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 2015 AMENDMENT NO.1
Guidance for the Survey and Construction of Steel Ships
Part R 2015 AMENDMENT NO.1

Rule No.30 / Notice No.33 8th May 2015
Resolved by Technical Committee on 2nd February 2015
Approved by Board of Directors on 23rd February 2015

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RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part R Fire Protection, Detection and Extinction

2015 AMENDMENT NO.1

Rule No.30 8th May 2015
Resolved by Technical Committee on 2nd February 2015
Approved by Board of Directors on 23rd February 2015

Rule No.30 8th May 2015
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

Chapter 3 DEFINITIONS

3.2 Definitions

Paragraph 3.2.53 has been added as follows.

3.2.53 Fire damper

Fire damper is, for the purpose of **9.7**, a device installed in a ventilation duct, which under normal conditions remains open allowing flow in the duct, and is closed during a fire, preventing the flow in the duct to restrict the passage of fire. Fire dampers are classified as follows:

(1) *Automatic fire damper* is a fire damper that closes independently in response to exposure to fire products;

(2) *Manual fire damper* is a fire damper that is intended to be opened or closed by the crew by hand at the damper itself; and

(3) *Remotely operated fire damper* is a fire damper that is closed by the crew through a control located at a distance away from the controlled damper.

Chapter 9 CONTAINMENT OF FIRE

Section 9.7 has been amended as follows.

9.7 Ventilation Systems

9.7.1 ~~Duct and Dampers~~General

1 Ventilation ducts, including single and double wall ducts, are to be of steel or equivalent material except flexible bellows of short length not exceeding 600 *mm* used for connecting fans to the ducting in air-conditioning rooms. Unless expressly provided otherwise in **9.7.1-6**, any other material used in the construction of ducts, including insulation, is also to be non-combustible. However, short ducts, not generally exceeding 2*m* in length and with a free cross-sectional area not exceeding $0.02m^2$, need not be of steel or equivalent material, subject to the following conditions:

(1) ~~these~~ The ducts are to be made of ~~any material which is fire resistant and~~ non-combustible~~;~~ material, which

~~(2) the ducts~~ may be faced internally and externally with membranes having low flame-spread characteristics and, in each case, a calorific value not exceeding $45MJ/m^2$ of their surface area

for the thickness used;

(~~3~~2) ~~they may~~ The ducts are only ~~be~~ used at the end of the ventilation device; and

(~~4~~3) the ducts are not to be situated less than 600 *mm*, measured along the duct, from an opening in an "*A*" or "*B*" class division including continuous "*B*" class ceiling.

2 The following arrangements are to be tested and approved by the Society or organizations deemed appropriate by the Society in accordance with the Fire Test Procedures Code:

(1) fire dampers, including relevant means of operation. However, the testing is not required for dampers located at the lower end of the duct in exhaust ducts for galley ranges, which must be of steel and capable of stopping the draught in the duct; and

(2) duct penetrations through "*A*" class divisions. However, the test is not required where steel sleeves are directly joined to ventilation ducts by means of riveted or screwed ~~flanges~~ connections or by welding.

3 Fire dampers are to be easily accessible. Where they are placed behind ceilings or linings, these ceilings or linings are to be provided with an inspection hatch on which the identification number of the fire damper is marked. The fire damper identification number is also to be marked on any remote controls provided.

4 Ventilation ducts are to be provided with hatches for inspection and cleaning. The hatches are to be located near the fire dampers.

5 The main inlets and outlets of ventilation systems are to be capable of being closed from outside the spaces being ventilated. The means of closing are to be easily accessible as well as prominently and permanently marked and are to indicate the operating position of the closing device.

6 Combustible gaskets in flanged ventilation duct connections are not permitted within 600 *mm* of openings in "*A*" or "*B*" class divisions and in ducts required to be of "*A*" class construction.

7 Ventilation openings or air balance ducts between two enclosed spaces are not to be provided, except as permitted by **9.4.3-2**.

9.7.2 Arrangement of Ducts

1 The ventilation systems for machinery spaces of category *A*, vehicle spaces, ro-ro spaces, galleys, special category spaces and cargo spaces are, in general, to be separated from each other and from the ventilation systems serving other spaces. ~~Except that~~ However, the galley ventilation systems on cargo ships of less than 4,000 *gross tonnage*, need not be completely separated from other ventilation systems, but may be served by separate ducts from a ventilation unit serving other spaces. In such a case, an automatic fire damper is to be fitted in the galley ventilation duct near the ventilation unit.

2 Ducts provided for the ventilation of machinery spaces of category *A*, galleys, vehicle spaces, ro-ro spaces or special category spaces are not to pass through accommodation spaces, service spaces or control stations unless they comply with ~~the conditions specified in **(1)** or **(2)** below:~~ **-4** below.

3 Ducts provided for the ventilation of accommodation spaces, service spaces or control stations are not to pass through machinery spaces of category *A*, galleys, vehicle spaces, ro-ro spaces or special category spaces unless they comply with **-4** below.

4 As permitted by **-2** and **-3** above, ducts are to comply with the conditions specified in **(1)** or **(2)** below:

(1) In the case of fire dampers installed

(a) the ducts are constructed of steel having a thickness of at least 3 *mm* ~~and 5 *mm*~~ for ducts ~~the widths or diameters of which are up to and including 300 *mm* and 760 *mm* and over respectively and, in the case of such ducts, the widths or diameters of which are between 300 *mm* and 760 *mm* having a thickness to be obtained by interpolation~~ with a free

cross-sectional area of less than 0.075 m^2, at least 4 *mm* for ducts with a free cross-sectional area of between 0.075 m^2 and 0.45 m^2, and at least 5 *mm* for ducts with a free cross-sectional area of over 0.45 m^2;

(b) the ducts are suitably supported and stiffened;

(c) the ducts are fitted with automatic fire dampers close to the boundaries penetrated; and

(d) the ducts are insulated to "*A*-60" class standard from ~~the machinery spaces, galleys, vehicle spaces, ro-ro spaces or special category spaces~~ the boundaries of the spaces they serve to a point at least 5 *m* beyond each fire damper.

