

Precautions against Fire in Cable Installations

Object of Amendment

Rules for the Survey and Construction of Steel Ships Part H
Guidance for the Survey and Construction of Steel Ships Part H
Guidance for the Survey and Construction of Passenger Ships

Reason for Amendment

Regulation II-1/45.5.3 of SOLAS stipulates that cables for important equipment should be placed as far away as possible from “other high fire risk areas” in order to avoid damage to cables by fire. IACS Unified Interpretation (UI) SC11 specifies an interpretation of the “other high fire risk areas” in this regulation of the SOLAS. IACS Unified Requirement (UR) E15 stipulates requirements for electrical equipment and fire-resistant cables that must be available in the event of fire. The Society has already incorporated this UI and this UR into relevant requirements.

Although the current UI SC11 refers to regulation II-2/9 of SOLAS regarding “other high fire risk areas”, regulation 9 includes various areas for each type of ship and low fire risk areas. Hence, the interpretation of “other high fire risk areas” was unclear.

Therefore, IACS revised UI SC11 to clarify interpretation of “other high fire risk areas”. At the same time, the definition of “high fire risk areas” stipulated in UR E15 related to the UI was also revised. IACS adopted these revisions respectively as UI SC11(Rev.2) in November 2024 and UR E15(Rev.5) in [January 2025].

Accordingly, relevant requirements are amended in accordance with UI SC11(Rev.2) and UR E15(Rev.5). In addition, part of the requirements for cable penetration are revised to align with other requirements.

Outline of Amendment

Clarify requirements of cable installation to avoid damage to cables by fire.

Effective Date and Application

This draft amendment applies to ships for which the date of contract for construction is on or after 1 January 2026.

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

ID:DD24-30

Amended-Original Requirements Comparison Table (Precautions against Fire in Cable Installations)

Amended	Original	Remarks
<p align="center">RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS</p> <p align="center">Part HELECTRICAL INSTALLATIONS</p> <p align="center">Chapter 2 ELECTRICAL INSTALLATIONS AND SYSTEM DESIGN</p> <p>2.9 Cables</p> <p>2.9.11 Precaution against Fire*</p> <p>1 (Omitted)</p> <p>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 <u>galleys, laundries, machinery spaces of category A and their casings, and other high fire risk areas</u>. In addition, cables connecting fire pumps to emergency switchboards are to be fire resistant types complying with standards deemed appropriate by the Society 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.</p> <p>3 (Omitted)</p> <p>4 Where cables for services specified in -3 above including their power supplies pass through high fire risk areas, they are to be so arranged that a fire in any of these areas or zones does not affect the operation of the service in</p>	<p align="center">RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS</p> <p align="center">Part HELECTRICAL INSTALLATIONS</p> <p align="center">Chapter 2 ELECTRICAL INSTALLATIONS AND SYSTEM DESIGN</p> <p>2.9 Cables</p> <p>2.9.11 Precaution against Fire*</p> <p>1 (Omitted)</p> <p>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 <u>high fire risk areas and casings of all machinery spaces of category A</u>. In addition, cables connecting fire pumps to emergency switchboards are to be fire resistant types complying with standards deemed appropriate by the Society 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.</p> <p>3 (Omitted)</p> <p>4 Where cables for services specified in -3 above including their power supplies pass through high fire risk areas, they are to be so arranged that a fire in any of these areas or zones does not affect the operation of the service in</p>	<p>Regulation II-1/45.5.3 of SOLAS</p>

