21-460

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 2021 AMENDMENT NO.1
Guidance for the Survey and Construction of Steel Ships
Part R 2021 AMENDMENT NO.1

Rule No.29 / Notice No.28 30 June 2021
Resolved by Technical Committee on 27 January 2021

ClassNK
NIPPON KAIJI KYOKAI

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

2021 AMENDMENT NO.1

Rule No.29 30 June 2021

Resolved by Technical Committee on 27 January 2021

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

Rule No.29 30 June 2021
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 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

Paragraph 20.3.2 has been amended as follows.

20.3.2 Electrical Equipment and Wiring*

1 Except as provided in **-2** ~~above~~, electrical equipment and wiring installed in vehicle spaces are to be of a type suitable for use in an explosive petrol and air mixture.

2 In case of other than special category spaces below the bulkhead deck, ~~N~~notwithstanding the provisions in **-1** above, above a height of 450 *mm* from the deck and from each platform for vehicles, if fitted, except platforms with openings of sufficient size permitting penetration of petrol gases downwards, electrical equipment of a type so enclosed and protected as to prevent the escape of sparks is to be permitted as an alternative on condition that the ventilation system is so designed and operated as to provide continuous ventilation of the cargo spaces at the rate of at least ten air changes per hour whenever vehicles are on board.

20.4 Detection and Alarm

Paragraphs 20.4.1 and 20.4.2 have been amended as follows.

20.4.1 Fixed Fire Detection and Fire Alarm Systems*

Except as provided in **20.4.3-1,** ~~T~~there is to be provided a fixed fire detection and fire alarm system complying with the requirements of **Chapter 29**. The fixed fire detection system is to be capable of rapidly detecting the onset of fire. The type of detectors and their spacing and location are to be determined taking into account the effects of ventilation and other relevant factors. After being installed the system is to be tested under normal ventilation conditions and is to give an overall response time to the satisfaction of the Society.

20.4.2 Sample Extraction Smoke Detection Systems

Except open ro-ro spaces ~~and~~, open vehicle spaces and special category spaces, a sample extraction smoke detection system complying with the requirements of **Chapter 30** may be used as an alternative of the fixed fire detection and fire alarm system required in **20.4.1**.

Paragraph 20.4.3 has been added as follows.

20.4.3 Special category spaces*

1 An efficient fire patrol system is to be maintained in special category spaces. However, if an efficient fire patrol system is maintained by a continuous fire watch at all times during the voyage, a

fixed fire detection and fire alarm systems is not required.
2 Manually operated call points are to be spaced so that no part of the space is more than 20 *m* from a manually operated call point, and one is to be placed close to each exit from such spaces.

20.5 Fire-extinction

20.5.1 Fixed Fire-extinguishing Systems*

Sub-paragraphs -1 and -2 have been amended as follows.

1 Vehicle spaces and ro-ro spaces, which are not special category spaces and are capable of being sealed from a location outside of the cargo spaces, are to be fitted with one of the following fixed fire-extinguishing systems:
(1) a fixed gas fire-extinguishing system complying with the provisions of **Chapter 25**;
(2) a fixed high-expansion foam fire-extinguishing system complying with the provisions of **Chapter 26**; or
(3) a fixed water-based fire-fighting system for ro-ro spaces and special category spaces complying with the provisions of **Chapter 27**.
2 Vehicle spaces and ro-ro spaces not capable of being sealed and special category spaces are to be fitted with a fixed water-based fire-fighting system for ro-ro spaces and special category spaces complying with the provisions of **Chapter 27** which is to protect all parts of any deck and vehicle platform in such spaces. Such a water-based fire-fighting system is to have:
(1) a pressure gauge on the valve manifold;
(2) clear marking on each manifold valve indicating the spaces served;
(3) instructions for maintenance and operation located in the valve room; and
(4) a sufficient number of drainage valves to ensure complete drainage of the system.
(-3 to -5 are omitted.)

Chapter 25 FIXED GAS FIRE-EXTINGUISHING SYSTEMS

25.2 Engineering Specifications

25.2.2 Carbon Dioxide Systems*

Sub-paragraph -1(2) has been amended as follows.

1 Quantity of fire extinguishing medium
((1) is omitted.)
(2) For vehicle spaces and ro-ro spaces, the quantity of carbon dioxide available is to be at least sufficient to give a minimum volume of free gas equal to 45 % of the gross volume of the largest such cargo space which is capable of being sealed, and the arrangements are to be such as to ensure that at least two thirds of the gas required for the relevant space is to be introduced within 10 *minutes*. Carbon dioxide systems are not to be used for the protection of special category spaces.
((3) to (8) are omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 30 June 2021.

