RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part R Fire Protection, Detection and Extinction

Rules for the Survey and Construction of Steel Ships
Part R 2012 AMENDMENT NO.1
Guidance for the Survey and Construction of Steel Ships
Part R 2012 AMENDMENT NO.1

Rule No.29/ Notice No.43 15th June 2012
Resolved by Technical Committee on 10th February 2012
Approved by Board of Directors on 6th March 2012

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RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part R Fire Protection, Detection and Extinction

2012 AMENDMENT NO.1

Rule No.29 15th June 2012
Resolved by Technical Committee on 10th February 2012
Approved by Board of Directors on 6th March 2012

Rule No.29 15th June 2012
AMENDMENT TO THE RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Rules for the survey and construction of steel ships" has been partly amended as follows:

Part R FIRE PROTECTION, DETECTION AND EXTINCTION

Amendment 1-1

Chapter 3 DEFINITIONS

3.2 Definitions

Paragraph 3.2.23 has been amended as follow.

3.2.23 Fire Test Procedures Code

Fire Test Procedures Code (*FTP* Code) means the International Code for Application of Fire Test Procedures, 2010 (2010 *FTP* Code) as adopted by the *MSC* of the *IMO* by resolution *MSC*.307(88)~~61(67)~~, as may be amended by the *IMO*, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present *SOLAS* concerning the amendments procedures applicable to the annex other than chapter I thereof.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 1 July 2012.

Amendment 1-2

Chapter 3 DEFINITIONS

3.2 Definitions

Paragraphs 3.2.51 and 3.2.52 have been added as follows.

3.2.51 Safety centre

Safety centre is a control station dedicated to the management of emergency situations. Safety systems' operation, control and/or monitoring are an integral part of the safety centre.

3.2.52 Cabin balcony

Cabin balcony is an open deck space which is provided for the exclusive use of the occupants of a single cabin and has direct access from such a cabin.

Chapter 7 DETECTION AND ALARM

7.4 Protection of Machinery Spaces

7.4.1 Installation

Sub-paragraph -1 has been amended as follows.

1 A fixed fire detection and fire alarm system is to be installed in:

(1) (omitted)

(2) machinery spaces where the installation of automatic and remote control systems and equipment has been approved in lieu of continuous manning of the space; ~~and~~

(3) machinery spaces where the main propulsion and associated machinery including sources of main sources of electrical power are provided with various degrees of automatic or remote control and are under continuous manned supervision from a control room~~.~~; and

(4) enclosed spaces containing incinerators.

Chapter 29 FIXED FIRE DETECTION AND FIRE ALARM SYSTEMS

29.1 General

Paragraph 29.1.2 has been added as follows.

29.1.2 Definitions

1 *Section* means a group of fire detectors and manually operated call points as reported in the indicating unit(s).

2 *Section identification capability* means a system with the capability of identifying the section in which a detector or manually operated call point has activated.

3 *Individually identifiable* means a system with the capability to identify the exact location and type of detector or manually activated call point which has activated, and which can differentiate the signal of that device from all others.

29.2 Engineering Specifications

Paragraph 29.2.1 has been amended as follows.

29.2.1 General Requirements

1 Any required fixed fire detection and fire alarm system with manually operated call points is to be capable of immediate operation at all times (this does not require a backup control panel). Notwithstanding this, particular spaces may be disconnected, for example, workshops during hot work and ro-ro spaces during on and off-loading. The means for disconnecting the detectors are to be designed to automatically restore the system to normal surveillance after a predetermined time that is appropriate for the operation in question. The space is to be manned or provided with a fire patrol when detectors required by **the Rules** are disconnected. Detectors in all other spaces are to remain operational.

2 The fire detection system is to be designed to~~is not to be used for any other purpose, except that closing of fire doors and similar functions may be permitted at the control panel.~~

(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:

- (a) paging systems, fire alarm or public address systems;
- (b) fan stops;
- (c) fire doors;
- (d) fire dampers;
- (e) sprinkler systems;
- (f) smoke extraction systems;
- (g) low-location lighting systems;
- (h) fixed local application fire-extinguishing systems;
- (i) closed circuit television (CCTV) systems; and
- (j) other fire safety systems.

3 The fire detection system may be connected to a decision management system provided that:

(1) the decision management system is proven to be compatible with the fire detection system;

(2) the decision management system can be disconnected without losing any of the functions required by this chapter for the fire detection system; and

(3) any malfunction of the interfaced and connected equipment is not to propagate under any circumstance to the fire detection system.

4 Detectors and manual call points are to be connected to dedicated sections of the fire detection system. Other fire safety functions, such as alarm signals from the sprinkler valves, may be permitted if in separate sections.

5~~3~~ The system and equipment are to be suitably designed to withstand supply voltage variation and transients, ambient temperature changes, vibration, humidity, shock, impact and corrosion normally encountered in ships. All electrical and electronic equipment on the bridge or in the vicinity of the bridge is to be tested for electromagnetic compatibility.

