC149(2012), SC150(2005), SC158(2005), SC159(2005), SC160(2005), SC162(2005), SC163(2009), SC164(2005), SC166(2005), SC167(2005), SC168(2005), SC169(2003), SC170(2005), SC172(2005), SC173(2003), SC174(2006), SC175(2003), SC176(2004), SC178(2011), SC188(2015), SC192(2004), SC196(2005), SC197(2021), SC198(2005), SC199(2005), SC200(2005), SC201(2006), SC204(2006), SC205(2006), SC211(2007), SC214(2006), SC217(2007), SC218(2007), SC219(2007),

SC239(2010), SC240(2011), SC241(2010), SC243(2012), SC245(2012), SC247(2011), SC250(2012), SC252(2011), SC253(2016), SC260(2015), SC262(2015), SC264(2013), SC268(2014), SC269(2016), SC270(2015), SC271(2015), SC272(2015), SC273(2015), SC275(2016), SC276(2016), SC277(2016), SC278(2016), SC282(2016), SC284(2018), SC285(2018), SC286(2018), SC287(2018), SC288(2018), SC291(2018) and SC294(2018);  
FTP2(2000), FTP3(2010), FTP4(2006), FTP5(2010) and FTP6(2015).

**Recommendations (Rec.):**

No.123 (2012), No.131(2013) and No.135(2014)

**TABLE 1 – REVIEW OF AMENDMENTS**

This review comprises amendments in relation to the Rules for the Classification of Ships, Part 17 – Fire Protection, edition January 2020, as last amended by Amendments No. 2, edition January 2021.

<i>ITEM</i>	<i>DESCRIPTION OF THE AMENDMENTS</i>
<b>SECTION 1 GENERAL</b>	
Item 1.1.4	Reference to the new Part 34 of Rules for the classification of ships added
<b>SECTION 3 DEFINITIONS AND EXPLANATIONS</b>	
Sub-item 3.1.2.4	Update due to inclusion of IACS UI SC 125, Rev. 3
Sub-item 3.1.2.10	Update due to inclusion of IACS UI SC 125, Rev. 3
Sub-item 3.1.2.23	Update due to deletion of IACS UI FTP 1
<b>SECTION 4 PROBABILITY OF IGNITION</b>	
Item 4.5.7.1	Update due to inclusion of IACS UR F7 Rev. 3, Corr. 1
<b>SECTION 9 STRUCTURAL INTEGRITY AND CONTAINMENT OF FIRE</b>	
Sub-item 9.2.2.3.2.2(9)	Update due to inclusion of MSC.1/Circ.1634
<b>SECTION 10 FIRE FIGHTING</b>	
Item 10.7.1.4	Update due to inclusion of IACS UI SC 197, Rev. 2
<b>SECTION 19 CARRIAGE OF DANGEROUS GOODS</b>	
Preamble of Head 19.3	Update due to inclusion of IACS UI SC 87, Rev. 2
Item 19.3.1.2	Updated - relaxation regarding required quantity of delivered water to ships of less than 300 gross tonnage introduced
Item 19.4.1	Update due to inclusion of IACS UI SC 87, Rev. 2
<b>SECTION 20 PROTECTION OF VEHICLE, SPECIAL CATEGORY AND RO-RO SPACES</b>	
Item 20.6.1.1	Update due to deletion of IACS UI SC 128
Item 20.6.1.3	Update due to inclusion of MSC.1/Circ.1430/Rev. 2
<b>SECTION 21 CASUALTY THRESHOLD, SAFE RETURN TO PORT AND SAFE AREAS</b>	
Item 21.1.1	Updated - relaxation regarding voids and similar spaces regarding count of main vertical zones introduced
<b>SECTION 24 FIRE SAFETY SYSTEMS</b>	
Sub-item 24.5.2.1.2	Update due to deletion of IACS UI SC 63
Sub-item 24.5.2.2.1.5	Update due to deletion of IACS UI SC 128
Item 24.7.2.4	Update due to inclusion of MSC.1/Circ.1430/Rev.2
Sub-item 24.8.2.5.2.3	Update due to deletion of IACS UI SC 34
Item 24.9.2.1.2	Update due to inclusion of IACS UI SC 147, Rev. 2
Item 24.14.2.1.3	Update due to deletion of of IACS UI SC 61, Rev. 2
<b>ANNEX 5</b>	
Note 6 to Table 1-1	Update due to inclusion of MSC.1/Circ.1430/Rev.2

## 1 GENERAL

■ **Head 1.1 APPLICATION**, item 1.1.4 has been amended and should be read as follows:

**1.1.4** Unless expressly provided otherwise in this Part of the Rules, the requirements of this Part of the Rules shall apply to passenger ships intended for international voyages irrespective of size and to cargo ships of 500 gross tonnage and upwards intended for international voyages.

