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 2016 AMENDMENT NO.2
Guidance for the Survey and Construction of Steel Ships
Part R 2016 AMENDMENT NO.2

Rule No.82 / Notice No.83 27th December 2016
Resolved by Technical Committee on 27th July 2016
Approved by Board of Directors on 20th September 2016

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An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance.

RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part R Fire Protection, Detection and Extinction

2016 AMENDMENT NO.2

Rule No.82 27th December 2016
Resolved by Technical Committee on 27th July 2016
Approved by Board of Directors on 20th September 2016

An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance.

Rule No.82 27th December 2016
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 2-1

Chapter 4 PROBABILITY OF IGNITION

4.2 Arrangements for Oil Fuel, Lubrication Oil and Other Flammable Oils

Paragraph 4.2.1 has been amended as follows.

4.2.1 Limitations in the Use of Oils as Fuel*

The following limitations are to apply to the use of oil as fuel:

(1) Except as otherwise permitted by this paragraph, no oil fuel with a flashpoint of less than 60℃ is to be used;

(2) In emergency generators oil fuel with a flashpoint of not less than 43℃ may be used;

(3) The use of oil fuel having a flashpoint of less than 60℃ but not less than 43℃ may be permitted (*e.g.*, for feeding the emergency fire pump's engines and the auxiliary machines which are not located in the machinery spaces of category *A*) subject to the following:
   (a) fuel oil tanks except those arranged in double bottom compartments are to be located outside of machinery spaces of category *A*;
   (b) provisions for the measurement of oil temperature are to be provided on the suction pipe of the oil fuel pump;
   (c) stop valves and/or cocks are to be provided on the inlet side and outlet side of the oil fuel strainers;
   (d) pipe joints of welded construction or of circular cone type or spherical type union joint are to be applied as much as possible; and
   (e) other requirements when deemed appropriate by the Society,

(4) In ships, to which the requirements of **Part GF** are not applicable, ~~T~~the use of fuel having a lower flashpoint than otherwise specified in ~~this paragraph~~**(1)** above, for example crude oil, may be permitted provided that such fuel is not stored in any machinery space and subject to the approval by the Society of the complete installation.

(5) In ships, to which the requirements of **Part GF** are applicable, the use of oil fuel having a lower flashpoint than otherwise specified in **(1)** above is permitted.

(~~5~~6) Fuel oil is not to be heated to the temperature within 10℃ below the flash point of the fuel oil in the oil tanks, unless considered appropriate by the Society.

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*

1 Capacity of ventilation systems

There is to be provided an effective power ventilation system sufficient to give at least 6 *air changes per hour* basing upon an empty spaces. The Society may require an increased number of air changes when vehicles are being loaded and unloaded.

Sub-paragraph -2 has been amended as follows.

2 Performance of ventilation systems

(1) Ventilation fans are normally to be run continuously and give at least the number of air changes required in **-1** above whenever vehicles are on board, except where an air quality control system in accordance with **(3)** below is provided. Where this is impracticable, they are to be operated for a limited period daily as weather permits and in any case for a reasonable period prior to discharge, after which period the ro-ro or vehicle space is to be proved gas-free. One or more portable combustible gas detecting instruments deemed as appropriate by the Society are to be carried for this purpose. The system is to be entirely separate from other ventilating systems. Ventilation ducts serving ro-ro or vehicle spaces are to be capable of being effectively sealed for each cargo space. The system is to be capable of being controlled from a position outside such spaces.

(2) The ventilation system is to be such as to prevent air stratification and the formation of air pockets.

(3) For all ships, where an air quality control system deemed appropriate by the Society is provided, the ventilation system may be operated at a decreased number of air changes and/or a decreased amount of ventilation. This relaxation does not apply to spaces to which at least ten air changes per hour is required by **20.3.2-2** and spaces subject to **19.3.4-1** and **Chapter 20A**.

EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

1. The effective date of the amendments is 1 January 2017.

Amendment 2-2

Chapter 4 PROBABILITY OF IGNITION

4.5 Cargo Areas of Tankers

4.5.3 Cargo Tank Venting*

Sub-paragraph -2 has been amended as follows.