(2) In the case of fire dampers not installed

(a) the ducts are constructed of steel in accordance with **(a)** and **(b)** of **(1)** above; and

(b) the ducts are insulated to "*A*-60" class standard throughout the ~~accommodation spaces, service spaces or control stations~~ spaces they pass through.

~~**2** Ducts provided for ventilation to accommodation spaces, service spaces or control stations are not to pass through machinery spaces of category *A*, galleys, vehicle spaces, ro-ro spaces or special category spaces unless they comply with the conditions specified in **(1)** or **(2)** below:~~

~~(1) In the case of fire dampers installed~~

~~(a) the ducts where they pass through a machinery space of category *A*, galley, vehicle space, ro-ro space or special category space are constructed of steel in accordance with **(a)** and **(b)** of **-1(1)** above;~~

~~(b) automatic fire dampers are fitted close to the boundaries penetrated; and~~

~~(c) the integrity of the machinery space, galley, vehicle space, ro-ro space or special category space boundaries is maintained at the penetrations.~~

~~(2) In the case of fire dampers not installed~~

~~(a) the ducts where they pass through a machinery space of category *A*, galley, vehicle space, ro-ro space or special category space are constructed of steel in accordance with **(a)** and **(b)** of **-1(1)** above; and~~

~~(b) the ducts are insulated to "*A*-60" class standard within the machinery space, galley, vehicle space, ro-ro space or special category space.~~

5 For the purposes of **9.7.2-4(1)(d)** and **9.7.2-4(2)(b)**, ducts are to be insulated over their entire cross-sectional external surface. Ducts that are outside but adjacent to the specified space, and share one or more surfaces with it, are to be considered to pass through the specified space, and are to be insulated over the surface they share with the space for a distance of 450 *mm* past the duct.

6 Where it is necessary that a ventilation duct passes through a main vertical zone division, an automatic fire damper is to be fitted adjacent to the division. The damper is also to be capable of being manually closed from each side of the division. The control location is to be readily accessible and be clearly and prominently marked. The duct between the division and the damper is to be constructed of steel in accordance with **9.7.2-4(1)(a)** and **(b)** and insulated to at least the same fire integrity as the division penetrated. The damper is to be fitted on at least one side of the division with a visible indicator showing the operating position of the damper.

9.7.3 Details of Fire dampers and Duct Penetrations

1 Ducts passing through "*A*" class divisions are to meet the following requirements:

~~**1**~~(1) Where a thin plated duct with a free sectional area equal to, or less than, 0.02 m^2 passes through "*A*" class ~~bulkheads or decks~~ divisions, the opening is to be ~~lined~~ 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 the bulkhead or, in the case of the deck, ~~totally~~ wholly laid on the lower side of the decks pierced~~.~~;

(2) Where ventilation ducts with a free-sectional area exceeding 0.02 m^2, but not more than 0.075 m^2, pass through "*A*" class ~~bulkheads or decks~~ divisions, the openings ~~is~~ are to be lined with a

steel sheet sleeves. ~~However, where such ducts are of steel construction and pass through a deck or bulkhead, the ducts and sleeves are to comply with the following:~~

~~(1)~~ The ducts and sleeves are to have a thickness of at least 3 *mm* and a length of at least 900 *mm*. When passing through bulkheads, this length is to be divided preferably into 450 *mm* on each side of the bulkhead. These ducts, or sleeves lining such ducts, are to be provided with fire insulation. The insulation is to have at least the same fire integrity as the ~~bulkhead or deck~~ divisions through which the duct passes; and

(~~2~~3) Automatic fire dampers are to be fitted in all ~~D~~ducts with a free cross-sectional area exceeding 0.075 m^2 ~~are to be fitted with fire dampers in addition to the requirements of **(1)** above~~ that pass through "*A*" class divisions. Each damper is to be fitted close to the division penetrated and the duct between the damper and the division penetrated is to be constructed of steel in accordance with **9.7.2-4(2)(a)** and **9.7.2-4(2)(b)**. The fire damper is to operate automatically, but is also to be capable of being closed manually from both sides of the ~~bulkhead or deck~~ division. The damper is to be ~~provided~~ fitted with a~~n~~ visible indicator which shows ~~whether~~ the operating position of the damper ~~is open or closed~~. 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 ~~pierce~~ penetrate. A duct of cross-sectional area exceeding 0.075 m^2 is not to be divided into smaller ducts at the penetaration of an "*A*" class division and then recombined into the original duct once through the division to avoid installing the damper required by this paragraph. ~~Fire dampers are to be easily accessible. Where they are placed behind ceilings or linings, these ceilings or linings are to be provided with an inspection door on which a plate reporting the identification number of the fire damper is provided. The fire damper identification number is also to be placed on any remote controls required.~~

2 Ventilation ducts with a free cross-sectional area exceeding 0.02 m^2 passing through "*B*" class bulkheads are to be lined with steel sheet sleeves of 900 *mm* in length, divided preferably into 450 *mm* on each side of the bulkheads unless the duct is of steel for this length.