6~~4~~ ~~Fire detection systems with a zone address identification capability~~Fixed fire detection and fire alarm systems with individually identifiable fire detectors are to be so arranged that:

(1) means are provided to ensure that any fault (*e.g.*, power break, short circuit, earth, etc.) occurring in the section will not prevent the continued individual identification of the remainder of the connected detectors in the section~~loop will not render the whole loop ineffective~~;

(2) all arrangements are made to enable the initial configuration of the system to be restored in the event of failure (*e.g.*, electrical, electronic, informatics, etc.);

(3) the first initiated fire alarm will not prevent any other detector from initiating further fire alarms; and

(4) no section~~loop~~ will pass through a space twice. When this is not practical (*e.g.*, for large public spaces), the part of the section~~loop~~ which by necessity passes through the space for a second time is to be installed at the maximum possible distance from the other parts of the loop.

7 The fixed fire detection and fire alarm system is, as a minimum, to have section identification capability.

Paragraph 29.2.2 has been amended as follows.

29.2.2 Sources of Power Supply

1 There are to be not less than two sources of power supply for the electrical equipment used in the operation of the fixed fire detection and fire alarm system, one of which is to be an emergency source of power. The supply is to be provided by separate feeders reserved solely for that purpose. Such feeders are to run to an automatic change-over switch situated in or adjacent to the control panel for the fire detection system. The main (respective emergency) feeder is to run from the main (respective emergency) switchboard to the change-over switch without passing through any other distributing switchboard.

2 There are to be sufficient power to permit the continued operation of the system with all detectors activated, but not more than 100 if the total exceeds this figure.

3 The emergency source of power specified in the preceding **-1** is to be sufficient to maintain the operation of the fire detection and fire alarm system for the periods required by **3.3, Part H of the Rules**, and at the end of that period, is to be capable of operating all connected visual and audible fire alarm signals for a period of at least 30 *minutes*.

Paragraph 29.2.3 has been amended as follows.

29.2.3 Component Requirements

1 Detectors

Detectors are to be in accordance with the followings.

(1) Detectors are to be operated by heat, smoke or other products of combustion, flame, or any combination of these factors. Detectors operated by other factors indicative of incipient fires may be considered by the Society provided that they are no less sensitive than such detectors. ~~Flame detectors are to only be used in addition to smoke or heat detectors.~~

(2) Smoke detectors required in all stairways, corridors and escape routes within accommodation spaces are to be certified to operate before the smoke density exceeds 12.5% obscuration per metre, but not until the smoke density exceeds 2% obscuration per metre, when tested according to standards *EN* 54:2001 and *IEC* 60092-504. Alternative testing standards may be used as determined by the Administration. Smoke detectors to be installed in other spaces are to operate within sensitivity limits to the satisfaction of the Society having regard to the avoidance of detector insensitivity or oversensitivity.

(3) Heat detectors are to be certified to operate before the temperature exceeds 78℃ but not until the temperature exceeds 54℃, when the temperature is raised to those limits at a rate less than 1℃ per minute, when tested according to standards *EN* 54:2001 and *IEC* 60092-504. Alternative testing standards may be used as determined by the Administration. At higher rates of temperature rise, the heat detector is to operate within temperature limits to the satisfaction of the Society having regard to the avoidance of detector insensitivity or oversensitivity.

(4) (Omitted)

(5) Flame detectors are to be tested according to standards *EN* 54-10:2001 and *IEC* 60092-504. Alternative testing standards may be used as determined by the Administration.

(6~~5~~) All detectors are to be of a type such that they can be tested for correct operation and restored to normal surveillance without the renewal of any component.

(7) Fixed fire detection and fire alarm systems for cabin balconies are to be approved by the Society.

(8) Detectors fitted in hazardous areas are to be tested and approved for such service. Detectors required by **20.4** and installed in spaces that comply with requirement in **20.3.2-2** need not be suitable for hazardous areas. Detectors fitted in spaces carrying dangerous goods, required by **Chapter 19, Table R19.3** to comply with requirements in **19.3.2**, are to be suitable for hazardous areas.

2 Control panel

The control panel for the fire detection system is to be tested according to standards *EN* 54-2:1997, *EN* 54-4:1997 and *IEC* 60092-504:2001. Alternative standards may be used as determined by the Administration.

3 Cables

Cables used in the electrical circuits are to be flame retardant according to standard *IEC* 60332-1.

Paragraph 29.2.4 has been amended as follows.

29.2.4 Installation Requirements

1 Sections

(1) (omitted)

(2) A section of fire detectors which covers a control station, a service space or an

accommodation space is not to include a machinery space of category *A* or a ro-ro space. A section of fire detectors which covers a ro-ro space is not to include a machinery space of category *A*. For fixed fire detection systems with remotely and individually identifiable fire detectors, a section~~loop~~ covering sections of fire detectors in accommodation, service spaces and control station is not to include ~~sections of~~ fire detectors in machinery spaces of category *A* or ro-ro spaces.

(3) Where the fixed fire detection and fire alarm system does not include means of remotely identifying each detector individually, no section covering more than one deck within accommodation spaces, service spaces and control stations is to normally be permitted except a section which covers an enclosed stairway. In order to avoid delay in identifying the source of fire, the number of enclosed spaces included in each section is to be limited as determined by the Society. ~~In no case more than 50 enclosed spaces are to be permitted in any section.~~ If the detection system is fitted with remotely and individually identifiable fire detectors, the sections may cover several decks and serve any number of enclosed spaces.

