

RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part H

Electrical Installations

Rules for the Survey and Construction of Steel Ships

Part H

2015 AMENDMENT NO.1

Guidance for the Survey and Construction of Steel Ships

Part H

2015 AMENDMENT NO.2

Rule No.63 / Notice No.82 25th December 2015

Resolved by Technical Committee on 28th July 2015

Approved by Board of Directors on 14th September 2015

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NIPPON KAIJI KYOKAI

RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part H

Electrical Installations

RULES

2015 AMENDMENT NO.1

Rule No.63 25th December 2015

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Rule No.63 25th December 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 H ELECTRICAL INSTALLATIONS

Amendment 1-1

Chapter 4 ADDITIONAL REQUIREMENTS FOR SHIPS CARRYING SPECIAL CARGOES

4.2 Tankers, Ships Carrying Liquefied Gases in Bulk and Ships Carrying Dangerous Chemicals in Bulk

4.2.4 Electrical Installations in Hazardous Areas

Sub-paragraph -8 has been amended as follows.

- 8** Electrical circuits passing ~~through~~into Zone 0 are to be provided with the following measures:
- (1) Circuits other than intrinsically-safe circuits are to be automatically disconnected or are to be prevented from being energized in the event of abnormally low levels of insulation resistance ~~and~~ high levels of leakage current.
 - (2) Protective systems are to be arranged so that manual intervention is necessary in order to reconnect any circuits after being disconnected as a result of short circuits, overloads or earth-fault conditions.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 25 December 2015.

Chapter 1 GENERAL

1.1 General

Paragraph 1.1.6 has been amended as follows.

1.1.6 Drawings and Data

The drawings and data to be submitted are as follows. In cases where the Society deems it to be necessary, the submission of drawings and data other than those specified below may be requested.

(1) Drawings:

- (a) Sectional assembly of generators, motors and electromagnetic slip couplings for electric propulsion equipment including their complete ratings, main dimensions, main materials used and weights
- (b) Key diagrams and explanations of electric propulsion controlgears
- (c) Sectional assembly of generators (main, auxiliary and emergency) of 100kW (or kVA) and over, including their complete ratings, main dimensions, main materials used and weights
- (d) Arrangement plans (including specifications of main parts such as circuit breakers, fuses, instruments and cables) and circuit diagrams of main switchboards and emergency switchboards
- (e) Plans of arrangement of electrical equipment and of cable installation
- (f) Diagrams of wiring systems including normal working currents, rated currents, prospective short-circuit currents in circuits, line drop of voltages, type of cables, cable sizes, ratings and settings of circuit breakers, ratings of fuses and switches, and breaking capacities of circuit breakers and fuses
- (g) Semiconductor converters for power for electric propulsion and for electric generators (including dimensions, electric equipment particulars, sectional assembly)

(2) Data:

- (a) Explanations of electric propulsion systems
- (b) Investigation tables of electrical power
- (c) Lists of particulars for high voltage electrical equipment
- (d) For tankers, ships carrying liquefied gases in bulk and ships carrying dangerous chemicals in bulk, drawings indicating any hazardous areas and lists of any electrical equipment installed in such hazardous areas
- ~~(e) Maintenance records of batteries (See 1.1.8)~~
- (e)** For those ships carrying dangerous cargoes as specified in **19.3.2, Part R**, lists of any electrical equipment installed in such areas where such dangerous cargoes are loaded

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

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

Chapter 2 ELECTRICAL INSTALLATIONS AND SYSTEM DESIGN

2.9 Cables

2.9.11 Precaution against Fire

Sub-paragraph -3 has been amended as follows.

1 Cables are to be installed so as to not impair any of their original flame retardant properties.

2 All cables for power, lighting, internal communications, signals and navigational aids of essential and emergency services are to be, as far as practicable, routed clear of all machinery spaces of category A as well as their casings, all galleys, all laundries and any other high fire risk areas. Cables connecting fire pumps to emergency switchboards are to be fire resistant types in cases where they pass through high fire risk areas. All such cables are to be, as far as practicable, run in such a manner as to preclude their being rendered unserviceable by any heating of bulkheads that may be caused by fires in adjacent spaces.