3 All fire dampers are to be capable of manual operation. The dampers are to have a direct mechanical means of release or, alternatively, be closed by electrical, hydraulic, or pneumatic operation. All dampers are to be manually operable from both sides of the division. Automatic fire dampers, including those capable of remote operation, are to have a failsafe mechanism that will close the damper in a fire even upon loss of electrical power or hydraulic or pneumatic pressure loss. Remotely operated fire dampers are to be capable of being reopened manually at the damper.

9.7.4 Exhaust Ducts from Galley Ranges

~~Where~~ When ~~they~~ passing through accommodation spaces or spaces containing combustible materials, the exhaust ducts from galley ranges are to be constructed ~~of "A" class divisions~~ in accordance with **9.7.2-4(1)(a)** and **9.7.2-4(1)(b)**. Each exhaust duct is to be fitted with:

(1) a grease trap readily removable for cleaning;

(2) an automatically and remotely operated fire damper located in the lower end of the duct at the junction between the duct and the galley range hood and, in addition, a remotely operated fire damper in the upper end of the duct close to the outlet of the duct;

(3) arrangements, operable from within the galley, for shutting off the exhaust and supply fans; and

(4) fixed means for extinguishing a fire within the duct.

9.7.5 Ventilation rooms serving machinery spaces of category *A* containing internal combustion machinery

1 Where a ventilation room serves only such an adjacent machinery space and there is no fire

division between the ventilation room and the machinery space, the means for closing the ventilation duct or ducts serving the machinery space is to be located outside of the ventilation room and machinery space.

2 Where a ventilation room serves such a machinery space as well as other spaces and is separated from the machinery space by a "*A*-0" class division, including penetrations, the means for closing the ventilation duct or ducts for the machinery space can be located in the ventilation room.

Chapter 10 FIRE FIGHTING

10.1 General

Paragraph 10.1.1 has been amended as follows.

10.1.1 Purpose

1 The purpose of this Chapter is to suppress and swiftly extinguish a fire in the space of origin, except for **-2** below. For this purpose, the following functional requirements are to be met:

(1) ~~f~~Fixed fire extinguishing systems are to be installed having due regard to the fire growth potential of the protected spaces; and

(2) ~~f~~Fire extinguishing appliances are to be readily available.

2 For open-top container holds and on deck container stowage areas on ships designed to carry containers on or above the weather deck, fire protection arrangements are to be provided for the purpose of containing a fire in the space or area of origin and cooling adjacent areas to prevent fire spread and structural damage.

10.2 Water Supply Systems

10.2.1 Fire Mains and Hydrants

Sub-paragraph -3 has been amended as follows.

3 Diameter of fire mains

The diameter of the fire main and water service pipes is to be sufficient for the effective distribution of the maximum required discharge from two fire pumps operating simultaneously, except that in the case of cargo ships, other than those included in **10.7.3-2**, the diameter need only be sufficient for the discharge of 140 m^3/h.

10.2.2 Fire Pumps

Sub-paragraph -4(1) has been amended as follows.

4 Capacity of fire pumps

(1) The pumps required by **10.2.2**, other than any emergency pump, are to be capable of delivering the quantity of water not less than four thirds of the quantity required by **13.5.4-2, Part D of the Rules** to be dealt with by each of the independent bilge pumps in a ship of the

same dimension when employed in bilge pumping, at the pressure specified in **10.2.1-6**, provided that in no ship, other than those included in **10.7.3-2**, need the total required capacity of the fire pumps exceed 180 m^3/h.

10.7 Fire-extinguishing Arrangements in Cargo Spaces

Paragraph 10.7.3 has been added as follows.

10.7.3 Firefighting for Ships Designed to Carry Containers on or above the Weather Deck

1 Ships designed to carry containers on or above the weather deck are to comply with the following **(1)** and **(2)**:

(1) Ships are to carry, in addition to the equipment and arrangements required by **10.1** and **10.2**, at least one water mist lance; and

(2) The water mist lance is to consist of a tube with a piercing nozzle which is capable of penetrating a container wall and producing water mist inside a confined space (container, etc.) when connected to the fire main.

2 Ships designed to carry five or more tiers of containers on or above the weather deck are to comply with, in addition to **-1** above, the following **(1)** to **(5)**:

(1) Ships are to carry the following number of mobile water monitors deemed appropriate by the Society:
   (a) ships with breadth less than 30 *m*: at least two mobile water monitors; or
   (b) ships with breadth of 30 *m* or more: at least four mobile water monitors.

(2) The mobile water monitors, all necessary hoses, fittings and required fixing hardware are to be kept ready for use in a location outside the cargo space area not likely to be cut-off in the event of a fire in the cargo spaces.

(3) A sufficient number of fire hydrants are to be provided such that:
   (a) All provided mobile water monitors can be operated simultaneously for creating effective water barriers forward and aft of each container bay;
   (b) The two jets of water required by **10.2.1-5** can be supplied at the pressure required by **10.2.1-6**; and
   (c) Each of the required mobile water monitors can be supplied by separate hydrants at the pressure necessary to reach the top tier of containers on deck.

(4) The mobile water monitors may be supplied by the fire main, provided the capacity of fire pumps and fire main diameter are adequate to simultaneously operate the mobile water monitors and two jets of water from fire hoses at the required pressure values. If carrying dangerous goods, the capacity of fire pumps and fire main diameter are also to comply with the requirements of **19.3.1-5**, as far as applicable to on-deck cargo areas.