2 Positioning of detectors

(1) Detectors are to be located for optimum performance. Positions near beams and ventilation ducts, or other positions where patterns of air flow could adversely affect performance, and positions where impact or physical damage is likely, are to be avoided. Detectors are to be~~which are~~ located on the overhead ~~are to be~~at a minimum distance of 0.5 *m* away from bulkheads, except in corridors, lockers and stairways.

(2) The maximum spacing of detectors is to be in accordance with the **Table R29.1**. The Society may require or permit other spacing based upon test data which demonstrate the characteristics of the detectors. Detectors located below moveable ro-ro decks are to be in accordance with the **Table R29.1**.

~~(3) The Society may require or permit different spacing to that specified in **Table R29.1** if based upon test data which demonstrate the characteristics of the detectors.~~

(3) Detectors in stairways are to be located at least at the top level of the stair and at every second level beneath.

(4) When fire detectors are installed in freezers, drying rooms, saunas, parts of galleys used to heat food, laundries and other spaces where steam and fumes are produced, heat detectors may be used.

(5) Where a fixed fire detection and fire alarm system is required by **7.5**, spaces having little or no fire risk need not be fitted with detectors. Such spaces include void spaces with no storage of combustibles, private bathrooms, public toilets, fire-extinguishing medium storage rooms, cleaning gear lockers (in which flammable liquids are not stowed), open deck spaces and enclosed promenades having little or no fire risk and that are naturally ventilated by permanent openings.

Table R29.1 Spacing of Detectors

Type of Detector	Maximum floor area per detectors	Maximum distance apart between centre	Maximum distance away from bulkheads
Heat	37 m^2	9 *m*	4.5 *m*
Smoke	74 m^2	11 *m*	5.5 *m*

3 Arrangement of cables~~electric wiring~~

(1) ~~Electrical wiring~~Cables which form~~s~~ part of the system is to be so arranged as to avoid galleys, machinery spaces of category *A*, and other enclosed spaces of high fire risk except where it is necessary to provide for fire detection or fire alarm in such spaces or to connect to the appropriate power supply.

(2) ~~A loop of fire detection systems with a zone address identification capability is not to~~A section

with individually identifiable capability is to be arranged so that it cannot be damaged at more than one point by a fire.

Paragraph 29.2.5 has been amended as follows.

29.2.5 System Control Requirements

1 Visual and audible fire signals

(1) The activation of any detector or manually operated call point is to initiate a visual and audible fire detection alarm signal at the control panel and indicating units. If the signals have not been acknowledged~~received attention~~ with in 2 *minutes* an audible fire alarm is to be automatically sounded throughout the crew accommodation and service spaces, control stations and machinery spaces of category *A*. This alarm sounder system need not be an integral part of the detection system.

(2) The control panel is to be located on the ~~navigating~~navigation bridge or in the fire control station~~continuously manned central control station~~.

(3) Indicating units are, as a minimum, to denote the section in which a detector has activated or manually operated call point has operated. ~~At least one unit is to be so located that it is easily accessible to responsible members of the crew at all times. One indicating unit is to be located on the navigating bridge if the control panel is located in the main fire control station.~~

(4) (omitted)

(5) Power supplies and electric circuits necessary for the operation of the system are to be monitored for loss of power or fault conditions as appropriate including:~~.~~

(a) a single open or power break fault caused by a broken wire;

(b) a single ground fault caused by the contact of a wiring conductor to a metal component; and

(c) a single wire to wire fault caused by the contact of two or more wiring conductors.

Occurrence of a fault condition is to initiate a visual and audible fault signal at the control panel which is to be distinct from a fire signal.

(6) Means to manually acknowledge all alarm and fault signals is to be provided at the control panel. The audible alarm sounders on the control panel and indicating units may be manually silenced. The control panel is to clearly distinguish between normal, alarm, acknowledged alarm, fault and silenced conditions.

(7) The system is to be arranged to automatically reset to the normal operating condition after alarm and fault conditions are cleared.

(8) When the system is required to sound a local audible alarm within the cabins where the detectors are located, a means to silence the local audible alarms from the control panel are not to be permitted.

(9) In general, audible alarm sound pressure levels at the sleeping positions in the cabins and 1 *m* from the source are to be at least 75 dB(A) and at least 10 dB(A) above ambient noise levels existing during normal equipment operation with the ship under way in moderate weather. The sound pressure level is to be in the 1/3 octave band about the fundamental frequency. Audible alarm signals are not to exceed 120 dB(A).

~~**2** The fire detection indicating panel is to be provided with facilities for functional testing.~~

2~~3~~ Testing

Suitable instructions and component spares for testing and maintenance are to be provided. Detectors are to be periodically tested using equipment suitable for the types of fires to which the detector is designed to respond. Ships with self-diagnostic systems that have in place a cleaning regime for areas where heads may be prone to contamination may carry out testing in accordance with the requirements of the Society.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 July 2012.

2. Notwithstanding the amendments to the Rules, the current requirements may apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date.

(Note) The term "*a similar stage of construction*" means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 *tonnes* or 1%* of the estimated mass of all structural material, whichever is the less.

* For high speed craft, "1%" is to be read as "3%".