3 Interconnecting cables between generators and main switchboards are to be routed clear of fuel oil purifier spaces, above other generator engines and fuel oil purifiers except in any of the following **(1)** to **(3)**:

- (1) ~~Subdivided~~ Cables connected to multiple generators or main switchboards which are separated into at least two groups separated throughout their length as far apart as practicable;
- (2) Fire resistant cables which have passed these following tests: ~~specified in IEC publication 60331-1~~ for cables whose diameters exceed 20 mm, and IEC 60331-21 or IEC 60331-2 for cables whose diameters do not exceed 20 mm; or
- (3) Cables ~~P~~protected by ~~means~~ fire prevention measures deemed appropriate by the Society.

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

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 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.

Chapter 4 ADDITIONAL REQUIREMENTS FOR SHIPS CARRYING SPECIAL CARGOES

4.8 Enclosed Cargo Holds for Carrying Motor Vehicles with Fuel in Their Tanks for Their Own Propulsion and Enclosed Compartments Adjoining the Cargo Holds, etc.

Paragraph 4.8.1 has been amended as follows.

4.8.1 Electrical Installations in Enclosed Cargo Holds, etc.

Enclosed cargo holds for ~~carrying~~ the carriage of motor vehicles with fuel in their tanks for their own propulsion, etc. are to comply with those requirements given in **20.3, Part R**.

Paragraphs 4.8.2 and 4.8.3 have been added as follows.

4.8.2 Electrical Installations in Cargo Holds for Carriage of Motor Vehicles with Compressed Natural Gas in Their Tanks for Their Own Propulsion

Cargo holds of vehicle carriers defined in 3.2.54, Part R for carriage of motor vehicles with compressed natural gas in their tanks for their own propulsion are to comply with those requirements given in 20A.3, Part R.

4.8.3 Electrical Installations in Cargo Holds for Carriage of Motor Vehicles with Compressed Hydrogen in Their Tanks for Their Own Propulsion

Cargo holds of vehicle carriers defined in 3.2.54, Part R for carriage of motor vehicles with compressed hydrogen in their tanks for their own propulsion are to comply with those requirements given in 20A.4, Part R.

EFFECTIVE DATE AND APPLICATION (Amendment 1-4)

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.

Chapter 2 ELECTRICAL INSTALLATIONS AND SYSTEM DESIGN

2.17 High Voltage Electrical Installations

2.17.3 Construction and Location

Sub-paragraph -21 has been amended as follows.

21 Fixed contacts of withdrawable circuit breakers and switches are to be arranged so that live contacts are automatically covered at withdrawn positions by shutters. Shutters are to be clearly marked using colours or labels to indicate whether they are for incoming and outgoing circuits.

Sub-paragraphs -29 and -30 have been added as follows.

29 High voltage switchboards and control boards are to be internal arc classified in accordance with IEC 62271-200. In cases where they are accessible by authorized personnel only, Accessibility Type A is sufficient. Accessibility Type B is required if they are accessible by non-authorized personnel.

30 The installation and location of high voltage switchboards and control boards, including their clearance to the ceiling (deckhead), are to correspond with its internal arc classification and classified sides (front, lateral and rear).

2.17.6 Testing

Sub-paragraph -2 has been amended as follows.

2 Internal arc fault tests on high voltage switchboards and control boards, in accordance with the standards deemed appropriate by the Society, are to be carried out at the place of manufacturer, etc. However, the subsequent testing of identical units of the same series may be omitted subject to the approval of the Society.

Sub-paragraph -4 has been amended as follows.

4 High voltage cables, after installation on board, are to be confirmed as having no abnormalities by testing them with the voltage in direct current (*d.c.*) equal to ~~4~~ times the rated voltage U_0 for a period of 15 *minutes*. However, ~~in certain cases~~ the case of cables with a rated voltage U_0/U above 1.8/3kV ($U_m=3.6kV$), alternative testing procedures, in lieu of that specified above, may be accepted by the Society.