For ships of less than 24 m in length, requirements of the *Rules for the classification of ships, Part 34 – Rules for the classification of vessels of less than 24 meters in length, Section 10* applies.

### 3 DEFINITIONS AND EXPLANATIONS

■ **Head 3.1 DEFINITIONS**, sub-item 3.1.2.4 has been amended and should be read as follows:

3.1.2 For the purpose of this Part of the Rules the following definitions are adopted:

...

.4 “B” class divisions – those divisions formed by bulkheads, decks, ceilings or linings which comply with the following:

- .1 they shall be constructed of approved noncombustible materials (combustible veneers are permitted, if in compliance with other applicable requirements of this Rules);
- .2 they shall be constructed as to be capable of preventing the passage of flame to the end of the first half an hour of the standard fire test (see FTP Code).
- .3 they shall have an insulation value such that the average temperature of the unexposed side will not rise more than 140 °C above the original temperature, nor will the temperature at any one point, including any joint, rise more than 225 °C above the original temperature.

Depending on the time within which the above-indicated temperature rise is ensured in the course of the standard fire test, they may be assigned the following fire integrity standards:

- .3.1 Class “B-15” for 15 minutes;
- .3.2 Class “B-0” for 0 minutes.

*Register* requires a test of a prototype division in accordance with the Fire Test Procedures Code to ensure that it meets the above requirements for integrity and temperature rise.

“B” class divisions used on board ships shall be consistent with the materials, details and arrangements used during, and documented in the test reports issued for, the approval test for that divisions.

The type approval process for all “B” class panels to which handrails are attached on ro-ro passenger ships shall include a suitable structural test (see *MSC/Circ. 910*).

See *IACS UI SC 125, Rev.3*.

...

■ **Head 3.1 DEFINITIONS**, sub-item 3.1.2.10 has been amended and should be read as follows:

3.1.2 For the purpose of this Part of the Rules the following definitions are adopted:

...

.10 “C” class divisions – fire-resisting divisions constructed of approved non-combustible materials. They need meet neither requirements relative to the passage of smoke and flame nor limitations relative to the temperature rise. Combustible veneers are permitted provided they meet the requirements of this Part of the Rules.

See *IACS UI SC 125, Rev.3*.

...

■ **Head 3.1 DEFINITIONS**, sub-item 3.1.2.23 has been amended and should be read as follows:

3.1.2 For the purpose of this Part of the Rules the following definitions are adopted:

...

.23 *Fire Test Procedures Code* – the International Code for Application of Fire Test Procedures, 2010 (2010 FTP Code), as adopted by resolution MSC.307(88), as amended by resolution MSC.437(99); taking into account IMO interpretations (*MSC.1/Circ.1435, MSC.1/Circ.1456 and MSC.1/Circ.1488*), IMO Recommendation (*MSC.1/Circ.1435*) and IACS unified interpretations *UI FTP 2, UI FTP3 Rev.2, UI FTP4 Rev.1, UI FTP5 and UI FTP6 Rev.1*.

...



## 4 PROBABILITY OF IGNITION

■ **Head 4.5 CARGO AREAS OF OIL TANKERS**, item 4.5.7.1 has been amended and should be read as follows:

### 4.5.7.1 Portable instrument

Tankers shall be equipped with at least one portable instrument for measuring oxygen and one for measuring flammable vapour concentrations, together with a sufficient set of spares. Suitable means shall be provided for the calibration of such instruments. *See IACS UI SC 149 Rev.2. See also MSC.1/Circ.1456 1456 and MSC.1/Circ.1581.*

In addition, portable instruments for measuring oxygen and flammable vapour concentrations on oil tankers shall be in compliance with following requirements (IACS UR F7 **Rev. 3, Corr.1**):

1. Every oil tanker is to be provided with at least two portable gas detectors capable of measuring flammable vapour concentrations in air (**% LEL**) and at least two portable O<sub>2</sub> analysers. **Alternatively, at least two gas detectors, each capable of measuring both oxygen and flammable vapour concentrations in air (% LEL), are to be provided.**
2. In addition, for tankers fitted with inert gas systems, at least two portable gas detectors are to be capable of measuring concentrations of flammable vapours in inerted atmosphere (**% gas by volume**).