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE

Part R Fire Protection, Detection and Extinction

2012 AMENDMENT NO.1

Notice No.43 15th June 2012

Resolved by Technical Committee on 10th February 2012

Notice No.43 15th June 2012
AMENDMENT TO THE GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

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

Part R FIRE PROTECTION, DETECTION AND EXTINCTION

Amendment 1-1

R4 PROBABILITY OF IGNITION

R4.4 Miscellaneous Items of Ignition Sources and Ignitability

Paragraph R4.4.4 has been added as follows.

R4.4.4 Primary Deck Coverings

The wording "primary deck coverings" specified in **4.4.4, Part R of the Rules** means the first layer of a floor construction which is applied directly on the top of deck plating and is inclusive of any primary coat, anti-corrosive compound or adhesive which is necessary to provide protection or adhesion to the deck plating. In this connection, "the first layer" means the materials forming a deck covering excluding "*A*" class decks (including insulation materials), non-combustible materials and "fire retardant surface flooring".

R5 FIRE GROWTH POTENTIAL

R5.3 Fire Protection Materials

R5.3.2 Use of Combustible Materials

Sub-paragraph -1 has been amended as follows.

1 ~~"~~The "calorific value" specified in **5.3.2-2, Part R of the Rules** is to be measured ~~by the bomb method of the *JIS M* 8814 or by the~~ in accordance with *ISO* 1716:2010 "Reaction to fire tests for building products – Determination of the heat of combustion"~~*ISO* 1716 on "Determination of Calorific Potential"~~.

R6 SMOKE GENERATION POTENTIAL AND TOXICITY

R6.3 Primary Deck Coverings

Paragraph R6.3.1 has been amended as follows.

R6.3.1 Primary Deck Coverings

With respect to t~~T~~he wording "primary deck coverings" specified in **6.3.1, Part R of the Rules**, reference is made to **R4.4.4**~~means the first layer of a floor construction which is applied directly on the top of deck plating and is inclusive of any primary coat, anti-corrosive compound or adhesive which is necessary to provide protection or adhesion to the deck plating. In this connection, "the first layer" means the materials forming a deck covering excluding "A" class deck (including insulation materials), non-combustible materials and "fire retardant surface flooring"~~.

R9 CONTAINMENT OF FIRE

R9.3 Penetration in Fire-resisting Divisions and Prevention of Heat Transmission

R9.3.4 Prevention of Heat Transmission

Fig. R9.3.4-1 to Fig. R9.3.4-3 have been amended as follows.

Fig. R9.3.4-1

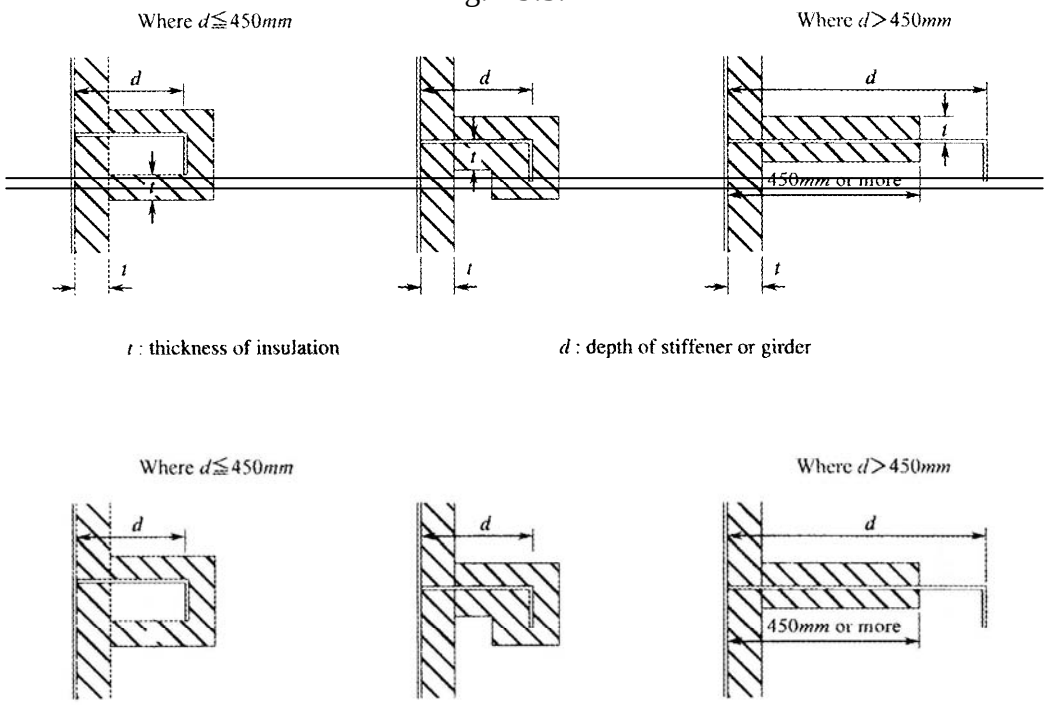
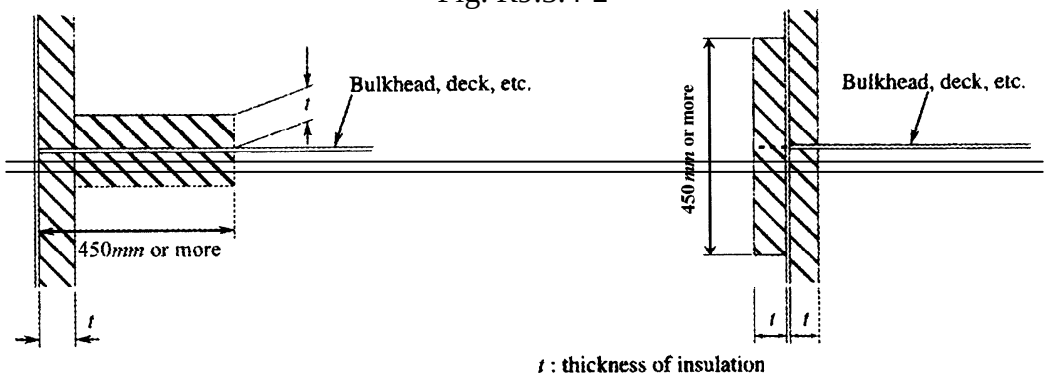


