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[SIST HD 60364-7-709:2009](#)

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HARMONIZATION DOCUMENT  
DOCUMENT D'HARMONISATION  
HARMONISIERUNGSDOKUMENT

**HD 60364-7-709**

September 2009

ICS 91.140.50; 29.020

English version

**Low-voltage electrical installations -  
Part 7-709: Requirements for special installations or locations -  
Marinas and similar locations  
(IEC 60364-7-709:2007, modified)**

Installations électriques à basse tension -  
Partie 7-709: Exigences  
pour les installations  
et emplacements spéciaux -  
Marinas et emplacements analogues  
(CEI 60364-7-709:2007, modifiée)

Errichten von Niederspannungsanlagen -  
Teil 7-709: Anforderungen  
für Betriebsstätten, Räume  
und Anlagen besonderer Art -  
Marinas und ähnliche Bereiche  
(IEC 60364-7-709:2007, modifiziert)

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This Harmonization Document was approved by CENELEC on 2009-04-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document at national level.

Up-to-date lists and bibliographical references concerning such national implementations may be obtained on application to the Central Secretariat or to any CENELEC member.

This Harmonization Document exists in three official versions (English, French, German).

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

## CENELEC

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 64/1573/FDIS, future edition 2 of IEC 60364-7-709, prepared by IEC TC 64, Electrical installations and protection against electric shock, was submitted to the IEC-CENELEC parallel vote.

A draft amendment, prepared by SC 64A, Protection against electric shock, of Technical Committee CENELEC TC 64, Electrical installations and protection against electric shock, was submitted to the formal vote.

The combined texts were approved by CENELEC as HD 60364-7-709 on 2009-04-01.

In this standard, the common modifications to the International Standard are indicated by a vertical line in the left margin of the text.

The following dates were fixed:

- latest date by which the existence of the HD (doa) 2009-10-01  
has to be announced at national level
- latest date by which the HD has to be implemented (dop) 2010-04-01  
at national level by publication of a harmonized  
national standard or by endorsement
- latest date by which the national standards conflicting (dow) 2012-04-01  
with the HD have to be withdrawn

For this Harmonization Document, the informative Annex G of IEC 60364-7-709:2007 shall be disregarded and has been replaced by the normative Annex ZA, *Special national conditions*; and the informative Annex ZB, *A-deviations*.

Annexes ZA and ZB have been added by CENELEC.

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### Introduction

The requirements of this part of HD 60364 supplement, modify or replace certain of the general requirements contained in Parts 1 to 6 of HD 60364.

The clause numbering appearing after 709 refers to the corresponding parts or clauses of HD 60364, Parts 1 to 6. Numbering of clauses does not, therefore, necessarily follow sequentially. Numbering of figures and tables takes the number of this part followed by a sequential number.

The absence of reference to a part or a clause means that the general requirements contained in Parts 1 to 6 of HD 60364 are applicable.

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### 709.1 Scope

The particular requirements specified in this part of HD 60364 apply only to circuits intended to supply pleasure craft or houseboats in marinas and similar locations.

NOTE 1 In this part “marina” means “marina and similar locations”.

The particular requirements do not apply to the supply of house boats if they are directly supplied from the public network.

The particular requirements do not apply to the internal electrical installations of pleasure craft or house boats.

NOTE 2 For electrical installations of pleasure craft, see EN 60092-507.

NOTE 3 The electrical installations of house boats should comply with the general requirements of HD 60364, together with the relevant particular requirements of HD 60364-7.

For the remainder of the electrical installation of marinas and similar locations the general requirements of HD 60364 together with the relevant particular requirements of HD 60364-7 apply.

### 709.2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

HD 472 S1:1989 + Corr. 2002, *Nominal voltages for low voltage public electricity supply systems* (IEC 60038:1983, mod.)

EN 60309-1, *Plugs, socket-outlets and couplers for industrial purposes – Part 1: General requirements* (IEC 60309-1)

EN 60309-2, *Plugs, socket-outlets and couplers for industrial Purposes – Part 2: Dimensional interchangeability requirements for pin and contact-tubes accessories* (IEC 60309-2)

HD 60364-4-43<sup>1)</sup>, *Low-voltage electrical installations - Part 4-43: Protection for safety – Protection against overcurrent* (IEC 60364-4-43, mod.)

EN 61558-2-4, *Safety of power transformers, power supply units and similar – Part 2-4: Particular requirements for isolating transformers for general use* (IEC 61558-2-4)

EN 62262, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)* (IEC 62262)

### 709.3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

#### 709.3.1

##### **pleasure craft**

any boat, vessel, yacht, motor launch, houseboat or other floating craft used exclusively for sport or leisure

#### 709.3.2

##### **marina**

facility for the mooring of pleasure craft with fixed wharves, jetties, piers or a pontoon arrangement capable of berthing one or more pleasure craft

#### 709.3.3

##### **houseboat**

floating decked structure which is designed or adapted for use as a place of permanent residence often kept in one place on inland water

<sup>1)</sup> At draft stage.

**709.31 Purposes, supplies and structure****709.312 Conductor arrangement and system earthing****709.312.2 Types of system earthing****709.312.2.1 TN-systems**

Add the following:

For a TN-system, the final circuits for the supply of pleasure craft or houseboats shall not include a PEN conductor.

**709.313 Supplies**

Add the following:

**709.313.1.2**

The nominal supply system voltage shall be selected from HD 472 S1:1989 + Corr. 2002.

The nominal supply voltage shall not exceed 230 V single-phase, or 400 V three-phase.

**709.4 Protection for safety****709.41 Protection against electric shock****709.411.2 Requirements for basic protection****709.41.B.2 Obstacles**

Protection by obstacles shall not be used.