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Amended	Original	Remarks
<p>any other area or zone. This may be achieved by either of the following measures:</p> <p>(1) Cables being of a fire resistant type complying with <i>IEC 60331-1:2018</i> for cables of greater than 20 mm overall diameter, otherwise <i>IEC 60331-2:2018</i> for cables with an overall diameter not exceeding 20 mm, are installed and run continuous to keep the fire integrity within the high fire risk area (see Fig. H2.2).</p> <p>(2) At least two-loops/radial distributions run as widely apart as is practicable and so arranged that in the event of damage by fire at least one of the loops/radial distributions remains operational.</p> <p>(3) (Omitted)</p> <p>(4) (Omitted)</p> <p>5 (Omitted)</p> <p>6 The definition for “high fire risk areas” in case of -4 and -5 above is <u>at a minimum to be considered as the following:</u></p> <p>(1) Machinery spaces as defined by 3.2.30, Part R, except spaces having little or no fire risk as defined by paragraphs (10) of Regulation 9.2.2.3.2.2 of <i>SOLAS</i> Chapter II-2. (Including the interpretations for tables 9.3, 9.4, 9.5, 9.6, 9.7 and 9.8 given in <i>MSC/Circ.1120</i> as amended by <i>MSC.1/Circ.1436</i> and <i>MSC.1/Circ.1510</i>) <u>Spaces having little or no fire risk as defined by paragraphs (10) of Regulation 9.2.2.3.2.2 of <i>SOLAS</i> Chapter II-2 is follows.</u> <u>(a) Water tanks forming part of the ship’s structure</u> <u>(b) Voids and cofferdams</u> <u>(c) Auxiliary machinery spaces which do not</u></p>	<p>any other area or zone. This may be achieved by either of the following measures:</p> <p>(1) Cables being of a fire resistant type complying with <i>IEC 60331-1:2018</i> for cables of greater than 20 mm overall diameter, otherwise <u><i>IEC 60331-21:1999+AMD1:2009</i></u> or <i>IEC 60331-2:2018</i> for cables with an overall diameter not exceeding 20 mm, are installed and run continuous to keep the fire integrity within the high fire risk area (see Fig. H2.2).</p> <p>(2) At least two-loops/radial distributions run as widely apart as is practicable and so arranged that in the event of damage by fire at least one of the loops/radial distributions remains operational.</p> <p>(3) (Omitted)</p> <p>(4) (Omitted)</p> <p>5 (Omitted)</p> <p>6 The definition for “high fire risk areas” in case of -4 and -5 above is <u>the following:</u></p> <p>(1) Machinery spaces as defined by 3.2.30, Part R, except spaces having little or no fire risk as defined by paragraphs (10) of Regulation 9.2.2.3.2.2 of <i>SOLAS</i> Chapter II-2. (Including the interpretations for tables 9.3, 9.4, 9.5, 9.6, 9.7 and 9.8 given in <i>MSC/Circ.1120</i> as amended by <i>MSC.1/Circ.1436</i> and <i>MSC.1/Circ.1510</i>) (Newly added)</p>	<p>UR E15(Rev.5) E15 2 a) The sentence “<i>IEC 60331-21:1999+AMD1:2009</i> or” is deleted, because <i>IEC 60331-2:2018</i> contains <i>IEC 60331-21:1999+AMD1:2009</i></p> <p>UR E15(Rev.5) E15 3 Notes:1)(i)</p> <p>To clear the difference Regulation II-2/ 9.2.2.3.2.2 (10) of SOLAS with Table 9.2.3.1, contents of Regulation II-2/ 9.2.2.3.2.2 (10) of</p>

Amended-Original Requirements Comparison Table (Precautions against Fire in Cable Installations)

Amended	Original	Remarks
<p>9 <u>Interconnecting cables between generators and main switchboards are to be routed clear of fuel oil purifier spaces, above other engines driving generators and fuel oil purifiers except in any of the following (1) to (3):</u></p> <p><u>(1) Cables connected to multiple generators or main switchboards which are separated into at least two groups throughout their length as far apart as practicable;</u></p> <p><u>(2) Fire resistant cables which comply with the standards deemed appropriate by the Society; or</u></p> <p><u>(3) Cables protected by fire prevention measures deemed appropriate by the Society.</u></p>	<p>(Newly added)</p>	<p>Clarify treatment of Interconnecting cables between generators and main switchboards.</p>

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Amended-Original Requirements Comparison Table (Precautions against Fire in Cable Installations)