(5) The operational performance of each mobile water monitor is to be tested during Classification Survey on board the ship to the satisfaction of the Society. The test is to verify the following **(a)** and **(b)**:
   (a) The mobile water monitor can be securely fixed to the ship structure ensuring safe and effective operation; and
   (b) The mobile water monitor jet reaches the top tier of containers with all required monitors and water jets from fire hoses operated simultaneously.

Chapter 13 MEANS OF ESCAPE

Section 13.4 has been amended as follows.

13.4 Means of Escape from Machinery Spaces

13.4.1 Escape from Machinery Spaces of Category *A*

Except as provided in **13.4.2**, two means of escape are to be provided from each machinery space of category *A*. In particular, one of the following provisions is to be complied with:

(1) two sets of steel ladders as widely separated as possible leading to doors in the upper part of the space similarly separated and from which access is provided to the open deck. One of these ladders is to be located within a protected enclosure that satisfies the provisions of **9.2.3-2** or **9.2.4-2**, as applicable, as a space of category **(4)** from the lower part of the space it serves to a safe position outside the space. Self-closing fire doors of the same fire integrity standards are to be fitted in the protected enclosure ~~(hereinafter, referred to as fire shelter)~~. The ladder is to be fixed in such a way that heat is not transferred into the ~~fire shelter~~ protected enclosure through non-insulated fixing points. The protected enclosure is to have minimum internal dimensions of at least 800 *mm* x 800 *mm*, and is to have emergency lighting provisions; or

((2) is omitted.)

13.4.2 Dispensation from Two Means of Escape

In a ship of less than 1,000 *gross tonnage*, the Society may dispense with one of the means of escape required by **13.4.1**, due regard being paid to the dimension and disposition of the upper part of the space. In addition, the means of escape from machinery spaces of category *A* need not comply with the requirement for ~~an enclosed fire shelter~~ a protected enclosure listed in **13.4.1(1)**.

13.4.3 Escape from Machinery Spaces other than Those of Category *A*

1 From machinery spaces other than those of category *A*, two escape routes are to be provided except that a single escape route may be accepted for spaces that are entered only occasionally, and for spaces where the maximum travel distance to the door is 5 *m* or less.

2 In the steering gear space, a second means of escape is to be provided when the emergency steering position is located in that space unless there is direct access to the open deck.

13.4.4 Inclined Ladders and Stairways

All inclined ladders/stairways fitted to comply with **13.4.1** with open treads in machinery spaces being part of or providing access to escape routes but not located within a protected enclosure are to be made of steel. Such ladders/stairways are to be fitted with steel shields attached to their undersides, such as to provide escaping personnel protection against heat and flame from beneath.

13.4.5 Escape from Machinery Control Rooms in Machinery Spaces of Category *A*

Two means of escape are to be provided from the machinery control room located within a machinery space. At least one of these escape routes are to provide a continuous fire shelter to a safe position outside the machinery space.

13.4.6 Escape from Main Workshops in Machinery Spaces of Category *A*

Two means of escape are to be provided from the main workshop within a machinery space. At least one of these escape routes are to provide a continuous fire shelter to a safe position outside the

machinery space.

13.4.4~~7~~ Emergency Escape Breathing Devices
(-1 to -3 are omitted.)

Chapter 20 PROTECTION OF VEHICLE AND RO-RO SPACES

20.3 Precaution against Ignition of Flammable Vapours in Closed Vehicle Spaces and Closed Ro-Ro Spaces

20.3.1 Ventilation Systems

Sub-paragraph -4 has been amended as follows.

4 Closing appliances and ducts
((1) is omitted.)
(2) Ventilation ducts, including dampers to be made of steel. Ventilation ducts that pass through machinery spaces are to be "*A*-60" class steel ducts constructed in accordance with **(1)** and **(2)** of **9.7.2-~~1~~4**.

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 1 January 2016.

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.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE

Part R Fire Protection, Detection and Extinction

2015 AMENDMENT NO.1

Notice No.33 8th May 2015
Resolved by Technical Committee on 2nd February 2015

Notice No.33 8th May 2015
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

R10 FIRE FIGHTING

R10.2 Water Supply Systems

R10.2.1 Fire Mains and Hydrants

Sub-paragraph -7 has been amended as follows.

7 The wording "isolation valves are to be fitted in the fire main at poop front in a protected position" specified in **10.2.1-4(4), Part R of the Rules** means that the valve is to be located within an accommodation space, service space or control station. However, the valve may be located on the open deck aft of the cargo area provided that the valve is located:

~~(1) within an accommodation space, service spaces and control station; or~~

(~~2~~1) at least 5 *m* aft of the aft end of the aftermost cargo tank ~~in case the valve is located on the open deck~~; or

(~~3~~2) if the above **(1)** ~~and (2) are~~is not practical, within 5 *m* aft of the ~~cargo area~~aft end of the aftermost cargo tank provided ~~it~~the valve is protected ~~from the cargo area~~ by a permanent steel obstruction.

R30 SAMPLE EXTRACTION SMOKE DETECTION SYSTEMS

R30.2 Engineering Specifications

R30.2.4 has been amended as follows.

R30.2.4 System Control Requirements

With respect to the requirements of **30.2.4-1(2), Part R of the Rules**, if the fixed gas fire-extinguishing system discharge pipes are used for the sample extraction smoke detection system, the control panel may be located in the "CO2 Room" where the fire extinguishing medium (CO2) for a fixed gas fire-extinguishing system is stored ~~with two separate CO2 control equipment complying with the provision of the requirements of **Chapter 25, Part R of the Rules** may be regarded as a fire control station.~~ In such cases, an indicating unit is to be located on the navigation bridge.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 8 May 2015.

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.