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 1-2

Chapter 4 PROBABILITY OF IGNITION

4.5 Cargo Areas of Tankers

4.5.7 Gas Measurement*

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

(1) Tankers are to be equipped with at least one portable instrument for measuring flammable vapour concentrations and at least one portable instrument for measuring oxygen concentrations, together with a sufficient set of spares. ~~Suitable means are to be provided for the calibration of such instruments.~~ These measuring instruments are to ~~be deemed appropriate by the Society.~~ satisfy the following **(a)** to **(c)**:
   (a) Suitable means are to be provided for the calibration of such instruments.
   (b) Measuring instruments are to be deemed appropriate by the Society.
   (c) Portable instruments for measuring flammable vapour concentrations can be measured such concentrations in air (% LEL).

((2) and (3) are omitted.)

Chapter 35 INERT GAS SYSTEMS

35.2 Engineering Specifications

35.2.2 Requirements for All Systems*

Sub-paragraph -4(6) has been amended as follows.

4 Indicators and alarms

((1) to (5) are omitted.)

(6) Portable instruments for measuring ~~oxygen and~~ flammable vapour concentrations
   At least two portable gas detectors ~~capable of measuring flammable vapour concentrations in air and at least two portable O_2 analysers~~ capable of measuring concentrations of flammable vapours in inerted atmosphere (% gas by volume) are to be provided. ~~These gas detectors are to be capable of measuring concentrations of flammable vapours in inerted atmosphere.~~

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 July 2021.

2. Notwithstanding the amendments to the Rules, 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.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE

Part R Fire Protection, Detection and Extinction

2021 AMENDMENT NO.1

Notice No.28 30 June 2021
Resolved by Technical Committee on 27 January 2021

Notice No.28 30 June 2021
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

R20 PROTECTION OF VEHICLE AND RO-RO SPACES

R20.4 Detection and Alarm

R20.4.1 Fixed Fire Detection and Fire Alarm Systems

Sub-paragraph -3 has been added as follows.

3 The detector sections in vehicle and ro-ro spaces may be provided with an arrangement, (e.g. a timer) for disconnecting detector sections during loading and unloading of vehicles to avoid "false" alarms. The time of disconnection is to be adapted to the time of loading/unloading. The central unit is to indicate whether the detector sections are disconnected or not. However, manual call points are not to be capable of being disconnected by the arrangements referred to above.

Paragraph R20.4.3 has been added as follows.

R20.4.3 Special category spaces

The wording "maintained by a continuous fire watch at all times" in **20.4.3-1, Part R of the Rules,** means either of the following **(1)** or **(2)**:

(1) a permanently and appropriately installed compartment from where designated personnel can effectively and continuously monitor the space; or

(2) means (e.g. video monitors) are provided in the engine control room or at the bridge for monitoring the space.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 30 June 2021.

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.

Amendment 1-2

R4 PROBABILITY OF IGNITION

R4.5 Cargo Areas of Tankers

R4.5.7 Gas Measurement

Sub-paragraphs -1 to -3 have been amended as follows.

1 The portable instruments for measuring flammable vapour and oxygen concentrations required in **4.5.7(1), Part R of the Rules** may be utilized as portable instruments required in **4.5.7(2)(a)** ~~and **35.2.2-4(6)**~~**, Part R of the Rules**.

2 The wording "suitable means are to be provided for the calibration of such instruments" in **4.5.7(1)(a), Part R of the Rules** refers to portable instruments for measuring flammable vapour and oxygen concentrations being calibrated on board or ashore in accordance with the manufacturer's instructions together with corresponding calibration records being kept. In this regard, the calibration of portable instruments for measuring flammable vapour and oxygen concentrations does not include any pre-operational accuracy tests as recommended by the manufacturer.

3 The provisions on the number of portable instruments and spares for measuring flammable vapour and oxygen concentrations required by **4.5.7(1), Part R of the Rules** ~~is~~ are to be satisfied in either of the following ways:

(1) a minimum of two instruments are provided on board, including spares, in cases where each is capable of measuring both oxygen and flammable vapour concentrations.

(2) ~~However, in cases where separate portable instruments are respectively used to measure such concentrations, at least two of each, including spares, are to be provided on board.~~ at least two of each, including spares, are provided on board in cases where separate portable instruments are respectively used to measure such concentrations.

R35 INERT GAS SYSTEMS

R35.2 Engineering Specifications

R35.2.2 Requirements for All Systems

Sub-paragraph -10 has been added as follows.

10 The portable gas detectors required by **35.2.2-4(6), Part R of the Rules** may also be used as the portable instruments for measuring flammable vapour concentration required by **4.5.7(1), Part R of the Rules**. Such portable instruments, however, are to satisfy the provisions of **4.5.7(1)** and **35.2.2-4(6), Part R of the Rules**.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 July 2021.