Amended	Original	Remarks
<p align="center">GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS</p> <p align="center">Part H ELECTRICAL INSTALLATIONS</p> <p align="center">H2 ELECTRICAL INSTALLATIONS AND SYSTEM DESIGN</p> <p>H2.9 Cables</p> <p>H2.9.11 Precaution against Fire</p> <p>1 (Omitted) 2 (Omitted) 3 (Omitted) 4 (Omitted) 5 <u>The following (1) to (4) spaces are to be as a minimum considered as “other high fire risk areas” specified in 2.9.11-2, Part H of the Rules.</u></p> <p>(1) <u>cargo spaces except cargo tanks for liquids with flashpoint above 60°C and except cargo spaces exempted in accordance with SOLAS regulations II-2/10.7.1.2 or II-2/10.7.1.4;</u> (2) <u>vehicle, ro-ro and special category spaces;</u> (3) <u>spaces containing flammable liquids; and</u> (4) <u>pantries containing cooking appliances.</u></p> <p>6 <u>In cases where cable is installed in “galleys, laundries, machinery spaces of category A and their casings, and other high fire risk areas” specified in 2.9.11-2, Part H of the Rules, it may be achieved by either of the measures</u></p>	<p align="center">GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS</p> <p align="center">Part H ELECTRICAL INSTALLATIONS</p> <p align="center">H2 ELECTRICAL INSTALLATIONS AND SYSTEM DESIGN</p> <p>H2.9 Cables</p> <p>H2.9.11 Precaution against Fire</p> <p>1 (Omitted) 2 (Omitted) 3 (Omitted) 4 (Omitted) (Newly added)</p> <p>(Newly added)</p>	<p>UI SC11 (Rev.2) Definition of “other high fire risk areas”</p> <p>Clarify treatment of cable which is installed in high fire risk areas</p>

Amended-Original Requirements Comparison Table (Precautions against Fire in Cable Installations)

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<p align="center">GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF PASSENGER SHIPS</p> <p align="center">Part 6 ELECTRICAL INSTALLATIONS</p> <p align="center">Chapter 1 GENERAL</p> <p>1.1 General</p> <p>1.1.1 Scope 1 In accordance with 1.1.1-3, Part 6 of the Rules, requirements in 2.9.11-2, Part H of the Rules for the Survey and Construction of Steel Ships are to be arranged as follows:</p> <p>(1) The wording “high fire risk areas” defined in H2.9.11-6, Part H of the Rules for the Survey and Construction of Steel Ships includes main vertical zones.</p> <p>(2) Where ships are carrying more than 36 passengers, the “high fire risk areas” defined in H2.9.11-6, Part H of the Rules for the Survey and Construction of Steel Ships include the following spaces.</p> <p>(a) <u>Auxiliary machinery spaces, cargo spaces, cargo and other oil tanks and other similar spaces of moderate fire risk</u> (Regulation 9.2.2.3.2.2(11), Chapter II-2, SOLAS Convention)</p> <p>(Deleted)</p>	<p align="center">GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF PASSENGER SHIPS</p> <p align="center">Part 6 ELECTRICAL INSTALLATIONS</p> <p align="center">Chapter 1 GENERAL</p> <p>1.1 General</p> <p>1.1.1 Scope In accordance with 1.1.1-3, Part 6 of the Rules, requirements in 2.9.11-2, Part H of the Rules for the Survey and Construction of Steel Ships are to be arranged as follows:</p> <p>(1) The wording “high fire risk areas” defined in H2.9.11-5, Part H of the Guidance for the Survey and Construction of Steel Ships includes main vertical zones.</p> <p>(2) Where ships are carrying more than 36 passengers, the “high fire risk areas” defined in H2.9.11-5, Part H of the Guidance for the Survey and Construction of Steel Ships include the following spaces.</p> <p>(a) <u>Accommodation spaces of greater fire risk</u> (Regulation 9.2.2.3.2.2(8), Chapter II-2, SOLAS Convention)</p> <p>(b) <u>Machinery spaces and main galleys</u> (Regulation 9.2.2.3.2.2(12), Chapter II-2, SOLAS</p>	<p>Reference number correction</p> <p>Reference number correction</p> <p>UR E15(Rev.5)3 Notes 1)(v) Definition of “high fire risk areas” for passenger ship</p>

Amended-Original Requirements Comparison Table (Precautions against Fire in Cable Installations)