Amendment 1-2

R34 FIXED DECK FOAM SYSTEMS

R34.2 Engineering Specifications

R34.2.3 Installation Requirements

Sub-paragraph -4 has been added as follows.

4 The port and starboard monitors specified in **34.2.3-2(3), Part R of the Rules** may also be located in the cargo area above oil bunker tanks adjacent to cargo tanks if capable of protecting the deck below and aft of each other.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 8 May 2015.

Amendment 1-3

R4 PROBABILITY OF IGNITION

R4.5 Cargo Areas of Tankers

R4.5.7 Gas Measurement

Sub-paragraphs -3 to -5 have been added as follows.

3 The words "cargo tanks" in the phrase "spaces adjacent to the cargo tanks" in **4.5.7(3)(a), Part R of the Rules** includes slop tanks except those arranged for the storage of oily water only.
4 The word "spaces" in the phrase "spaces under the bulkhead deck adjacent to cargo tanks" in **4.5.7(3)(a), Part R of the Rules** includes dry compartments such as ballast pump-rooms and bow thruster rooms and any tanks such as freshwater tanks, but excludes fuel oil tanks.
5 The word "adjacent" in the phrase "adjacent to the cargo tanks" in **4.5.7(3)(a), Part R of the Rules** includes ballast tanks, void spaces, other tanks or compartments located below the bulkhead deck located adjacent to cargo tanks and includes any spaces or tanks located below the bulkhead deck which form a cruciform (corner to corner) contact with the cargo tanks.

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 1 July 2015.
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.

Amendment 1-4

R9 CONTAINMENT OF FIRE

R9.2 Thermal and Structural Boundaries

R9.2.3 Bulkheads and Decks

Sub-paragraph -14 has been amended as follows.

14 With respect to the provisions of **9.2.3, Part R of the Rules**, the category of fan rooms serving machinery spaces of category *A* are to be as follows:

(1) A fan room solely serving machinery spaces of category *A* or multiple spaces containing machinery spaces of category *A*, may be treated as "other machinery spaces having little or no fire risk" referred to in footnote *i* of **Tables R9.1** and **R9.2**, **Part R of the Rules**. In this case:
   (a) boundaries between the fan room and machinery spaces of category *A* are to be of "*A*-0" fire integrity;
   (b) duct penetrations between fan rooms and machinery spaces of category *A* are to comply with **9.7.3-1(~~2~~3), Part R of the Rules** regardless of the ventilation duct free cross-sectional area;
   (c) ducts serving machinery spaces of category *A* are to be routed directly to the relevant fan(s) and from the fan to the louvers; and
   (d) closing of the ventilation duct to/from machinery spaces of category *A* is to be possible from outside machinery spaces of category *A*. In this case, the controls for the closing of the machinery spaces of category *A* ventilation duct (i.e., a fire damper installed in accordance with **(b)** above) can be located inside the fan room.

(2) A fan room solely serving machinery spaces of category *A* may be considered as part of the machinery spaces of category *A*. In this case:
   (a) requirements for fire integrity of the horizontal boundary between fan room and machinery spaces of category *A* need not apply; and
   (b) closing the ventilation duct to/from machinery spaces of category *A* is to be possible from outside machinery spaces of category *A*. In this case, the controls for closing of the ventilation trunk are to be located outside the fan room and the machinery space of category *A*.

R9.7 Ventilation Systems

Paragraph R9.7.1 has been amended as follows.

R9.7.1 ~~Duct and Dampers~~ General

~~**1** With respect to the provisions of **9.7.1, Part R of the Rules**, a short length, not exceeding 600 *mm*, of flexible bellows constructed of combustible material may be used for connecting fans to the ducting in air conditioning room, except the extent specified in **2.**~~

~~**2** With respect to the provisions of **9.7.1-1, Part R of the Rules**, combustible gaskets in flanged ventilation duct connections are not permitted within 600 *mm* of an opening in an "*A*" class or "*B*" class division and in ducts required to be of "*A*" class construction.~~

~~3~~**1** The term “free cross-sectional area” specified in **9.7.1-1, Part R of the Rules** means, even if the case of a pre-insulated duct, the area calculated on the basis of the inner ~~diameter~~ dimension of the duct except the insulation.

~~4~~**2** With respect to the “calorific value” specified in **9.7.1-1(~~2~~1), Part R of the Rules**, reference is made to **R5.3.2**.

~~5 Fire dampers required to be fitted in the requirements of **9.7.4(2), Part R of the Rules** need not comply with the requirements of **9.7.1-2, Part R of the Rules**, provided that they are to be capable of stopping the draught.~~

~~6~~**3** With respect to the provisions of **9.7.1-1, Part R of the Rules**, unless otherwise specified, a ventilation duct made of material other than steel may be considered equivalent to a ventilation duct made of steel, provided the material is non-combustible and has passed a standard fire test in accordance with Part 3 of Annex 1 to the *FTP* Code as non-load bearing structure for 30 *minutes* following the requirements for testing “*B*” class divisions.

Paragraph R9.7.2 has been amended as follows.