In such cases, U_0 , U and U_m means as follows:

U_0 : The rated power-frequency voltage between the phase conductor and the ground or metallic screen for which the cable is designed

U : The rated power-frequency voltage between phase conductors for which the cable is designed

U_m : The maximum value of the “highest system voltage” for which the equipment may be used

EFFECTIVE DATE AND APPLICATION (Amendment 1-5)

1. The effective date of the amendments is 1 July 2016.
2. Notwithstanding the amendments to the Rules, 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.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part H

Electrical Installations

GUIDANCE

2015 AMENDMENT NO.2

Notice No.82 25th December 2015

Resolved by Technical Committee on 28th July 2015

Notice No.82 25th December 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 H ELECTRICAL INSTALLATIONS

Amendment 2-1

H1 GENERAL

H1.1 General

Paragraph H1.1.6 has been amended as follows.

H1.1.6 Drawings and Data

The wording “lists of any electrical equipment installed in such hazardous areas” specified in **1.1.6(2)(d)** and ~~(e)~~, **Part H of the Rules** means such lists are to include the following information:

- (1) The installation arrangement, kind of construction, type (including the certificate number and the name of any testing institution), manufacturer name, quantity and usage of any explosion-protected electrical equipment
- (2) Relevant documents related to how conditions impact such things as ventilation ratios, pressurizations or air-locks of each type of hazardous areas in order to confirm the effectiveness of such equipment (in cases where applicable)

EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

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

H2 ELECTRICAL INSTALLATIONS AND SYSTEM DESIGN

H2.1 General

H2.1.3 Construction, Materials, Installations, etc.

Table H2.1.3-7 has been amended as follows.

Table H2.1.3-7 Electrical Installations Permitted in Paint Lockers and Their Adjacent Areas

Areas		Permitted electrical installations
(a)	Paint lockers	(1) Certified safe type equipment specified below at least with respect to gasses and vapours of group <i>IIB</i> and of temperature class <i>T3</i> as well as their associated cables -intrinsic safety type (<i>Exi</i>) -flameproof type (<i>Exd</i>) -pressurized type (<i>Exp</i>) -increased safety type (<i>Exe</i>) (2) Through run cables (3) Non-sparking type ventilation fans complying with R4.5.4-1(2) . <u>Protection screens of not more than 13mm square mesh are to be fitted in the inlet and outlet ventilation openings of the ducts fitted with such fans on the open deck.</u>
(b)	Inlet and exhaust ventilation ducts	
(d)	Areas on open decks within 3m of exhaust mechanical ventilation openings	
(Omitted)		

H2.11 Accumulator Batteries

H2.11.5 Ventilation

Sub-paragraph -4 has been amended as follows.

4 The ventilation fans which ~~is~~ ~~are~~ ~~are~~ to be constructed and to be made of such materials so as to render any sparking impossible in the event of impellers touching fan casings” specified in **2.11.5-3, part H of the Rules** means those ~~non-sparking type~~ ventilation fans complying with the requirements given in **R4.5.4-1(2)**. For the purpose of this requirement, protection screens of not more than 13mm square mesh are to be fitted in the inlet and outlet ventilation openings of the ducts fitted with such fans on the open deck.

Paragraph H2.11.6 has been amended as follows.

H2.11.6 ~~Electrical Installations~~ Electrical Equipment

Explosion-protected electrical equipment ~~grouped into~~ certified as Explosion Class *d3* and Ignition Group *G1* or higher as specified in ~~Technical Recommendation issued by, National Institute of Industrial Safety Independent Administrative Institution in Japan~~ the Recommended Practices for Explosion-Protected Electrical Installations in General Industries (NIIS-TR-NO.39 (2006)) issued

by National Institute of Industrial Safety in Japan, may be treated as equivalent to those grouped into Apparatus Group *IIC* and Temperature Class *T1* or higher as specified in *IEC 60079*.

H2.16 Explosion-protected Electrical Equipment

H2.16.1 General

Sub-paragraph -2 has been amended as follows.

2 Explosion-protected electrical equipment listed below may be treated as equivalent to those complying with *IEC 60079*.

((1) and (2) are omitted.)