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<p>(b) Other spaces in which flammable liquids are stowed (Regulation 9.2.2.3.2.2(14), Chapter II-2, <i>SOLAS</i> Convention)</p> <p><u>(3) Where ships are carrying not more than 36 passengers, the “high fire risk areas” defined in H2.9.11-6, Part H of the Rules for the Survey and Construction of Steel Ships include the following spaces.</u></p> <p><u>(a) Service spaces (high risk) (Regulation 9.2.2.4.2.2(9), Chapter II-2, <i>SOLAS</i> Convention)</u></p> <p><u>(b) Special category and ro-ro spaces (Regulation 9.2.2.4.2.2(11), Chapter II-2, <i>SOLAS</i> Convention)</u></p> <p><u>2 In accordance with 1.1.1-3, Part 6 of the Rules, the machinery spaces specified in 2.9.11-6(1), Part H of the Rules for the Survey and Construction of Steel Ships are the following:</u></p> <p><u>(1) Machinery spaces as defined by 3.2.30, Part R of the Rules for the Survey and Construction of Steel Ships, except spaces having little or no fire risk as defined by paragraphs (10) of Regulation 9.2.2.3.2.2 of <i>SOLAS</i> Chapter II-2. (Including the interpretations for tables 9.3, 9.4, 9.5, 9.6, 9.7 and 9.8 given in <i>MSC/Circ.1120</i> as amended by <i>MSC.1/Circ.1436</i> and <i>MSC.1/Circ.1510</i>)</u> <u>Spaces having little or no fire risk as defined by paragraphs (10) of Regulation 9.2.2.3.2.2 of <i>SOLAS</i> Chapter II-2 are as follows.</u></p> <p><u>(a) Water tanks forming part of the ship's structure</u></p> <p><u>(b) Voids and cofferdams</u></p> <p><u>(c) Auxiliary machinery spaces which do not contain machinery having a pressure lubrication</u></p>	<p><u>Convention)</u></p> <p>(c) Other spaces in which flammable liquids are stowed (Regulation 9.2.2.3.2.2(14), Chapter II-2, <i>SOLAS</i> Convention)</p> <p>(Newly added)</p> <p>(Newly added)</p>	<p>UR E15(Rev.5)3 Notes 1)(v) Definition of “high fire risk areas” for passenger ship</p> <p>To clear the difference Regulation 9.2.2.3.2.2 (10) of SOLAS Chapter II-2 with Table 9.2.3.1, Regulation 9.2.2.3.2.2 (10) of SOLAS Chapter II-2 is added.</p>

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<p><u>system and where storage of combustibles is prohibited, such as:</u></p> <p><u>i) ventilation and air-conditioning rooms;</u></p> <p><u>ii) windlass room;</u></p> <p><u>iii) steering gear room;</u></p> <p><u>iv) stabilizer equipment room;</u></p> <p><u>v) electrical propulsion motor room;</u></p> <p><u>vi) rooms containing section switchboards and purely electrical equipment other than oil-filled electrical transformers (above 10 kVA);</u></p> <p><u>vii) shaft alleys and pipe tunnels;</u></p> <p><u>viii) spaces for pumps and refrigeration machinery (not handling or using flammable liquids).</u></p> <p><u>(d) Closed trunks serving the spaces listed in (c) above.</u></p> <p><u>(e) Other closed trunks such as pipe and cable trunks.</u></p>		
<p>EFFECTIVE DATE AND APPLICATION</p> <p>1. The effective date of the amendments is 1 January 2026.</p> <p>2. Notwithstanding the amendments to the Amendments, the current requirements apply to ships for which the date of contract for construction* is before the effective date.</p> <p>* “contract for construction” is defined in the latest version of IACS Procedural Requirement (PR) No.29.</p> <p style="text-align: center;">IACS PR No.29 (Rev.0, July 2009)</p> <p>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.</p> <p>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.</p> <p>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:</p> <p>(1) such alterations do not affect matters related to classification, or</p>		

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<p>(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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Note: This Procedural Requirement applies from 1 July 2009.</p>		

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