## 9 STRUCTURAL INTEGRITY AND CONTAINMENT OF FIRE

■ **Head 9.2 THERMAL AND STRUCTURAL BOUNDARIES**, sub-item 9.2.2.3.2.2(9) has been amended and should be read as follows:

**9.2.2.3.2** The following requirements shall govern application of the tables:

...

.2 For determining the appropriate fire integrity standards to be applied to boundaries between adjacent spaces, such spaces are classified according to their fire risk as shown in categories (1) to (14) below.

Where the contents and use of a space are such that there is a doubt as to its classification for the purpose of this Section, or where it is possible to assign two or more classifications to a space, it shall be treated as a space within the relevant category having the most stringent boundary requirements. Smaller, enclosed rooms within a space that have less than 30% communicating openings to that space are considered separate spaces. The fire integrity of the boundary bulkheads and decks of such smaller rooms shall be as prescribed in tables 9.1 and 9.2. The title of each category is intended to be typical rather than restrictive. The number in parentheses preceding each category refers to the applicable column or row in the tables.

...

(9) Sanitary and similar spaces:

Communal sanitary facilities, showers, baths, water closets, etc.

Small laundry rooms.

Indoor swimming pool areas.

Isolated pantries containing no cooking appliances in accommodation spaces. **See MSC.1/Circ.1634.**

(Private sanitary facilities shall be considered a portion of the space in which they are located).

...

## 10 FIRE FIGHTING

- **Head 10.7 FIRE-EXTINGUISHING ARRANGEMENTS IN CARGO SPACES**, item 10.7.1.4 has been amended and should be read as follows:

**10.7.1.4** The *Register* may exempt from the requirements of 10.7.1.3 and 10.7.2 cargo spaces of any cargo ship if constructed, and solely intended, for the carriage of ore, coal, grain, unseasoned timber, non-combustible cargoes or cargoes which, in the opinion of the *Register*, constitute a low fire risk (see *IMSBC Code (resolution MSC.268(85))*, as amended, appendix 1, entry for coal, and to the Lists of solid bulk cargoes for which a fixed gas fire-extinguishing system may be exempted or for which a fixed gas fire-extinguishing system is ineffective (*MSC.1/Circ.1395/Rev.4*)). Such exemptions may be granted only if the ship is fitted with steel hatch covers and effective means of closing all ventilators and other openings leading to the cargo spaces. When such exemptions are granted, the *Register* shall issue an Exemption Certificate, irrespective of the date of construction of the ship concerned and shall ensure that the list of cargoes the ship is permitted to carry is attached to the Exemption Certificate. See *IACS UI SC 197*, [Rev.2](#).

## 19 CARRIAGE OF DANGEROUS GOODS

- **Head 19.3 SPECIAL REQUIREMENTS**, preamble has been amended and should be read as follows:

Unless otherwise specified, the following requirements shall govern the application of tables 19.1, 19.2 and 19.3 to both “on-deck” and “under-deck” stowage of dangerous goods where the numbers of the following items are indicated in the first column of the tables.

See IACS UI SC 87, **Rev.2**.

- **Head 19.3 SPECIAL REQUIREMENTS**, item 19.3.1.2 has been amended and should be read as follows:

**19.3.1.2** The quantity of water delivered shall be capable of supplying four nozzles of a size and at pressures as specified in 10.2, capable of being trained on any part of the cargo space when empty. This amount of water may be applied by equivalent means to the satisfaction of the *Register*. See IACS UI SC 168, *Rev.1*.

On ships of less than 300 gross tonnage, the quantity of water delivered shall be capable of supplying two nozzles of a size and at pressures as specified in 10.2, capable of being trained on any part of the cargo space when empty. In the case of discrepancy between the specific regulations of the Flag State Administration (if available) and this requirement, the former shall apply.