2 Venting arrangements

(1) The venting arrangements in each cargo tank may be independent or combined with other cargo tanks and may be incorporated into the inert gas piping.

(2) Where the arrangements are combined with other cargo tanks, either stop valves or other acceptable means are to be provided to isolate each cargo tank. Where stop valves are fitted, they are to be provided with locking arrangements which are to be under the control of the responsible ship's officer. There is to be a clear visual indication of the operational status of the valves or other acceptable means. Where tanks have been isolated, it is to be ensured that relevant isolating valves are opened before cargo loading or ballasting or discharging of those tanks is commenced. Any isolation must continue to permit the flow caused by thermal variations in a cargo tank in accordance with **11.6.1(1)**. Any isolation is to be also continue to permit the passage of large volumes of vapour, air or inert gas mixtures during cargo loading and ballasting, or during discharging in accordance with **11.6.1(2)**.

(3) If cargo loading and ballasting or discharging of a cargo tank or cargo tank group is intended, which is isolated from a common venting system, that cargo tank or cargo tank group is to be fitted with a means for over-pressure or under-pressure protection as required in **11.6.3-2**.

(4) The venting arrangements are to be connected to the top of each cargo tank and are to be self - draining to the cargo tanks under all normal conditions of trim and list of the ship. Where it may not be possible to provide self-draining lines, permanent arrangements are to be provided to drain the vent lines to a cargo tank.

Chapter 11 STRUCTURAL INTEGRITY

11.6 Protection of Cargo Tank Structure against Pressure or Vacuum

11.6.1 General*

The venting arrangements are to be so designed and operated as to ensure that neither pressure nor vacuum in cargo tanks is not to exceed design parameters and be such as to provide for:

(1) the flow of the small volumes of vapour, air or inert gas mixtures caused by thermal variations in a cargo tank in all cases through pressure/vacuum valves of a type approved by the Society in accordance with the procedure deemed appropriate by the Society; and

(2) the passage of large volumes of vapour, air or inert gas mixtures during cargo loading and ballasting, or during discharging.

Paragraph 11.6.2 has been amended as follows.

11.6.2 Opening for Small Flow by Thermal Variations*

Openings for pressure release required by **11.6.1(1)** are to~~,~~be complied with the following **(1)** to **(2)** and are to be arranged in accordance with regulation **4.5.3-4(1)**.

(1) have as great a height as is practicable above the cargo tank deck to obtain maximum dispersal of flammable vapours but in no case less than 2 *m* above the cargo tank deck; and

(2) be arranged at the furthest distance practicable but not less than 5 *m* from the nearest air intakes and openings to enclosed spaces containing a source of ignition and from deck machinery and equipment which may constitute an ignition hazard. Anchor windlass and chain locker openings constitute an ignition hazard.

11.6.3 Safety Measures in Cargo Tanks*

Sub-paragraph -2 has been amended as follows.

2 Secondary means for pressure/vacuum relief

A secondary means of allowing full flow relief of vapour, air or inert gas mixtures are to be provided to prevent over-pressure or under-pressure in the event of failure of the arrangements in **11.6.1(2)**. In addition, the secondary means are to be capable of preventing over-pressure or under-pressure in the event of damage to, or inadvertent closing of, the means of isolation required in **4.5.3-2(2)**. Alternatively, pressure sensors may be fitted in each tank protected by the arrangement required in **11.6.1(2)**, with a monitoring system in the ship's cargo control room or the position from which cargo operations are normally carried out. Such monitoring equipment is also to provide an alarm facility which is activated by detection of over-pressure or under-pressure conditions within a tank.

EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

1. The effective date of the amendments is 1 January 2017.

2. Notwithstanding the amendments to the Rules, the current requirements 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 2-3

Chapter 4 PROBABILITY OF IGNITION

4.2 Arrangements for Oil Fuel, Lubrication Oil and Other Flammable Oils

4.2.2 Arrangements for Oil Fuel*

In a ship in which oil fuel is used, the arrangements for the storage, distribution and utilization of the oil fuel are to be such as to ensure the safety of the ship and persons on board and are to at least comply with the following provisions.

Sub-paragraph (9) has been added as follows.