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 1-3

Annex R9.3.1 DETAILS OF PENETRATIONS

1 GENERAL

1.1 Principle

Paragraph 1.1.1 has been amended as follows.

1.1.1 Penetration in "*A*" Class Divisions

For penetrations in "*A*" class divisions, details are to be approved by the Society or organizations deemed appropriate by the Society in accordance with the Fire Test Procedures Code. For other penetrations such that testing is not required under the provisions of **9.3.1** or **9.7.3, Part R of the Rules** as applicable, details are to comply with the provisions in ~~chapter 2~~ sections **2.1** and **2.2 of this Annex** as a standard.

2 DETAILS

2.3 Penetration of Electric Cables

Paragraph 2.3.1 has been amended as follows.

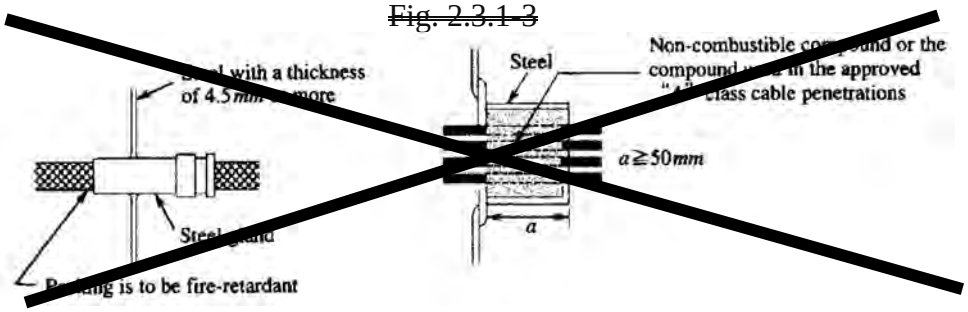
2.3.1 ~~General~~ Penetration of "*A*" Class Divisions

The requirements specified in **H2.9.15** are to be complied with. Detailed examples of such penetrations are shown in **Figs. 2.3.1-1** to **2.3.1-~~6~~2**.

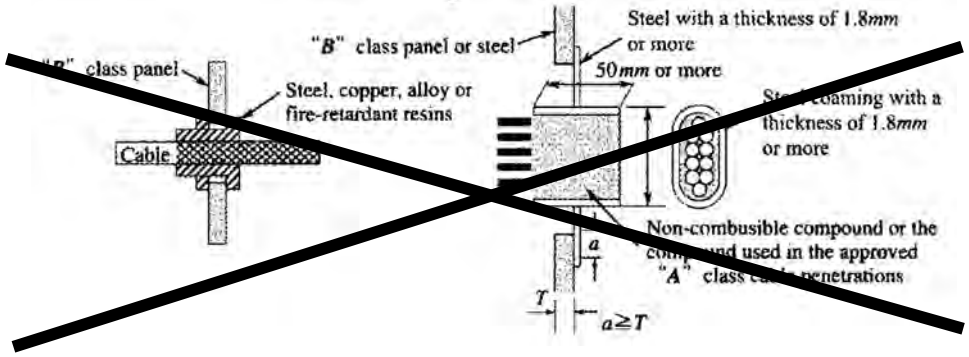
Fig. 2.3.1-1
(Omitted)

Fig. 2.3.1-2
(Omitted)