Fig. R9.3.4-2



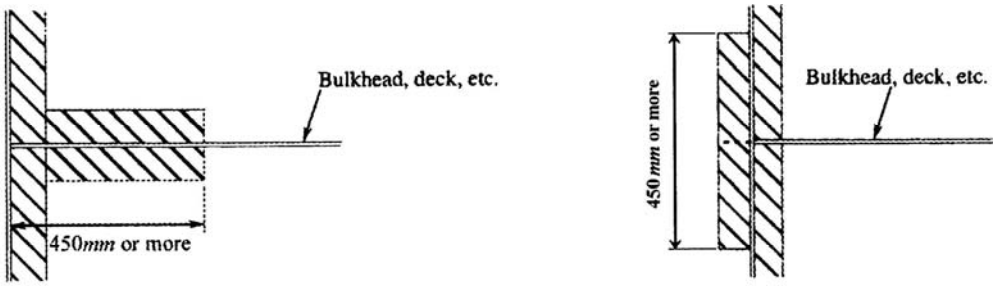
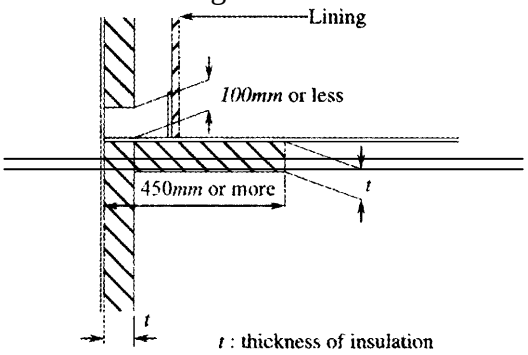
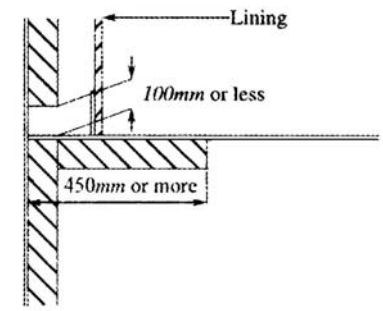


Fig. R9.3.4-3





R9.7 Ventilation Systems

R9.7.1 Duct and Dampers

Sub-paragraph -4 has been amended as follows.

4 With respect to ~~T~~the "calorific value" specified in **9.7.1-1(2), Part R of the Rules**, reference is made to **R5.3.2**~~is to be measured by the bomb method specified in *JIS M* 8814 or by *ISO* 1716 on "Determination of Calorific Potential"~~.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 1 July 2012.

Amendment 1-2

R29 FIXED FIRE DETECTION AND FIRE ALARM SYSTEMS

R29.2 Engineering Specifications

Paragraph R29.2.1 has been amended as follows.

R29.2.1 General Requirements

~~**1** The wording "section" specified in **Chapter 29, Part R of the Rules** means a group of fire detectors and manually operated call points as displayed in the indicating unit specified in **29.2.5-1(3), Part R of the Rules**.~~

~~**2** The following functions may be accepted as a similar function as closing of fire doors specified in **29.2.1-2, Part R of the Rules**:~~

~~(1) To activate a paging system;~~

~~(2) To activate the fan stop;~~

~~(3) To activate the closure of fire dampers;~~

~~(4) To activate the sprinkler system; and~~

~~(5) To activate the smoke extraction system.~~

~~**3** The wording "fire detection systems with a zone address identification capability" specified in **28.2.1-4, Part R of the Rules** means systems with individually identifiable fire detectors. The wording "loop" specified in the same paragraph means an electrical circuit linking detectors in various sections in sequence and connected to the indicating unit.~~

In applying **29.2.1-5, Part R of the Rules**, reference is made to the "*General Requirements for Electromagnetic Compatibility for All Electrical and Electronic Equipment*" (*IMO Res. A*.813(19)).

Paragraph R29.2.2 has been amended as follows.

R29.2.2 Source of Power Supply

With respect to the requirements specified in **29.2.2, Part R of the Rules**, the following requirements are to be considered.

(1) Continuity of power supply
   (a) Operation of the automatic changeover switch or a failure of one of the power supplies is not to result in any permanent or temporary degradation of the fixed fire detection and fire alarm systems.
   (b) In cases where fixed fire detection and fire alarm systems would be degraded by a momentary loss of power, a source of stored energy having adequate capacity is to be provided to ensure continuous operation during the changeover between power supplies.
   (c) Circuits of electrical power supplies to an automatic changeover switch are to be arranged so that a fault will not result in the loss of all power supplies to the automatic changeover switch.