(9) The upper ends of sounding pipes for fuel overflow tanks which terminate in machinery spaces are to be fitted with self-closing blanking devices and with small-diameter self-closing control cocks located below the blanking devices for the purpose of ascertaining before the blanking devices are opened that oil fuel is not present. Provision is to be made so as to ensure that any spillage of oil fuel through the control cocks involves no ignition hazard.

EFFECTIVE DATE AND APPLICATION (Amendment 2-3)

1. The effective date of the amendments is 27 June 2017.

2. Notwithstanding the amendments to the Rules, the current requirements 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

2016 AMENDMENT NO.2

Notice No.83 27th December 2016
Resolved by Technical Committee on 27th July 2016

Notice No.83 27th December 2016
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 2-1

R10 FIRE FIGHTING

R10.4 Fixed Fire-extinguishing Systems

R10.4.3 Storage Rooms of Fire-extinguishing Medium

Sub-paragraph -3 has been amended as follows.

3 With respect to the requirements specified in **10.4.3, Part R of the Rules**, where fire-extinguish media protecting the cargo holds is stored in a room located forward the cargo holds, such arrangement is to be in accordance with the provisions of **R25.2.1-~~8~~6**.

R25 FIXED GAS FIRE-EXTINGUISHING SYSTEMS

R25.2 Engineering Specifications

R25.2.1 General Requirements

Sub-paragraph -1 has been deleted, and Sub-paragraphs -2 to -8 have been renumbered to Sub-paragraphs -1 and -7 as follows.

~~**1** With respect to the requirements of **25.2.1-1(2), Part R of the Rules**, the volume of starting air receivers, converted to free air volume, of not greater than 10% of the gross volume of the machinery space need not to be added to the gross volume.~~

~~**2**~~**1** (Omitted)

~~**3**~~**2** (Omitted)

~~**4**~~**3** (Omitted)

~~**5**~~**4** (Omitted)

~~**6**~~**5** (Omitted)

~~**7**~~**6** (Omitted)

~~**8**~~**7** (Omitted)

R25.2.2 Carbon Dioxide Systems

Sub-paragraph -7 has been added as follows.

7 The wording "quantity of gas" specified in **25.2.2-1(8), Part R of the Rules** means that quantity required for the largest cargo space.

EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

1. The effective date of the amendments is 27 December 2016.

2. Notwithstanding the amendments to the Guidance, the current requirements 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 2-2

R3 DEFINITIONS

R3.2 Definitions

Paragraph R3.2.28 has been added as follows.

R3.2.28 Lightweight

With respect to the provisions of **3.2.28, Part R of the Rules**, the weight of mediums on board for the fixed firefighting systems (e.g. freshwater, CO_2, dry chemical powder, foam concentrate, etc.) is to be included in the lightweight.

R4 PROBABILITY OF IGNITION

R4.5 Cargo Areas of Tankers

R4.5.5 Inert Gas Systems

Sub-paragraph -5 has been added as follows.

5 The wording “double hull spaces” specified in **4.5.5-3(1), Part R of the Rules** means all ballast tanks and void spaces of double hull and double bottom spaces adjacent to the cargo tanks, including the forepeak tank and any other tanks and spaces under the bulkhead deck adjacent to cargo tanks, except cargo pump-rooms and ballast pump rooms. The expressions “tanks” and “spaces” are in accordance with **R4.5.7-3** through **-5**.

R10 FIRE FIGHTING

R10.2 Water Supply Systems

R10.2.1 Fire Mains and Hydrants

Sub-paragraph -8 has been added as follows.

8 With respect to the requirements of **10.2.1-3, Part R of the Rules**, the diameter of the fire main in ships designed to carry five or more tiers of containers on or above the weather deck is to be in accordance with **R10.2.2-9** and **-10**.

Paragraph R10.2.2 has been amended as follows.

R10.2.2 Fire Pumps

(-1 to -8 are omitted.)