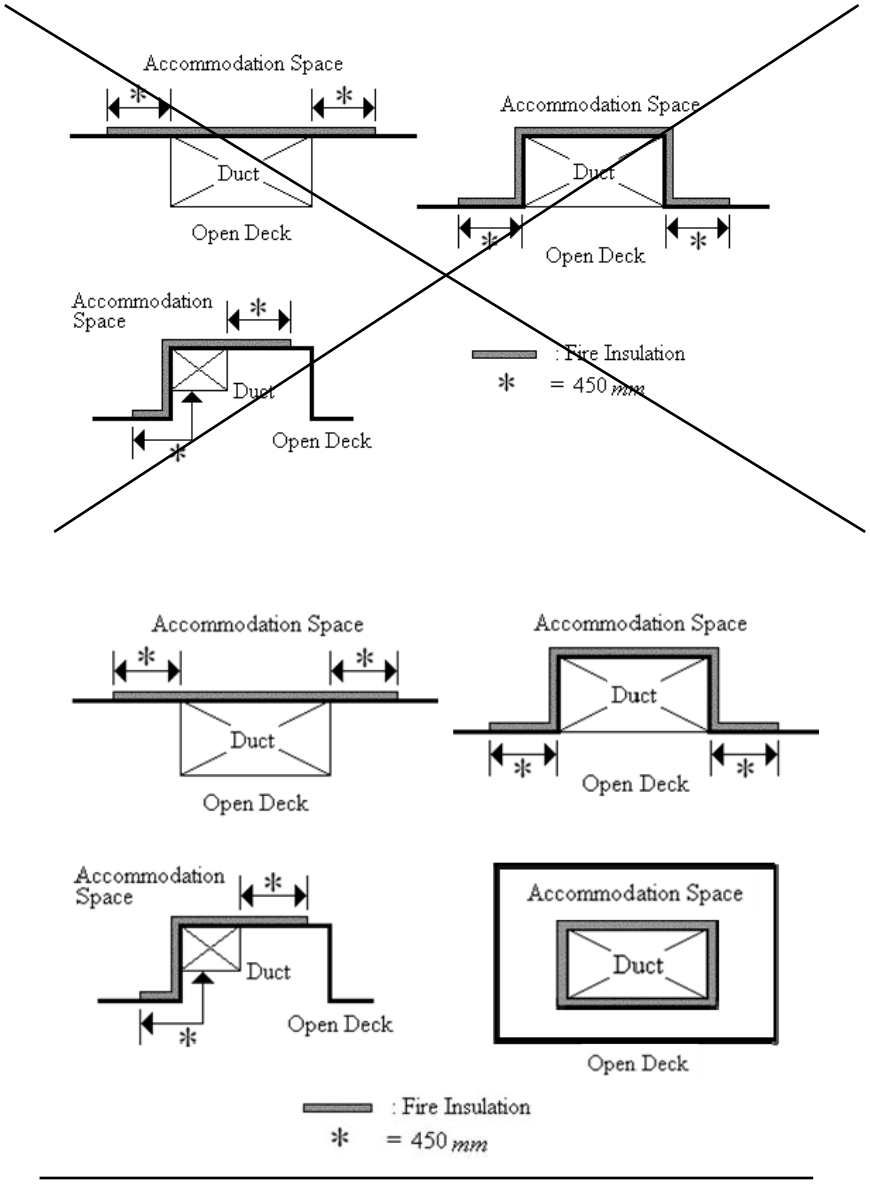
R9.7.2 Arrangement of Ducts

1 Insulation of “*A*-60” class standard specified in **9.7.2-4, Part R of the Rules** is, as a standard, to be an insulation with rock-wool approved as non-combustible material, or insulation approved as “*A*-60” class.

2 With respect to the application of **9.7.2-5, Part R of the Rules**, ~~in cases where a part of a trunk or a duct is contiguous to an enclosed space at outside the space where the trunk or duct is served, such trunk and duct are to be regarded as those passing through other enclosed spaces and the part of the trunks/ducts contiguous to the enclosed space is to be insulated in accordance with the applicable provisions of **9.7.2-1(1)(d), -1(2)(b)** or **-2(2)(b), Part R of the Rules**. (See~~ a standard arrangement of the insulation of a duct is shown in **Fig. R9.7.2**)

Fig. R9.7.2 has been amended as follows.

Fig. R9.7.2 Examples for Insulation of Ducts



Paragraph R9.7.3 has been amended as follows.

R9.7.3 Details of <u>Fire dampers and</u> Duct Penetrations

1 With respect to the requirements of **9.7, Part R of the Rules**, in case where ducts penetrate either "*A*" class or "*B*" class divisions, the requirements specified in **R9.3** of this Guidance are to be complied with.

2 With respect to the provisions of **9.7.3, Part R of the Rules**, where the fire damper is required to be capable of being closed manually from both sides of the ~~bulkhead or deck~~ <u>divisions</u>, in general, fire dampers are to be provided at each side of the ~~bulkhead or deck~~ <u>divisions</u>. Notwithstanding the above, where means of close and its installation through the ~~bulkhead or deck~~ <u>divisions</u> are approved by the Society, a fire damper provided at the one side may be granted.

3 Ventilation inlets and outlets located at outside boundaries which are fitted with closing appliances as required by **5.2.~~2~~<u>1</u>-1, Part R of the Rules**, need not comply with the requirements of

9.7.3, Part R of the Rules.

R9.7.4 Exhaust Ducts from Galley Ranges

Sub-paragraph -1 has been amended as follows.

1 With respect to the requirements in **9.7.4, Part R of the Rules**, the exhaust ducts from galley ranges are to be in accordance with the following requirements **(1)** to **(~~5~~4)**:

(1) The exhaust ducts from galley ranges are, in principle, to be independent from other ducts. In case where this is impracticable, i.e., where the ducts are connected to other ducts for other ventilation purposes, self-closing type fire dampers which can be remotely-operated are to be fitted to the other branch ducts in order to be capable of closing these dampers together with those for galley ranges simultaneously.

(2) Unless otherwise permitted by the Society, the term of "spaces containing combustible materials" will normally apply to all spaces in accommodation.