(3) Explosion-protected electrical equipment complying with the “~~Guidance for Type Approval of Electrical Apparatus for explosive gas atmospheres~~ Recommended Practices for Explosion-Protected Electrical Installations in General Industries (JNIOHS-TR-NO.43 (2008))” issued by ~~Technology Institution of Industrial Safety~~ National Institute of Occupational Safety and Health in Japan.

(4) Explosion-protected electrical equipment certified to complying with the “Recommended Practices for Explosion-Protected Electrical Installations in General Industries (NIIS-TR-NO.39 (2006))” issued by National Institute of ~~Occupational Safety and Health~~ Industrial Safety in Japan. However, the use of such equipment may be restricted because those explosive gases or vapours for which the equipment is designed, could not be completely consistent with those of equipment complying with *IEC 60079*.

((5) is omitted.)

H4 ADDITIONAL REQUIREMENTS FOR SHIPS CARRYING SPECIAL CARGOES

H4.2 Tankers, Ships Carrying Liquefied Gases in Bulk and Ships Carrying Dangerous Chemicals in Bulk

H4.2.4 Electrical Installations in Hazardous Areas

Sub-paragraph -3 has been amended as follows.

3 The wording “it is to be confirmed that such equipment is safe to use in explosive gas atmospheres” in **4.2.4-2, Part H of the Rules** means the following:

- (1) In the case of tankers which carry only crude or product oil, explosion-protected electrical equipment complying with the requirements given in **2.16, Part H of the Rules** and ~~grouped into~~ certified as Apparatus Group IIA, Temperature Class T3 or higher as specified in IEC 60079-0 or Explosion Class d1, Ignition Group G3 or higher as specified in the ~~Technical Recommendation issued by the National Institute of Industrial Safety, Independent Administrative Institution in Japan~~ Recommended Practices for Explosion-Protected Electrical Installations in General Industries (NIIS-TR-NO.39 (2006)) issued by National Institute of Industrial Safety in Japan and approved by the Society in accordance with those requirements given in **1.2.1-4, Part H of the Rules** or their equivalent thereto, or any types of equipment which may not cause the ignition of any gases or vapours from cargoes
- (2) In the case of ships which carry liquefied gases in bulk, any equipment complying with those requirements given in **10.1.5, Part N of the Rules**
- (3) In the case of ships which carry dangerous chemicals in bulk, any equipment complying with those requirements given in **10.1.5, Part S of the Rules**

Paragraph H4.2.6 has been added as follows.

H4.2.6 Ventilation in Hazardous Areas

With respect to the requirements specified in **4.2.6-3, Part H of the Rules**, protection screens of not more than 13mm square mesh are to be fitted in the inlet and outlet ventilation openings of the ducts fitted with such fans on the open deck.

H4.9 Coal Carriers

H4.9.1 Electrical Installations in Cargo Holds

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

1 The wording “Electrical installations are to be explosion-protected types as deemed appropriate by the Society and they are to have enclosures for safe operation in coal dust” specified in **4.9.1-2(1), Part H of the Rules** means those meeting the requirements given in **2.16, Part H of the Rules** and those having intrinsically safe, flameproof or pressurized constructions ~~grouped into~~ certified as Apparatus Group IIA and Temperature Class T4 or higher as specified in IEC 60079-0 or Explosion Class d1 and Ignition Group G4 or higher as specified in the ~~Technical Recommendation issued by the National Institute of Industrial Safety, Independent Administrative~~

~~Institution in Japan~~ Recommended Practices for Explosion-Protected Electrical Installations in General Industries (NIIS-TR-NO.39 (2006)) issued by National Institute of Industrial Safety in Japan, and having enclosures with a degree of protection of at least IP55 in accordance with **H2.1.3-4** or its equivalent thereto.

2 (Omitted)

3 The wording “non-sparking types” specified in **4.9.1-2(4), Part H of the Rules** means those types complying with the requirements of **R4.5.4-1(2)**. For the purpose of this requirement, protection screens of not more than 13mm square mesh are to be fitted in the inlet and outlet ventilation openings of the ducts fitted with such fans on the open deck.

EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

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.