9 With respect to the requirements of **10.2.2-4(1), Part R of the Rules**, ~~on board cargo~~ for ships designed to carry five or more tiers of containers on or above the weather deck, in cases where the mobile water monitors specified in **10.7.3-2, Part R of the Rules** are supplied by separate pumps and piping system, the total capacity of the main fire pumps need not exceed 180 m^3/h and the diameter of the fire main and water service pipes (hereinafter referred to as "the pipework diameter") need only be sufficient for the discharge of 140 m^3/h ~~in cases where the mobile water monitors are supplied by separate pumps and piping system~~.

10 With respect to the requirements of **10.2.2-4(1), Part R of the Rules**, for ships designed to carry five or more tiers of containers on or above the weather deck, in cases where the mobile water monitors specified in **10.7.3-2, Part R of the Rules** are supplied by the main fire pumps, the total capacity of required main fire pumps and the pipework diameter are to be sufficient for simultaneously supplying both the required number of fire hoses and mobile water monitors. However, the total capacity is not to be less than the following **(1)** or **(2)**, whichever is smaller:

(1) 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; or

(2) 180 m^3/h.

R19 CARRIAGE OF DANGEROUS GOODS

R19.3 Special Requirements

R19.3.1 Water Supplies

Sub-paragraph -8 has been added as follows.

8 With respect to the requirements of **19.3.1-5, Part R of the Rules**, for ships carrying dangerous goods designed to carry five or more tiers of containers on or above the weather deck, in cases where the mobile water monitors specified in **10.7.3-2, Part R of the Rules** and water spray system (fixed arrangement of spraying nozzles or flooding the cargo space with water) specified in **19.3.1-3, Part R of the Rules** are supplied by main fire pumps, the total capacity of the main fire pumps and the pipework diameter need only be sufficient to supply whichever of the following is the greater:

(1) the mobile water monitors specified in **10.7.3-2, Part R of the Rules** and the four nozzles specified in **19.3.1-2, Part R of the Rules**; or

(2) the four nozzles specified in **19.3.1-2, Part R of the Rules** and the water spray system specified in **19.3.1-3, Part R of the Rules**.

However, the total capacity is not to be less than **R10.2.2-10(1)** or **(2)**, whichever is smaller.

R19.3.2 Sources of Ignition

1 Applying to the requirements in **19.3.2, Part R of the Rules**, permitted electrical installations are to be in accordance with the followings.

(1) For ships carrying dangerous goods in a packaged form specified in **19.2.3(1), Part R of the Rules**, the requirements in **Table R19.3.2-1** are to apply.

(2) For ships carrying solid dangerous goods in bulk specified in **19.2.3(9)**, **(10)**, **(13)** or **(23)**, **Part R of the Rules** which may create explosive dust, the requirements in **Table R19.3.2-2** are to apply.

Sub-paragraph (3) has been amended as follows.

(3) For ships carrying solid dangerous goods in bulk specified in **19.2.3(12), Part R of the Rules** which may create explosive gas and ships carrying dangerous goods in a packaged form specified in **19.2.3(3)**, **(7)** (except the liquids of which flash point is less than -18°C), **(15)** or **(19), Part R of the Rules**, the requirements in **Table R19.3.2-3** (Classified as hazardous area by *IEC* 60092-506) and **Table R19.3.2-4** (Classified as extended hazardous area by *IEC* 60092-506) are to apply.

The hazardous areas specified in **Table R19.3.2-4(d)** for ships carrying flammable liquid substances having flashpoints of less than 23°C, as specified in **19.2.3(7)**, **(15)** or **(19)**, **Part R of the Rules**, are to apply. However, enclosed spaces served by continuously forced mechanical ventilation capable of at least 6 air changes per hour may be considered as non-hazardous areas if they satisfy the following **(a)** and **(b)**:

(a) In the event of failure of the mechanical ventilation device, an alarm is to be activated in a continually manned space, such as the navigation bridge, the machinery control room,

etc. In addition, all electrical installations except those permitted according to **Tables R19.3.2-1**, **R19.3.2-2** and **R19.3.2-3** (hereinafter referred to as "permitted electrical installation") are to be automatically switched off.

(b) Essential electrical equipment for the safety of the ship or its personnel is to be a permitted electrical installation which cannot be automatically switched off. However, in cases where two or more mechanical ventilation devices are installed within the enclosed space, essential equipment need not be of a permitted electrical installation type. In such cases, essential equipment not considered to be permitted electrical installations is to be interlocked so as to prevent inadvertent operation when the ventilation devices are not operational.