~~(3) The wording "exhaust ducts from galley ranges are to be constructed of "*A*" class divisions" means that ducts are to be of steel with a thickness of 4.5 *mm* or more. "*A*" class applies only to the part of the duct outside the galley and the part where such duct piercing a bulkhead.~~

~~(4) The fire dampers located at the lower end of the ducts and the upper end of the ducts are to be such that they can be readily and safely closed in the galley in case of fire in way of range.~~

(~~5~~3) In case where the carbon dioxide gas fire extinguishing system specified in **Chapter 25, Part R of the Rules** is provided as fixed means for extinguishing a fire within the exhaust duct, the quantity of fire extinguishing medium is to be 100% or more of the volume of the duct spaces to be protected.

(4) With respect to fixed means for extinguishing a fire specified in **9.7.4(4), Part R of the Rules**, reference is to be made to *ISO* 15371: 2009 "*Ships and marine technology – Fire-extinguishing systems for protection of galley cooking equipment*".

R10 FIRE FIGHTING

Section R10.1 has been added as follows.

R10.1 General

R10.1.1 Purpose

With respect to the wording "open-top container holds" specified in **10.1.1-2, Part R of the Rules**, reference is made to the "*Interim Guidelines for Open-top Containerships*" (*MSC*/*Circ*.608/*Rev*.1).

R10.7 Fire-extinguishing Arrangements in Cargo Spaces

Paragraph R10.7.3 has been added as follows.

R10.7.3 Firefighting for Ships Designed to Carry Containers on or above the Weather Deck

The wording "deemed appropriate by the Society" specified in **10.7.3-2(1), Part R of the Rules** means to comply with the requirements of "*Guidelines for the Design, Performance, Testing and Approval of Mobile Water Monitors Used for the Protection of On-deck Cargo Areas of Ships Designed and Constructed to Carry Five or More Tiers of Containers on or above the Weather Deck*" (*MSC*.1/*Circ*.1472) and to be approved by organizations authorized by the Administration or deemed appropriate by the Society.

R13 MEANS OF ESCAPE

Section R13.4 has been amended as follows.

R13.4 Means of Escape from Machinery Spaces

R13.4.1 Escape from Machinery Spaces of Category *A*

(-1 and -2 are omitted.)

3 With respect to the requirements of **13.4.1, Part R of the Rules** to the cases where a safe escape route from the lower part of the space is provided by means of the special arrangement or dimensions of the machinery space, the ~~shelter~~ protected enclosure may be dispensed with.

4 It is not desirable to use ro-ro or vehicle spaces as a part of the escape routes from the machinery space of category *A* to the open deck required in **13.4.1, Part R of the Rules**. In case where such an arrangement is unavoidable, the following requirements are to be complied with:

(1) The escape route through ro-ro or vehicle spaces is to be restricted to one and other routes are to be arranged either through spaces other than the above route or through ~~enclosed escape trunks~~ protected enclosures. The ~~trunks~~ protected enclosures are to be provided with insulation in accordance with the requirements of **Tables R9.1** and **R9.2**, **Part R of the Rules** as corridor.

(2) The escape route through ro-ro or vehicle spaces is to be as short as possible, and a corridor is to be secured by permanent and rigid construction so that passage may not be hampered by cargo.

5 For the ~~fire shelter~~ protected enclosure specified in **13.4.1(1), Part R of the Rules**, the following requirements are to be complied with:

(1) In case where doors are provided in midway of the ~~fire shelter~~ protected enclosure in addition to the lower part door, these doors are to be of self-closing type and of the same fire integrity standards as enclosures of the ~~fire shelter~~ protected enclosure required in **9.2, Part R of the Rules**.

(2) In case where only one set of means of escape other than ~~fire shelter~~ protected enclosure for machinery spaces of category *A* is provided, the self-closing door required at the lower part of the ~~fire shelter~~ protected enclosure is to be provided at each deck level.

(3) For internal dimension of the ~~fire shelter~~ protected enclosure, ladders in the ~~fire shelter~~ protected enclosure need not be taken into account.

(4) In principle, ~~enclosures of~~ the ~~fire shelter~~ protected enclosure are to be provided with insulation on the outside such that heat is not transferred into.

6 With respect to the requirements specified in **13.4.1, Part R of the Rules**, doors on escape routes provided in boundaries facing control stations, accommodation or service spaces are, in general, to comply with the requirements of **13.3.1-5, Part R of the Rules**. Details of means of escape except ladders in ~~fire shelter~~ protected enclosure are to be in accordance with **33.2, Part R of the Rules**.

R13.4.2 Dispensation from Two Means of Escape

With respect to the requirements of **13.4.2, Part R of the Rules**, where the second means of escape is dispensed with, the means of escape is, in principle, to be of ~~an enclosed fire shelter~~ a protected enclosure.

R13.4.3 Escape from Machinery Spaces other than those of Category *A*

1 With respect to the requirements of **13.4.3, Part R of the Rules**, only one set of means of escape may be provided for the spaces which are regarded as those having little or no fire risk specified in **R9.2.3-~~10~~9**. In this case, the escape route is not to pass through machinery spaces of category *A* and is to be independent of watertight doors. Where a shaft tunnel is provided, an escape route is to be provided at the aft end of the shaft tunnel. (See **Fig. R13.4.3-1**)

2 With respect to the requirements specified in **13.4.3, Part R of the Rules**, doors on escape routes provided in boundaries facing control stations, accommodation or service spaces are, in general, to comply with the requirements of **13.3.1-5, Part R of the Rules**. Details of means of escape except ladders in ~~fire shelter~~ protected enclosure are to be in accordance with **33.2, Part R of the Rules**.