- **Head 19.4 DOCUMENT OF COMPLIANCE**, item 19.4.1 has been amended and should be read as follows:

**19.4.1** The *Register* shall provide the ship with an appropriate document as evidence of compliance of construction and equipment with the requirements of this Section (see *MSC.1/Circ.1266*). Certification for dangerous goods, except solid dangerous goods in bulk, is not required for those cargoes specified as class 6.2 and 7 and dangerous goods in limited quantities and excepted quantities.

The cargoes covered by the IMSBC Code do not require certification, unless such cargoes are classified as dangerous goods, except class 6.2 and 7.

Such a document of compliance is required only when a ship carries or intends to carry dangerous goods and is (see *MSC/Circ.858*):

- .1 a passenger ship constructed on or after 1 September 1984; or
- .2 a cargo ship of 500 gross tonnage or over constructed on or after 1 September 1984; or
- .3 a cargo ship of less than 500 gross tonnage constructed on or after 1 February 1992.

See IACS UI SC 87, **Rev. 2**, and IACS UI SC 196.

See Document of compliance with the special requirements for ships carrying dangerous goods under the provisions of regulation 19, as amended, and paragraph 7.17 of the 2000 HSC Code, as amended (*MSC.1/Circ.1266*).

## 20 PROTECTION OF VEHICLE, SPECIAL CATEGORY AND RO-RO SPACES

■ **Head 20.6 FIRE EXTINGUISHION**, item 20.6.1.1 has been amended and should be read as follows:

**20.6.1.1** Vehicle spaces and ro-ro spaces, which are not special category spaces and are capable of being sealed from a location outside of the cargo spaces, shall be fitted with one of the following fixed fire-extinguishing systems:

- .1 a fixed gas fire-extinguishing system complying with the provisions of the Section 24;
- .2 a fixed high-expansion foam fire-extinguishing system complying with the provisions of the Section 24; or
- .3 a fixed water-based fire-fighting system for ro-ro spaces and special category spaces complying with the provisions of the Section 24 and 20.6.1.2.1 to 20.6.1.2.4.

■ **Head 20.6 FIRE EXTINGUISHION**, item 20.6.1.3 has been amended and should be read as follows:

**20.6.1.3** The Register may permit the use of any other fixed fire-extinguishing system (*see Guidelines for the approval of fixed water-based fire-fighting systems for ro-ro spaces and special category spaces equivalent to that referred to in resolution A.123(V) (MSC.1/Circ.1272) and Revised Guidelines for the design and approval of fixed water-based fire-fighting systems for ro-ro spaces and special category spaces (MSC.1/Circ.1430, Rev.2)*) that has been shown, by a full-scale test in conditions simulating a flowing petrol fire in a vehicle space or a ro-ro space, to be not less effective in controlling fires likely to occur in such a space.

## 21 CASUALTY THRESHOLD, SAFE RETURN TO PORT AND SAFE AREAS

■ **Head 21.1 APPLICATION**, item 21.1.1 has been amended and should be read as follows:

**21.1.1** Passenger ships constructed on or after 1 July 2010 having a length, as defined in *Rules for the classification of ships, Part 5 – Subdivision*, 1.2, of 120 m or more or having three or more main vertical zones shall comply with the provisions of this Section.

However, main vertical zones at the foremost and/or aftermost part of the ship, comprising only voids without normal means of access or ballast tanks, for example forepeak, need not be included in the count of the main vertical zones.

## 24 FIRE SAFETY SYSTEMS

■ **Head 24.5 FIRE GAS FIRE-EXTINGUISHING SYSTEMS**, sub-item 24.5.2.1.2 has been amended and should be read as follows:

### 24.5.2 Engineering specifications

#### 24.5.2.1 General

...