((4) to (8) omitted)

Sub-paragraph (9) has been amended as follows.

(9) The spaces specified in the followings **(a)** and **(b)** which have openings into adjacent hazardous areas specified in **Table R19.3.2-1** to **Table R19.3.2-3** may be considered as non-hazardous areas.

(a) Spaces where comply with all the following **i)** to **iv)**;

i) A minimum overpressure of 25*Pa* with respect to the adjacent hazardous space is to be maintained at all points inside the space and its associated ducts at which leaks are liable to occur, all doors and windows being closed.

ii) When the space is not suitably pressurized, e.g. during initial start-up or after shut-down conditions, electrical installations other than those permitted electrical installations ~~by **Table R19.3.2-1** to **Table R19.3.2-3**~~ are not to be energized unless the internal atmosphere is ensured as non-hazardous (the concentration of explosive gases or vapours in the space is below 30 % of the lower explosive limit) or prior purging of sufficient duration that the internal atmosphere may be considered as non-hazardous is proceeded.

iii) Monitoring device is to be provided to ensure the satisfactory functioning of pressurization of the space. In case where a flow-monitoring device is used, it is to be verified that either the pressurization level required in **i)** is maintained with any door or other opening open, or an alarm is activated if any door or other opening is not closed.

iv) In case where the pressurization level required in **i)** is not maintained, an alarm is to be activated in a continually manned space, e.g. the navigation bridge or the machinery control room, and electrical installations other than those permitted by **Table R19.3.2-1** to **Table R19.3.2-3** are to be automatically switched off. However, essential electrical equipment for the safety of the ship or personnel is to be of those permitted by **Table R19.3.2-1** to **Table R19.3.2-3** to avoid automatic switch-off.

(b) Spaces where doubly protected by gas-tight doors with self-closing devices;
In this case, watertight doors always closed and monitored their open-close condition under the voyage may be considered as gas-tight doors with self-closing devices.

Sub-paragraph (10) has been added as follows.

(10) Areas having a gas-tight closure or a gas-tight door with self-closing devices leading to areas specified in **Table R19.3.2-4** may be considered as non-hazardous areas.

Title of Table R19.3.2-1 has been amended as follows.

Table R19.3.2-1 Hazardous Areas and Permitted Electrical Installations (~~Part 1~~ Related to **R19.3.2-1(1)**)

Title of Table R19.3.2-2 has been amended as follows.

Table R19.3.2-2 Hazardous Areas and Permitted Electrical Installations (~~Part 2~~ Related to **R19.3.2-1(2)**)

Table R19.3.2-3 has been amended as follows.

Table R19.3.2-3 Hazardous Areas and Permitted Electrical Installations (~~Part 3~~ Related to **R19.3.2-1(3)**)

Hazardous areas		Permitted electrical installations
(a)	Enclosed or semi-enclosed cargo spaces, closed or open ro-ro spaces and closed or open vehicle spaces	(1) Certified safe type electrical equipment specified in **2.16.2**, **Part H of the Rules** of gases and vapours group: II*B*, temperature class: *T*3, and associated cables (2) Through run cables
(b)	Inert and exhaust ventilation ducts	
(c)	Enclosed or semi-enclosed spaces having a direct opening (without closing devices, such as doors) into any of the spaces specified in **(a)** and **(b)**	
(d)	Areas on open deck or semi-enclosed spaces on open deck within 1.5 *m* of mechanical ventilation outlet of hazardous areas	
~~(e)~~	~~Areas having a gas-tight closure or a gas-tight door with self-closing devices leading to areas specified in **(a)** to **(c)** and not ventilated by overpressure~~	~~(1) Electrical installations permitted for areas specified in **(a)** to **(d)**~~ ~~(2) Electrical equipment of the type which enclosures the absence of sparks or arcs and no part of such equipment has an operating temperature which can cause the ignition of gases or vapours of the cargoes to be carried, and associated cables~~ ~~(3) Electrical equipment with type of protection "n" specified in IEC60079-15 and associated cables~~
~~(f)~~	~~Bilge pump rooms and pipe tunnels with equipment, such as flanges, valves, pumps serving areas specified in **(a)** to **(c)**~~	
~~(g)~~	~~Air lock spaces~~	
~~(h)~~	~~Areas of 1.5 *m* beyond the areas specified in **(d)**~~	