**709.41.B.3 Placing out of reach** [SIST HD 60364-7-709:2009](https://standards.iteh.ai/catalog/standards/sist/a72bcd32-c3e9-433b-b1f1-2900c41907/sist-hd-60364-7-709-2009)

Protection by placing out of reach shall not be used.

**709.41.C.1 Non-conducting location**

Protection by non-conducting location shall not be used.

NOTE This precludes the use of class 0 equipment.

**709.41.C.2 Protection by earth-free local equipotential bonding**

Protection by earth free local equipotential bonding shall not be used.

**709.413 Protective measure: electrical separation**

Where the protective measure of electrical separation is used for supplying pleasure craft compliance with all the requirements of Clause 413 and with 709.413.3.2 and 709.413.3.6 shall be ensured.

**709.413.3.2** The circuit shall be supplied through a fixed isolating transformer complying with EN 61558-2-4.

The protective conductor of the supply to the isolating transformer shall not be connected to the earth terminal in the socket-outlet supplying the pleasure craft.

NOTE See Annex A.

**709.413.3.6**

Add the following:

The equipotential bonding of the pleasure craft shall not be connected to the protective conductor of the shore supply.

**709.5 Selection and erection of electrical equipment****709.512 Operational conditions and external influences****709.512.2 External influences**

Add the following:

NOTE For marinas particular attention is given in this part to the likelihood of corrosive elements, movement of structures, mechanical damage, presence of flammable fuel and the increased risk of electric shock due to

- presence of water;
- reduction in body resistance;
- contact of the body with earth potential.

**709.512.2.1.1 Presence of water (AD)**

In marinas, equipment installed on or above a jetty, wharf, pier or pontoon shall be selected as follows, according to the external influences which may be present:

- water splashes (AD4): IPX4;
- water jets (AD5): IPX5;
- water waves (AD6): IPX6.

**709.512.2.1.2 Presence of solid foreign bodies (AE)**

Equipment installed on or above a jetty, wharf, pier or pontoon shall be selected with a degree of protection of at least IP4X in order to protect against the ingress of very small objects (AE3).

**709.512.2.1.3 Presence of corrosive or polluting substances (AF)**

Equipment installed on or above a jetty, wharf, pier or pontoon shall be suitable for use in the presence of atmospheric corrosive or polluting substances (AF2). If hydrocarbons are present AF3 is applicable.

**709.512.2.1.4 Impact (AG)**

Equipment installed on or above a jetty, wharf, pier or pontoon shall be protected against mechanical damage (impact of medium severity AG2). Protection shall be afforded by one or more of the following:

- the position or location of the equipment shall be selected to avoid being damaged by any reasonably foreseeable impact;
- local or general mechanical protection shall be provided;
- equipment shall be installed which complies with a minimum degree of protection for external mechanical impact of IK07 (see EN 62262).

**709.521 Types of wiring systems****709.521.7 Wiring systems of marinas**

**709.521.7.1** The following wiring systems are suitable for distribution circuits in marinas:

- a) underground cables;
- b) overhead cables or overhead insulated conductors;



- c) cables with copper conductors and thermoplastic or elastomeric insulation and installed within an appropriate cable management system taking into account external influences such as movement, impact, corrosion and ambient temperature;
- d) mineral-insulated cables with PVC protective covering;
- e) armoured cables with a thermoplastic or elastomeric covering;
- f) other cables and materials that are no less suitable than those listed under a), b), c), d) or e) above.

**709.521.7.2** The following wiring systems shall not be used on or above a jetty, wharf, pier or pontoon:

- a) overhead cables and overhead conductors in free air suspended from or incorporating a support wire, e.g. as installation method Nos. 35 and 36 in Table A52-3 of HD 60364-5-52<sup>2)</sup>;
- b) insulated conductors in conduits, trunking etc., e.g. as installation methods Nos. 4 and 6 in Table A52-3 of HD 60364-5-52<sup>3)</sup>;
- c) cables with aluminium conductors;
- d) mineral-insulated cables.

**709.521.7.3** Cables and cable management systems shall be selected and installed so that mechanical damage due to tidal and other movement of floating structures is prevented.

Cable management systems shall be installed to allow the drainage of water/condensate e.g. by sloping way and/or drainage holes.

#### **709.521.7.4 Underground cables**

Underground distribution circuits shall, unless provided with additional mechanical protection be buried at a sufficient depth to avoid being damaged e.g. by movement of vehicles.

NOTE 1 A depth of 0,5 m is generally considered as a minimum depth to fulfil this requirement.

NOTE 2 For conduit systems buried underground, see EN 50086-2-4:1994 + A1:2001 + Corr. 2001.

#### **709.521.7.5 Overhead cables or overhead insulated conductors**

All overhead conductors shall be insulated.

Poles and other supports for overhead wiring shall be located or protected so that they are unlikely to be damaged by any foreseeable movement of vehicles.

Overhead conductors shall be at a height above ground of not less than 6 m in all areas subjected to movement of vehicles movement and 3,5 m in all other areas.

#### **709.53.1 Devices for protection against indirect contact by automatic disconnection of supply**

##### **709.531.2 Residual current protective devices (RCD's)**

Add the following:

Every socket-outlet shall be individually protected by an RCD having a rated residual operating current not exceeding 30 mA. The RCD selected shall disconnect all live conductors, including the neutral.

<sup>2)</sup> Until HD 60364-5-52 is approved, installation methods Nos. 17 and 18 in Table 52H of HD 384.5.52 S1:1995 + A1:1998 are valid.

<sup>3)</sup> Until HD 60364-5-52 is approved, installation methods Nos. 3 and 4 in Table 52H of HD 384.5.52 S1:1995 + A1:1998 are valid.