(2) Emergency supply
   (a) Fixed fire detection and fire alarm system emergency power may be supplied by accumulator batteries or from emergency switchboards. In cases where the systems are supplied from accumulator batteries, arrangements are to comply with the following requirements:
      i) The accumulator batteries are to have the capacity to operate fire detection systems

under normal and alarm conditions during the period specified in **3.3.2-2(4), Part H of the Rules**.

ii) The rating of the charge unit, on restoration of the input power, is to be sufficient to recharge the batteries while maintaining the output supply to the fire detection systems.

iii) The accumulator batteries are to be suitably located for use in an emergency.

~~(b) In cases where the emergency feeders for fixed fire detection and fire alarm systems are supplied from emergency switchboards, such feeders are to run from emergency switchboards to fixed fire detection and fire alarm systems without passing through any other switchboard.~~

Paragraph R29.2.3 has been amended as follows.

R29.2.3 Component Requirements

1 With respect to the requirements of **29.2.3-1(1), Part R of the Rules**, in spaces such as provision refrigerating chambers in the accommodation spaces where a state of low temperature is maintained, if means are provided in the temperature control system so that audible and visible alarms are generated on the control panel and indicating unit~~display panel~~ in the event that the temperature of such spaces rises abnormally, the temperature control system may be deemed as the detectors~~fire detection and alarm systems~~ specified in the above-mentioned requirements.

2 The wording "sensitivity limits to the satisfaction of the Society" specified in **29.2.3-1(2), Part R of the Rules** means the following conditions as the standard for the ionizing type (that comes to operate on sensing the change in the ion current due to smoke) and the photo voltaic type (that comes to operate on sensing the change in the received amount of photoelectron due to smoke) respectively:

(1) (omitted)

(2) (omitted)

3 The wording "temperature limits to the satisfaction of the Society" specified in **29.2.3-1(3), Part R of the Rules** means the following conditions respectively for the constant temperature type spot detectors (those come into action when the ambient temperature of one place exceeds a preset value) and the compensation type spot detectors (those come into action when the rate of temperature rise in the ambient temperature exceeds a preset value) as the standard:

(1) (omitted)

(2) (omitted)

4 In applying **29.2.3-1(7), Part R of the Rules**, reference is made to the "*Guidelines for Approval of Fixed Fire Detection and Fire Alarm Systems for Cabin Balconies*" (*MSC.1/Circ.1242*).

Paragraph R29.2.5 has been amended as follows.

R29.2.5 System Control Requirements

For the audible alarm specified in **29.2.5-1, Part R of the Rules**, reference is made to the "*Code on Alerts and Indicators, 2009*" (*IMO Res. A.*1021(26))~~"*Code on Alarms and Indicators*" (*IMO Res. A.*830(19))~~.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 July 2012.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date.

(Note) The term "*a similar stage of construction*" means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 *tonnes* or 1%* of the estimated mass of all structural material, whichever is the less.

* For high speed craft, "1%" is to be read as "3%".

Amendment 1-3

R10 FIRE FIGHTING

R10.5 Fire-extinguishing Arrangements in Machinery Spaces

Paragraph R10.5.5 has been amended as follows.

R10.5.5 Fixed Local Application Fire-fighting Systems

1 The wording "approved type of fixed water-based or equivalent local application fire-fighting system" (hereinafter referred to as "the fire-fighting system" in this **R10.5.5**) specified in **10.5.5-2, Part R of the Rules** means the system approved by organizations authorized by the Administration or deemed appropriate by the Society in accordance with ~~*MSC/Circ.*913~~ *MSC.1 /Circ.*1387 "*Revised Guidelines for the approval of fixed water-based local application fire-extinguishing systems for use in category A machinery spaces* (*MSC/Circ.*913)".

2 Nozzle installations are to be determined as in the following **(1)** or **(2)** corresponding to the test results in accordance with ~~*MSC/Circ.*913~~ *MSC.1/Circ.*1387 as specified in **-1** above. When the nozzles are installed in the different manner from the conditions determined by the test, additional fire tests deemed as necessary by the Society are to be carried out to verify the fire-extinguishing capabilities.

(1) For nozzles of a system that extinguishes fires referred to in 3.3.2.1 to 3.3.2.3 of Appendix of Annex to ~~*MSC/Circ.*913~~ *MSC.1/Circ.*1387
   (a) Nozzles installed in grid: See **Fig. R10.5.5-1**
   (b) Nozzles installed in a single row: See **Fig. R10.5.5-2**
   (c) Single nozzle: See **Fig. R10.5.5-3**

(2) For nozzles of a system that extinguishes fires referred to in 3.3.2.3 to 3.3.2.5 of Appendix of Annex to ~~*MSC/Circ.*913~~ *MSC.1/Circ.*1387
   (a) Nozzles installed in grid: See **Fig. R10.5.5-4**
   (b) Nozzles installed in a single row: See **Fig. R10.5.5-5**
   (c) Single nozzle: See **Fig. R10.5.5-3**

3 (Omitted)

4 (Omitted)

5 (Omitted)

6 The systems of automatic release required in **10.5.5-2, Part R of the Rules** are to be designed to detect and indentify a local fire quickly and accurately to prevent unexpected activation, this being, in general, achieved by ~~a~~ any of the fire detection system specified in **(1)** through **(3)** ~~using two detectors of different types~~.