Note:

1. Where cargoes which require a higher grading are carried, this is to be taken into consideration.
2. The following requirements are to apply when the dangerous goods listed below are loaded in the space specified in **19.2.2(7), Part R of the Rules**.
   - Aluminum ferrosilicon powder, Aluminum silicon powder; gases and vapours group: II*C*, temperature class: *T*2
   - Ferrosilicon; gases and vapours group: II*C*, temperature class: *T*1
   - Zinc ashes, Zinc dross, Zinc residues, Zinc skimmings; gases and vapours group: II*C*, temperature class: *T*2

Table R19.3.2-4.has been added as follows.

Table R19.3.2-4 Hazardous Areas and Permitted Electrical Installations (Related to **R19.3.2-1.(3)**)

Hazardous areas		Permitted electrical installations
(a)	Areas not ventilated by overpressure which have gas-tight closures or automatically closing gas-tight doors and lead to the areas specified in **Table R19.3.2-3 (a)** to **(c)**	(1) Certified safe type electrical equipment specified in **2.16.2**, **Part H of the Rules** of gases and vapours group: II*B*, temperature class: *T*3, and associated cables (2) Through run cables (3) Electrical equipment of the type which enclosures the absence of sparks or arcs and no part of such equipment has an operating temperature which can cause the ignition of gases or vapours of the cargoes to be carried, and associated cables (4) Electrical equipment with type of protection “n” specified in IEC60079-15 and associated cables
(b)	Areas protected by gas-tight doors in accordance with **R19.3.2-1.(9)(b)** (Air lock spaces)	
(c)	Areas which are 1.5 *m* beyond the areas specified in **Table R19.3.2-3 (d)**	
(d)	Enclosed spaces (e.g., bilge pump rooms, pipe tunnels, etc.) which contain sources of gas release, such as flanges, valves, and pumps	

Note:

1. Where cargoes which require a higher grading are carried, this is to be taken into consideration.
2. The following requirements are to apply when the dangerous goods listed below are loaded in the space specified in **19.2.2(7), Part R of the Rules**.
   - Aluminum ferrosilicon powder, Aluminum silicon powder; gases and vapours group: II*C*, temperature class: *T*2
   - Ferrosilicon; gases and vapours group: II*C*, temperature class: *T*1
   - Zinc ashes, Zinc dross, Zinc residues, Zinc skimmings; gases and vapours group: II*C*, temperature class: *T*2

EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

1. The effective date of the amendments is 1 January 2017.

2. Notwithstanding the amendments to the Guidance, the current requirements 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 2-3

R4 PROBABILITY OF IGNITION

R4.2 Arrangements for Oil Fuel, Lubrication Oil and Other Flammable Oils

R4.2.1 Limitations in the Use of Oils as Fuel

Sub-paragraph -2 has been amended as follows.

2 The wording "considered appropriate by the Society" in **4.2.1(~~5~~6), Part R of the Rules** means that fuel oil service tanks, settling tanks or other tanks provided in fuel oil supply systems which satisfy the following conditions:

(1) The length of the vent pipes from such tanks and/or cooling devices are sufficient for cooling the vapours to below 60°C, or the outlet of the vent pipes to be located 3 *m* away from a source of ignition.
(2) The open-end device of vent pipes are fitted with flame screens.
(3) There are no openings from the vapour space of the fuel oil tanks into machinery spaces (bolted manholes with gaskets are acceptable).
(4) Enclosed spaces are not located right above the fuel oil tanks, except for well-ventilated cofferdams.

R15 TRAINING MANUAL AND FIRE CONTROL PLAN

R15.2 General Requirements

Paragraph R15.2.3 has been added as follows.