##### .3 System control requirements

- .1 The necessary pipes for conveying fire-extinguishing medium into the protected spaces shall be provided with control valves so marked as to indicate clearly the spaces to which the pipes are led. Suitable provisions shall be made to prevent inadvertent release of the medium into the space. Where a cargo space fitted with a gas fire-extinguishing system is used as a passenger space, the gas connection shall be blanked during such use. The pipes may pass through accommodations providing that they are of substantial thickness and that their tightness is verified with a pressure test, after their installation, at a pressure head not less than 5 N/mm<sup>2</sup>. In addition, pipes passing through accommodation areas shall be joined only by welding and shall not be fitted with drains or other openings within such spaces. The pipes shall not pass through refrigerated spaces.
- .2 Means shall be provided for automatically giving audible and visual warning of the release of fire-extinguishing medium into any ro-ro spaces, container holds equipped with integral reefer containers, spaces accessible by doors or hatches, and other spaces in which personnel normally work or to which they have access. *See IACS UI SC 25 Rev.2, IACS UI SC 132 Rev.4 and IACS UI SC 252* (taking into account 24.1.1.1). The audible alarms shall be located so as to be audible throughout the protected space with all machinery operating, and the alarms should be distinguished from other audible alarms by adjustment of sound pressure or sound patterns. The pre-discharge alarm shall be automatically activated (e.g. by opening of the release cabinet door). The alarm shall operate for the length of time needed to evacuate the space, but in no case less than 20 s before the medium is released. Conventional cargo spaces and small spaces (such as compressor rooms, paint lockers, etc.) with only a local release need not be provided with such an alarm. *See MSC.1/Circ.1456 and MSC.1/Circ.1487*.
- .3 The means of control of any fixed gas fire-extinguishing system shall be readily accessible, simple to operate and shall be grouped together in as few locations as possible at positions not likely to be cut off by a fire in a protected space. At each location there shall be clear instructions relating to the operation of the system having regard to the safety of personnel. *See MSC.1/Circ.1240. See IACS UI SC 204* (taking into account 24.1.1.1).
- .4 Automatic release of fire-extinguishing medium shall not be permitted, except as permitted by the *Register*.

...

■ **Head 24.5 FIRE GAS FIRE-EXTINGUISHING SYSTEMS**, sub-item 24.5.2.2.1.5 has been amended and should be read as follows:

#### 24.5.2.2 Carbon dioxide systems

See *IACS UI SC 170, Rev.1* (taking into account 24.1.1.1).

##### 24.5.2.2.1 Quantity of fire-extinguishing medium

- .1 For cargo spaces, the quantity of carbon dioxide available shall, unless otherwise provided, be sufficient to give a minimum volume of free gas equal to 30% of the gross volume of the largest cargo space to be protected in the ship.
- .2 For vehicle spaces and ro-ro spaces which are not special category spaces, the quantity of carbon dioxide available shall be at least sufficient to give a minimum volume of free gas equal to 45% of the gross volume of the largest such cargo space which is capable of being sealed, and the arrangements shall be such as to ensure that at least two thirds of the gas required for the relevant space shall be introduced within 10 min. Carbon dioxide systems shall not be used for the protection of special category spaces.
- .3 For machinery spaces, the quantity of carbon dioxide carried shall be sufficient to give a minimum volume of free gas equal to the larger of the following volumes, either:
  - (1) 40% of the gross volume of the largest machinery space so protected, the volume to exclude that part of the casing above the level at which the horizontal area of the casing is 40% or less of the horizontal area of the space concerned taken midway between the tank top and the lowest part of the casing; or
  - (2) 35% of the gross volume of the largest machinery space protected, including the casing.
- .4 The percentages specified in 24.5.2.2.1.3 above may be reduced to 35% and 30%, respectively, for cargo ships of less than 2,000 gross tonnage where two or more machinery spaces, which are not entirely separate, are considered as forming one space.
- .5 For the purpose of this Section the volume of free carbon dioxide shall be calculated at 0.56 m<sup>3</sup>/kg.
- .6 For machinery spaces, the fixed piping system shall be such that 85% of the gas can be discharged into the space within 2 min.

- .7 For container and general cargo spaces (primarily intended to carry a variety of cargoes separately secured or packed), the fixed piping system shall be such that at least two thirds of the gas can be discharged into the space within 10 min. For solid bulk cargo spaces, the fixed piping system shall be such that at least two thirds of the gas can be discharged into the space within 20 min. The system controls shall be arranged to allow one third, two thirds or the entire quantity of gas to be discharged based on the loading condition of the hold. *See MSC.1/Circ.1528.*
- .8 In containerships, for container cargo spaces fitted with partially weathertight hatchway covers the quantity of carbon dioxide available for the cargo space shall be increased as specified in *MSC/Circ.1087.*

■ **Head 24.7 FIXED PRESSURE WATER-SPRAYING AND WATER-MIST FIRE-EXTINGUISHING SYSTEMS**, item 24.7.2.4 has been amended and should be read as follows:

**24.7.2.4 Fixed water-based fire-fighting systems for ro-ro spaces, vehicle spaces and special category spaces**

Fixed water-based fire-fighting systems for ro-ro spaces, vehicle spaces and special category spaces shall be approved by the *Register* based on guidelines developed by the IMO, see *Revised guidelines for approval of fixed water-based fire-fighting systems for ro-ro spaces and special category spaces (MSC.1/Circ.1430, Rev.2)*.