In this case, the fire detection system is to follow the requirements for those provided in the protected space under the provisions of **7.4, Part R of the Rules**. The automatic release will be achieved so that a flame type fire detector ~~of (1) below~~ provided for each area protected by the fire-fighting system detects a local fire and activates fire alarm, after then, if any detector ~~of (2) below~~ provided in the ~~protected space~~ machinery spaces of category *A* detects the fire, the fire-fighting system comes into action with an activation alarm specified in **10.5.5-4, Part R of the Rules**.

(1) Two ~~F~~flame type fire detectors ~~deemed as appropriate by the Society and provided for each protected area~~ complying with the requirements of **Chapter 29, Part R of the Rules**, which may be used as a part of the fire detecting and alarm systems for machinery spaces of category *A* required in **7.4, Part R of the Rules**.

(2) One flame type fire detector and one ~~S~~smoke type fire detector~~s~~ complying with the requirements of **Chapter 29, Part R of the Rules**, which may be used as a part of the fire detecting and alarm systems for machinery spaces of category *A* required in **7.4, Part R of the Rules**.

(3) Other arrangements deemed appropriate by the Society. However, the use of heat type fire detectors is, in principle, not acceptable for these systems.

7 (Omitted)

8 (Omitted)

9 Arrangements of the fire-fighting systems required by **10.5.3-3, Part R of the Rules** are to comply with the following requirements:

(1) (Omitted)

(2) (Omitted)

(3) (Omitted)

(4) The influence on the capabilities of the fire-fighting system due to ventilation is to be minimized. ~~In this connection, the ventilation systems which may affect the fire-fighting capabilities are to be stopped or shut off automatically in connection with the activation of the fire-fighting system.~~ Consideration is to be given so that ventilation systems, which are automatically stopped or shut off in connection with the activation of fire-fighting systems, will not lead to the stoppage of any engines.

(5) (Omitted)

(6) (Omitted)

(7) (Omitted)

10 (Omitted)

11 (Omitted)

12 (Omitted)

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 1 July 2012.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date.

(Note) The term "*a similar stage of construction*" means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 *tonnes* or 1% of the estimated mass of all structural material, whichever is the less.

3. Notwithstanding the amendments to Guidance, approved nozzles for fixed local application fire-fighting systems in accordance with *MSC/Circ.*913 before the effective date may be used.

Amendment 1-4

R27 FIXED PRESSURE WATER-SPRAYING AND WATER-MIST FIRE-EXTINGUISHING SYSTEMS

R27.2 Engineering Specifications

Paragraphs R27.2.1 and R27.2.2 have been amended as follows.

R27.2.1 Fixed Pressure Water-spraying Fire-extinguishing Systems

"Approved system" specified in **27.2.1, Part R of the Rules** means a system approved in accordance with the "*Guidelines for the approval of equivalent water-based fire-extinguishing systems for machinery spaces and cargo pump rooms*" (*MSC/Circ.*1165) (including amendments made by *MSC.* 1/*Circ.*1269 and *MSC.* 1/*Circ.*1386) ~~This applies to the rest as well.~~

R27.2.2 Equivalent Water-mist Fire-extinguishing Systems

"Approved system" specified in **27.2.2, Part R of the Rules** means a system approved in accordance with the "*Revised Guidelines for the approval of equivalent water-based fire-extinguishing systems for machinery spaces and cargo pump rooms*" (*MSC/Circ.*1165) (including amendments made by *MSC.* 1/*Circ.*1269 and *MSC.* 1/*Circ.*1386).

EFFECTIVE DATE AND APPLICATION (Amendment 1-4)

1. The effective date of the amendments is 1 July 2012.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to the systems other than those for which the application for approval is submitted to the Society on or after the effective date.

Amendment 1-5

R10 FIRE FIGHTING

R10.2 Water Supply Systems

Paragraph R10.2.1 has been amended as follows.

R10.2.1 Fire Mains and Hydrants

1 (Omitted)
2 (Omitted)
3 (Omitted)
4 With respect to the provisions of **10.2.1-4(1), Part R of the Rules**, where the sea-chest is fitted in the machinery space, the sea-chest valve is not to be a fail-close type in cases where the remotely controlled system of the valve can be disabled by fire. ~~d~~Devices, pipings~~,~~ and cables, etc. for the operation of the sea-chest valve are to be enclosed in a substantial steel casing or are to be insulated to "*A*-60" class standards. In addition, such cables are to be in accordance with the provisions of **2.9.11-3, Part H of the Rules**. However, devices, pipings and cables, etc. for the operation of the sea-chest valve are not necessary to be enclosed in a substantial steel casing or to be insulated to "*A*-60" class standards provided that the sea-chest valve is a fail-open type even in cases where the remotely controlled system of the valve can be disabled by fire.
5 With respect to the provisions of **10.2.1-4(1), Part R of the Rules**, in cases where suction or discharge piping penetrates machinery spaces, it is not necessary for "distance pieces", "sea inlet valves" and "sea-chests" to be enclosed in a substantial steel casing or to be insulated to "*A*-60" class standards. For this purpose, "discharge piping" refers to the piping between the emergency fire pump and the isolating valve. The method for insulating pipes to "*A*-60" class standards is that they are to be covered or protected in a practical manner by insulation material which is approved as a part of "*A*-60" class divisions in accordance with the *FTP Code* and is approved by the Society or organizations deemed appropriate by the Society.
6 With respect to the provisions of **10.2.1-4(1), Part R of the Rules**, in cases where main fire pumps are installed in compartments outside machinery spaces and where the emergency fire pump suction or discharge piping penetrates such compartments, the provisions of **-4** and **-5** above are to apply.