(-3 is omitted.)

R13.4.~~4~~7 Emergency Escape Breathing Devices

With respect to the requirements of **13.4.~~4~~7, Part R of the Rules**, the location of *EEBD*s is to comply with the following requirements;

((1) to (3) are omitted.)

R21 SPECIAL REQUIREMENTS FOR SMALL SHIPS AND SHIPS FOR RESTRICTED SERVICE

R21.2 Special Requirements

R21.2.1 Requirements for Ships of less than 500 *gross tonnage*

Sub-paragraph -13 has been amended as follows.

13 The requirements of **13.3.3** and **13.4.~~4~~7, Part R of the Rules** relating to emergency escape breathing devices may not apply.

Annex R9.3.1 DETAILS OF PENETRATIONS

1 GENERAL

1.1 Principle

Paragraph 1.1.3 has been amended as follows.

1.1.3 Prevention of Heat Transmission

For penetrations in "*A*" class divisions other than "*A*-0" class or in "*B*" class divisions other than "*B*-0" class, the insulation of a ~~deck or bulkhead~~ division is to be carried past such penetrations for a distance of at least 450 *mm* in the case of steel and aluminium structures.

2 DETAILS

2.2 Penetration of Ducts

2.2.1 Penetration in "*A*" Class Divisions

Sub-paragraph -2 has been amended as follows.

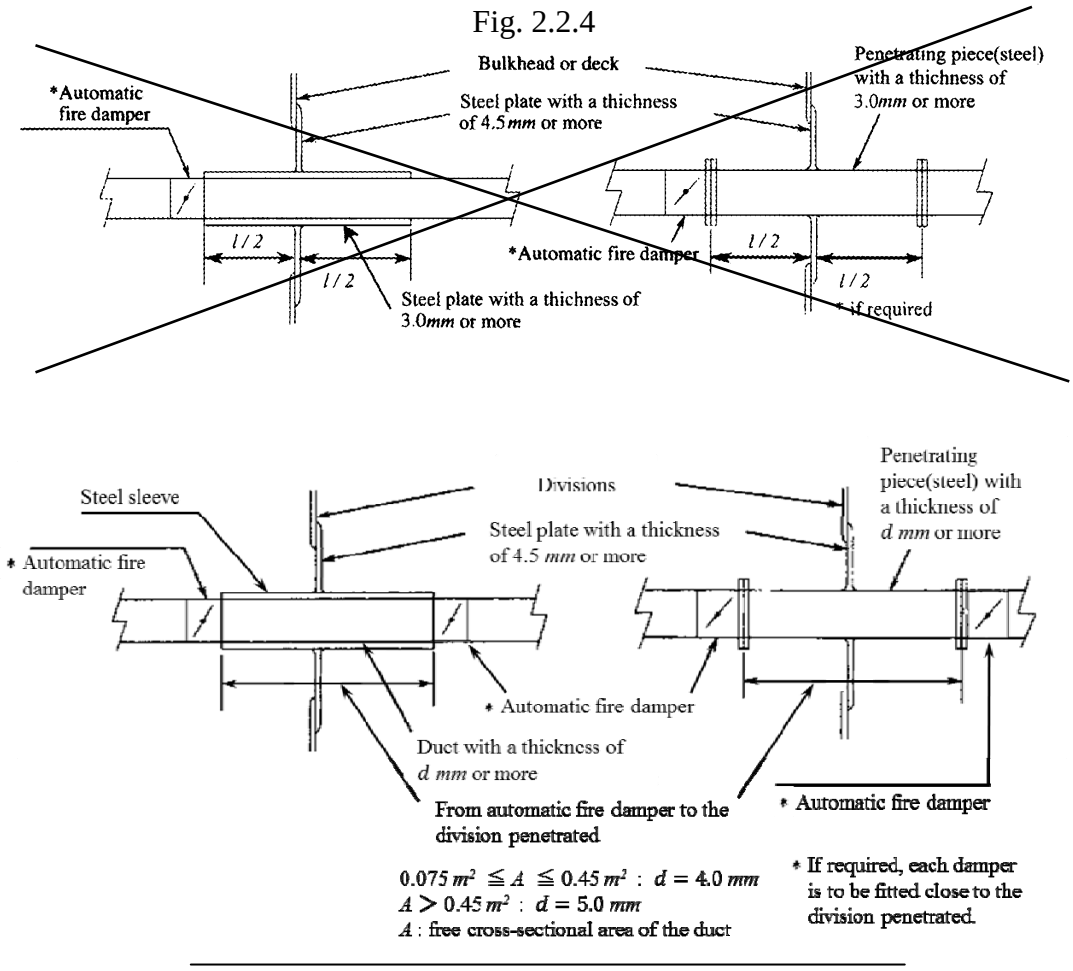
2 Where a steel sleeve complying with the above provisions is directly jointed to such ventilation ducts by means of riveted or screwed ~~flanges~~ connections or by welding, the test in accordance with the Fore Test Procedures Code is not required.

2.2.4 Fire Dampers

In addition to the provisions of **2.2.1** and **2.2.3** above, ducts with a free cross-sectional area exceeding 0.075 m^2 are to be fitted with automatic fire dampers complying with the provisions of **9.7.1-2, Part R of the Rules**. (See **Fig. 2.2.4**)

Fig. 2.2.4 has been amended as follows.

Fig. 2.2.4



EFFECTIVE DATE AND APPLICATION (Amendment 1-4)

1. The effective date of the amendments is 1 January 2016.

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.