■ **Head 24.8 AUTOMATIC SPRINKLER, FIRE DETECTION AND FIRE ALARM SYSTEMS**, sub-item 24.8.2.5.2 has been amended and should be read as follows:

**24.8.2.5.2 Alarm and indication**

- .1 Each section of sprinklers shall include means for giving a visual and audible alarm signal automatically at one or more indicating units whenever any sprinkler comes into operation. Such alarm systems shall be such as to indicate if any fault occurs in the system. Such units shall indicate in which section served by the system a fire has occurred and shall be centralized on the navigation bridge or in the continuously-manned central control station and, in addition, visible and audible alarms from the unit shall also be placed in a position other than on the aforementioned spaces to ensure that the indication of fire is immediately received by the crew.
- .2 Switches shall be provided at one of the indicating positions referred to in 24.8.2.5.2.1 which will enable the alarm and the indicators for each section of sprinklers to be tested.
- .3 Sprinklers shall be placed in an overhead position and spaced in a suitable pattern to maintain an average application rate of not less than 5 l/m<sup>2</sup>/min over the nominal area covered by the sprinklers. For this purpose, nominal area shall be taken as the gross horizontal projection of the area to be covered. However, the *Register* may permit the use of sprinklers providing such an alternative amount of water suitably distributed as has been shown to the satisfaction of the *Register* to be not less effective.
- .4 A list or plan shall be displayed at each indicating unit showing the spaces covered and the location of the zone in respect of each section. Suitable instructions for testing and maintenance shall be available.

■ **Head 24.9 FIXED FIRE DETECTION AND FIRE ALARM SYSTEMS**, item 24.9.2.1.2 has been amended and should be read as follows:

**24.9.2.1.2** The fire detection system shall be designed to (*see IACS UI SC 147, Rev. 2*), taking into account 24.1.1.1):

- .1 control and monitor input signals from all connected fire and smoke detectors and manual call points;
- .2 provide output signals to the navigation bridge, continuously manned central control station or onboard safety centre to notify the crew of fire and fault conditions;
- .3 monitor power supplies and circuits necessary for the operation of the system for loss of power and fault conditions; and
- .4 the system may be arranged with output signals to other fire safety systems including:
  - (1) paging systems, fire alarm or public address systems;
  - (2) fan stops;
  - (3) fire doors;
  - (4) fire dampers;
  - (5) sprinkler systems;
  - (6) smoke extraction systems;
  - (7) low-location lighting systems;
  - (8) fixed local application fire-extinguishing systems;
  - (9) closed circuit television (CCTV) systems; and
  - (10) other fire safety systems.



**PART 17**AMENDMENTS No. 3

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■ **Head 24.14 FIXED DECK FOAM SYSTEMS**, item 24.14.2.1.3 has been amended and should be read as follows:

**24.14.2.1.3** Operation of a deck foam system at its required output shall permit the simultaneous use of the minimum required number of jets of water at the required pressure from the fire main. Where the deck foam system is supplied by a common line from the fire main, additional foam concentrate shall be provided for operation of two nozzles for the same period of time required for the foam system. The simultaneous use of the minimum required jets of water shall be possible on deck over the full length of the ship, in the accommodation, service spaces, control stations and machinery spaces.

## ANNEX 5

- **Head 1 FIRE EXTINGUISHING ARRANGEMENTS**, Note 6 to Table 1-1 has been amended and should be read as follows:

Notes to Table 1-1:

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6. Open spaces and spaces not capable of being sealed shall be fitted with pressure water-spraying system.  
High-expansion foam system may not be fitted for container cargo spaces.  
Fixed water spraying system shall be provided for open top container cargo spaces in lieu of the fixed gas fire-extinguishing system required (*see MSC/Circ.608 Rev.1*).  
Equivalent fixed water-based fire-extinguishing systems (*see MSC/Circ.1430/Rev.2*), approved by the Register, may be accepted in lieu of the fixed pressure-water spraying system required.  
For protection of vehicle, special category and ro-ro spaces see also 20.6.1.

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