R13 MEANS OF ESCAPE

R13.1 General

Paragraph R13.1.1 has been amended as follows.

R13.1.1 Purpose

1 The escape routes specified in **13.1.1(1), Part R of the Rules** are routes for escape and also for access. Accordingly, doors and locking arrangements in way of escape routes are such that it does not obstruct these two objectives (escape and access) and are to be operable from both sides without any keys. Notwithstanding above, these arrangements such that keys are needed only for access may be accepted provided that such keys are prepared for ready use.
2 With respect to the requirements specified in **13.3.1, Part R of the Rules**, in cases where

overhead hatches are used as escape routes, such hatches are to comply with the following **(1)** and **(2)**:

(1) Hatch securing devices are to be of a type which can be opened from both sides.

(2) The maximum force needed to open the hatch cover is not to exceed 150 *N*. The use of a spring equalizing, counterbalance or other suitable device on the hinge side to reduce the force needed for opening is acceptable.

R20 PROTECTION OF VEHICLE AND RO-RO SPACES

R20.3 Precaution against Ignition of Flammable Vapours in Closed Vehicle Spaces and Closed Ro-Ro Spaces

R20.3.1 Ventilation Systems

Sub-paragraph -5 has been amended as follows.

5 With respect to the requirements of **20.3.1-4(1), Part R of the Rules**, at least one access route to the controls for closure of the ventilation system complying with the following **(1)** to **(3)** is to be provided. However, in cases where remote closing and position indicator arrangements from the bridge or a fire control station for those ventilator closures are provided, the following **(1)** to **(3)** are not required.

(1) The access routes are clearly marked and at least 600 *mm* clear width;

(2) The access routes are provided with a single handrail or wire rope lifeline not less than 10 *mm* in diameter, supported by stanchions not more than 10 *m* apart in way of any route which involves traversing a deck exposed to weather; and

(3) The access routes are fitted with appropriate means of access (such as ladders or steps) to the closing devices of ventilators located in high positions (i.e. 1.8 *m* or higher).

R25 FIXED GAS FIRE-EXTINGUISHING SYSTEMS

R25.2 Engineering Specifications

R25.2.2 Carbon Dioxide Systems

Sub-paragraph -3 has been amended as follows.

3 The means of gas control of the fixed gas fire-extinguishing system specified in **25.2.2, Part R of the Rules** is to comply with the following requirements:

(1) In case where the same gas container is used for individual separate spaces, the control valve (normally closed) is to be fitted to each gas discharge main led to each space respectively.

(2) In case where discharge of carbon dioxide gas is remotely controlled, manual means of control is to be provided at the storage position of gas containers.

(3) Where carbon dioxide gas is discharged by the gas pressure of the starting gas container (including the carbon dioxide gas container itself), two or more containers are to be provided and a local manual means of opening the containers is to be provided.
(4) Where automatic discharge regulator of carbon dioxide gas for the protected spaces is provided, a manual regulator is to be provided.
(5) If the system serves more than one spaces, means for control of discharge quantities of carbon dioxide are to be provided, *e.g.* automatic timer or accurate level indicators located at the control position.
(6) At the operating station of carbon dioxide system, an instruction manual is to be placed.
(7) The wording "Positive means" specified in **25.2.2-2(1), Part R of the Rules** means mechanical and/or electrical interlocks that do not depend on any operational procedures ~~documented operating procedures are to be posted at appropriate places~~.
(8) The "two separate controls" specified in **25.2.2-2(1), Part R of the Rules** can be independent of the controls for activating pre-discharge alarms.
(9) A single control for the activating the "alarm" specified in **25.2.2-2(1), Part R of the Rules** is sufficient.

EFFECTIVE DATE AND APPLICATION (Amendment 1-5)

1. The effective date of the amendments is 1 July 2012.
2. Notwithstanding the amendments to the Guidance, the current requirements may apply to ships for which the date of contract for construction* is before the effective date.
* "contract for construction" is defined in the latest version of IACS Procedural Requirement (PR) No.29.

IACS PR No.29 (Rev.0, July 2009)

1. The date of "contract for construction" of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.
2. The date of "contract for construction" of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder.
For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a "series of vessels" if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:
(1) such alterations do not affect matters related to classification, or
(2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.
The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.
3. If a contract for construction is later amended to include additional vessels or additional options, the date of "contract for construction" for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a "new contract" to which **1.** and **2.** above apply.
4. If a contract for construction is amended to change the ship type, the date of "contract for construction" of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Note:
This Procedural Requirement applies from 1 July 2009.