R15.2.3 Means of Recharging Breathing Apparatus Cylinders and Spare Cylinders

With respect to the provisions of **15.2.3, Part R of the Rules**, "a suitable number of spare cylinders" to be carried on board to replace those used for fire drills is to be at least one "set of cylinders" for each mandatory breathing apparatus required by **10.10.2** and **18.5.1(6), Part R of the Rules**. If additional spare cylinders are required by the shipboard safety management system (*SMS*), the number of spare cylinders carried on board is to be in accordance with the *SMS*. "Set of cylinders" means the number of cylinders which are required to operate the breathing apparatus. No additional cylinders are required for fire drills for breathing apparatus sets required by **Chapter 19, Part R of the Rules**, **Part N** and **Part S of the Rules**, and *IMSBC Code*.

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 -6 has been added as follows.

6 With regard to "air quality control system deemed appropriate by the Society" in **20.3.1-2(3), Part R of the Rules**, reference is made to *Appendix 1* of *"Revised Design Guidelines and Operational Recommendations for Ventilation Systems in Ro-Ro Cargo Spaces"* (*MSC.*1/*Circ.*1515).

EFFECTIVE DATE AND APPLICATION (Amendment 2-3)

1. The effective date of the amendments is 1 January 2017.

Amendment 2-4

R11 STRUCTURAL INTEGRITY

R11.6 Protection of Cargo Tank Structure against Pressure or Vacuum

R11.6.3 Safety Measures in Cargo Tanks

Sub-paragraph -2 has been amended as follows.

2 ~~The following **(1)** and **(2)**~~Venting arrangement piping damage need not be considered as "the event of failure of the arrangements in **11.6.1(2)**" specified in **11.6.3-2, Part R of the Rules**.

~~(1) venting arrangement piping damage; and~~

~~(2) mechanical failure or inadvertent closure of either isolation valves or other acceptable means to isolate each cargo tank specified in **4.5.3-2(2), Part R of the Rules** in cases where the cargo is homogenous or for multiple cargoes where the vapours are compatible and do not require isolation.~~

Sub-paragraph -3 has been amended as follows.

3 "A secondary means of allowing full flow relief of vapour, air or inert gas mixtures" specified in **11.6.3-2, Part R of the Rules** is to comply with the following requirements:

(1) The venting arrangements specified in **11.6.1(2), Part R of the Rules**, the rupture disks or the pressure-vacuum breaking devices may be used as a secondary means. The rupture disk is to be of a type approved by the Society in accordance with the provisions of **Chapter 7, Part 6 of "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use"**.

(2) The height requirements specified in **4.5.3-4(1)** and **11.6.2, Part R of the Rules** and the requirements for devices to prevent the passage of flame specified in **4.5.3-3, Part R of the Rules** are not applicable to the openings of a secondary means provided that their settings are above the pressure relief setting of and below the vacuum relief setting of the venting arrangements required by **(1)** and **(2)** of **11.6.1, Part R of the Rules**, namely, that a secondary means does not work during the venting arrangements required by **(1)** and **(2)** of **11.6.1, Part R of the Rules** are at normal operation.

~~(3) For tankers equipped with inert gas systems complying with the requirements specified in **4.5**, **11.6** and **Chapter 35, Part R of the Rules**, the pressure vacuum breaking devices specified in **11.6.3-4, Part R of the Rules** fitted on inert gas main may be utilised as the required secondary means of venting provided that the subject pressure-vacuum breaking devices are arranged in accordance with the requirements specified in **4.5.3-2(3), Part R of the Rules** where the cargo is homogenous or for multiple cargoes where the vapours are compatible and do not require isolation.~~

(~~4~~3) For tankers which are equipped with inert gas systems complying with the requirements specified in **4.5**, **11.6** and **Chapter 35**, **Part R of the Rules**, which carry out unloading operation under the conditions that the ~~mast head~~masthead isolation valve for free flow type is

closed and inert gas is supplied into cargo tanks, the secondary means may be arranged taking into account that the operation supplying inert gas serves as the primary under-pressure protection as specified in **11.6.1(2), Part R of the Rules**.

EFFECTIVE DATE AND APPLICATION (Amendment 2-4)

1. The effective date of the amendments is 1 January 2017.

2. Notwithstanding the amendments to the Guidance, the current requirements 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.