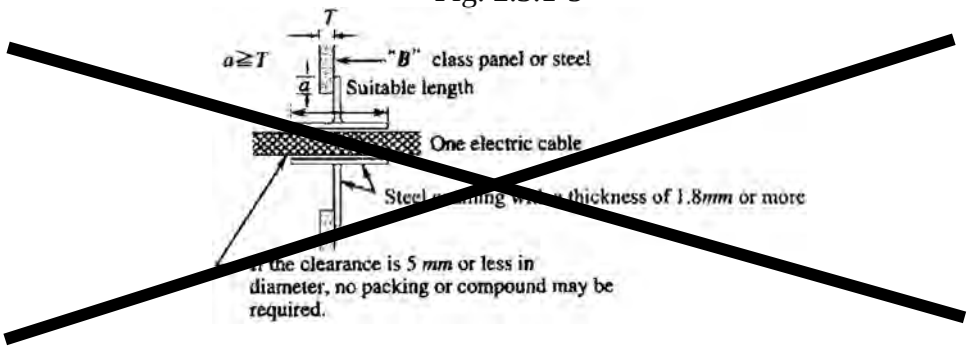
~~Fig. 2.3.1-3~~



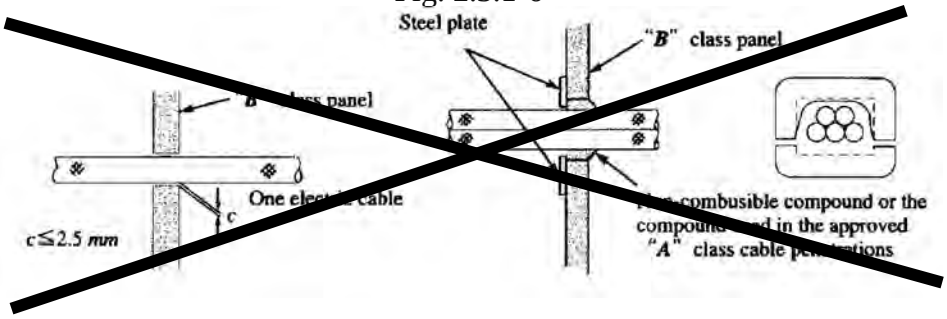
~~Fig. 2.3.1-4~~



~~Fig. 2.3.1-5~~



~~Fig. 2.3.1-6~~



Paragraph 2.3.2 has been added as follows.

2.3.2 Penetration of "*B*" Class Divisions

The requirements specified in **H2.9.15** are to be complied with. Detailed examples of such penetrations are shown in **Figs. 2.3.2-1** to **2.3.2-4.**

Fig. 2.3.2-1

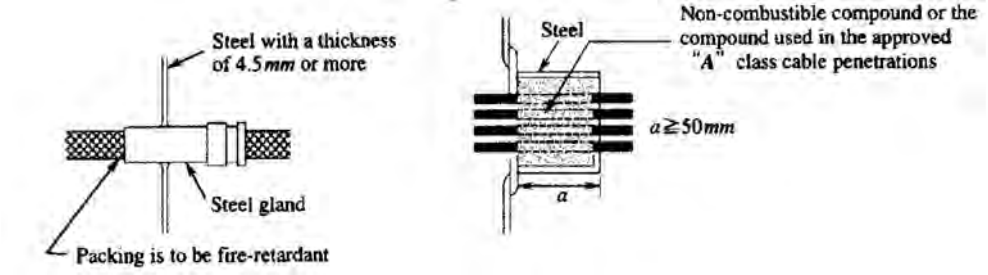


Fig. 2.3.2-2

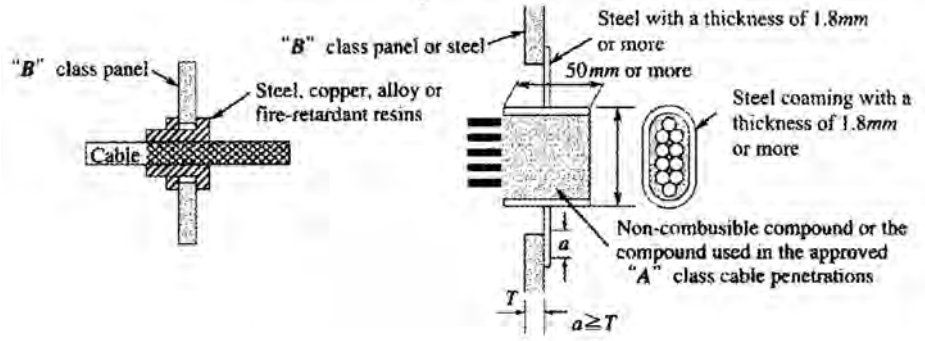


Fig. 2.3.2-3

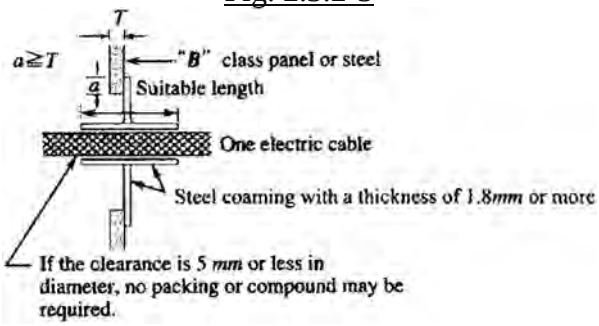
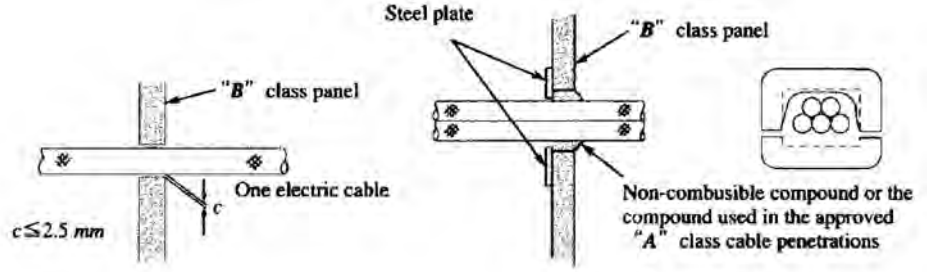


Fig. 2.3.2-4



EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 1 July 2021.

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.