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

H2 ELECTRICAL INSTALLATIONS AND SYSTEM DESIGN

H2.9 Cables

H2.9.11 Precaution against Fire

Sub-paragraph -6 has been amended as follows.

6 In cases where ~~any~~ installation of the cables specified in **H2.9.11-3** ~~above~~ in ~~these~~ spaces specified in **2.9.11-2, Part H of the Rules** is unavoidable, such cables may be any of the following: fire resistant cables whose diameters exceed 20 mm which have passed the tests in IEC 60331-1; fire resistant cables whose diameters do not exceed 20 mm which have passed the tests in IEC 60331-21 or IEC 60331-2; or cables ~~are to be~~ laid in insulated steel pipes or steel ducts whose fire protection is equivalent to **A-60** or more, ~~unless fire resistant cables which have passed those tests given in IEC Publication 331 or any equivalent thereto are used.~~ (See **Fig. H2.9.11-1**)

~~However, this~~ The above, however, does not include any apply to cases where the “services which are required to be operable under fire conditions” specified in -3(5) above can be maintained by means of one of the following (1), (2) or (3):

- (1) Self-monitoring of short-circuits and line open faults
- (2) Preservation of the function against short-circuits and line open faults
- (3) Duplication with cable runs as widely separated as is practicable

Sub-paragraph -7 has been renumbered to Sub-paragraph -8, and Sub-paragraph -7 has been added as follows.

7 Notwithstanding the requirements given in -6 above, the installation of cables connected to emergency fire pumps is to comply with the following (1) and (2):

- (1) The cables do not pass through the machinery spaces containing main fire pumps or their respective power sources and prime movers; and
- (2) The cables may pass through other high fire risk areas only if they are fire resistant and have passed the tests given in -6 above.

~~78~~ (Omitted)

EFFECTIVE DATE AND APPLICATION (Amendment 2-3)

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 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.

H2 ELECTRICAL INSTALLATIONS AND SYSTEM DESIGN

H2.17 High Voltage Electrical Installation

H2.17.3 Construction and Location

Sub-paragraph -1 has been amended as follows.

1 The wording “standards deemed appropriate by the Society” in **2.17.3-1, Part H of the Rules** means the current standards of the *International Electrotechnical Commission (IEC)* listed below or any equivalent thereto.

(1) Transformers

IEC 60076 Power transformers

(2) Switchboards and control boards

~~*IEC 60694 Common specification for high-voltage switchgear and controlgear standard*~~

IEC 62271-1 High-voltage switchgear and controlgear-Part 1: Common specifications

IEC 62271 - 200 High-voltage switchgear and controlgear – Part 200: A.C. metal-enclosed switchgear and controlgear for rated voltages above 1kV and up to and including 52kV

IEC 62271-201 High-voltage switchgear and controlgear-Part 201:

AC solid-insulation enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV

(3) High voltage circuit breakers

IEC 62271 - 100 High-voltage switchgear and controlgear - Part 1: High-voltage alternating current circuit breakers

(4) High voltage fuses

IEC 60282 - 1 High-voltage fuses-Part 1: Current limiting fuses, -Part 2: Expulsion fuses

(5) High voltage switches

~~*IEC 60265 High-voltage switches*~~

IEC 62271-103 High-voltage switchgear and controlgear - Part 103:

Switches for rated voltages above 1 kV up to and including 52 kV

(6) High voltage a.c. contactors

~~*IEC 60470 High-voltage alternating-current contactors and contactor-based motor-starters*~~

IEC 62271-106 High-voltage switchgear and controlgear - Part 106:

Alternating current contactors, contactor-based controllers and motor-starters

(7) Current transformers and voltage transformers

~~*IEC 60044 Instrument Current transformers*~~

IEC 61869-1 Instrument transformers - Part 1: General requirements

Sub-paragraph -5 has been amended as follows.

5 The clause “the measures deemed appropriate by the Society” in **2.17.3-23, Part H of the Rules** means that value for minimum air clearances may be reduced in cases where sufficient insulation performance has been confirmed by an impulse voltage test carried out according to paragraph 4.2 of *IEC 60694 (1996) 62271-1*.

EFFECTIVE DATE AND APPLICATION (Amendment 2-4)

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