



**SLOVENSKI STANDARD**  
**SIST IEC 60364-7-709:2000**

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**Električne inštalacije zgradb – 7. del: Zahteve za posebne inštalacije ali lokacije –  
709. oddelek: Marine in izletniške ladje**

Low-voltage electrical installations - Part 7-709: Requirements for special installations or locations - Marinas and similar locations

**iTeh STANDARD PREVIEW**

Installations électriques à basse tension - Partie 7-709: Exigences pour les installations ou emplacements spéciaux - Marinas et emplacements analogues

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Installations électriques des bâtiments –

Partie 7:

Règles pour les installations et emplacements  
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Section 709: Marinas et bateaux de plaisance  
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Electrical installations of buildings –

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Part 7:

Requirements for special installations or locations –  
Section 709: Marinas and pleasure craft

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## ELECTRICAL INSTALLATIONS OF BUILDINGS –

## Part 7: Requirements for special installations or locations –

## Section 709: Marinas and pleasure craft

## FOREWORD

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International Standard IEC 364-7-709 has been prepared by IEC technical committee 64: Electrical installations of buildings.

The text of this standard is based on the following documents:

DIS	Report on voting	Amendment to DIS	Report on voting
64(CO)207	64(CO)227	64(CO)228	64(CO)238, 238A

Full information on the voting for the approval of this standard can be found in the reports on voting indicated in the above table.

Annexes A and B form an integral part of this standard.

Annexes C and D are for information only.

## ELECTRICAL INSTALLATIONS OF BUILDINGS –

### Part 7: Requirements for special installations or locations –

#### Section 709: Marinas and pleasure craft

##### Introduction

The requirements of Part 7 supplement, modify or replace certain of the general requirements of IEC 364. The absence of reference to a chapter, section or clause means that the corresponding general requirements are applicable.

The clause numbering of section 709 follows the pattern and corresponding references of IEC 364. The section numbers are those of the corresponding parts, chapters, sections or clauses of IEC 364.

##### 709 Marinas and pleasure craft

###### 709.1 Scope, object and fundamental principles

###### 709.11 Scope

The particular requirements of this section apply to:

- the electrical installation in marinas which provide connections to pleasure craft; and to
- the electrical installation in pleasure craft supplied only from the on-shore power-supply system.

NOTE – Such installations are characterized by the risk of corrosion, movement of structures, mechanical damage and the risk of electric shock being increased by reduction in body resistance and contact of the body with earth potential.

As the ISO standard for electrical installations in pleasure craft is under preparation at the time of this edition, requirements are included herein for protection against electric shock on board pleasure craft.

###### 709.12 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this section of IEC 364-7. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this section of IEC 364-7 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 38: 1983, *IEC standard voltages*

IEC 50(826): 1990, *International Electrotechnical Vocabulary (IEV) – Chapter 826: Electrical installations of buildings*

IEC 227: *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 245: *Rubber insulated cables of rated voltages up to and including 450/750 V*

IEC 309-2: 1989, *Plugs, socket-outlets and couplers for industrial purposes – Part 2: Dimensional interchangeability requirements for pin and contact-tubes accessories*

IEC 364-1: 1992, *Electrical installations of buildings – Part 1: Scope, object and fundamental principles*

IEC 364-2-21: 1993, *Electrical installations of buildings – Part 2: Definitions – Chapter 21: Guide to general terms*

IEC 364-3: 1993, *Electrical installations of buildings – Part 3: Assessment of general characteristics*  
Amendment 1 (1993)

IEC 364-4-41: 1992, *Electrical installations of buildings – Part 4: Protection for safety – Chapter 41: Protection against electric shock*

IEC 364-4-473: 1977, *Electrical installations of buildings – Part 4: Protection for safety – Chapter 47 – Application of protective measures for safety – Section 473: Measures of protection against overcurrent*

IEC 364-5-52: 1993, *Electrical installations of buildings – Part 5: Selection and erection of electrical equipment – Chapter 52: Wiring systems*

IEC 364-5-523: 1983, *Electrical installations of buildings – Part 5: Selection and erection of electrical equipment – Chapter 52: Wiring systems – Section 523: Current-carrying capacities*

IEC 364-5-53: 1993, *Electrical installations of buildings – Part 5: Selection and erection of electrical equipment – Chapter 53: Switchgear and controlgear*

IEC 364-5-537: 1981, *Electrical installations of buildings – Part 5: Selection and erection of electrical equipment – Chapter 53: Switchgear and controlgear – Section 537: Devices for isolation and switching*

IEC 364-5-54: 1980, *Electrical installations of buildings – Part 5: Selection and erection of electrical equipment – Chapter 54: Earthing arrangements and protective conductors*

IEC 529: 1989, *Degrees of protection provided by enclosures (IP Code)*

IEC 614: *Specification for conduits for electrical installations*

IEC 695-2-1: 1991, *Fire hazard testing – Part 2: Test methods – Section 1: Glow-wire test and guidance*

IEC 742: 1983, *Isolating transformers and safety isolating transformers – Requirements*

## 709.2 Definitions

For general definitions, see IEC 50 (826): 1990.

**709.2.1 pleasure craft:** Any boat, vessel, yacht, motor launch, houseboat or other floating craft used exclusively for sport or leisure.

### NOTES

1 The boats concerned here are pleasure craft that are not subject to the regulations of international or national authorities.

2 Craft classification criteria are defined in national and regional traffic legislative regulations (small craft) as well as in national and regional ships inspection regulations.

Such craft are defined, for example, as being not more than 20 m length and not exceeding 15 m<sup>3</sup> displacement of water.

**709.2.2 marina:** Any fixed wharf, jetty, pier or floating pontoon arrangement capable of berthing or mooring more than one pleasure craft.

## 709.3 Assessment of general characteristics

### 709.310 General requirements

Electrical power installations of pleasure craft and the associated power-supply system located at marinas shall be installed and the equipment so selected as to minimize the risk of electric shock, fire and explosion.

### 709.313 Nominal supply systems

The nominal supply system voltage shall be chosen from IEC 38: 1983.

The nominal supply voltage of the installation to pleasure craft shall not exceed 230 V single-phase.

### 709.32 External influences

Equipment installed on or above the deck of pleasure craft shall comply with the degree of protection IP55, in accordance with IEC 529, unless equivalent protection is provided by other means.

## 709.4 Protection for safety

### 709.41 Protection against electric shock

#### 709.412 Protection against direct contact

##### 709.412.3 Protection by obstacles

Protection by obstacles shall not be used.

##### 709.412.4 Protection by placing out of reach

Protection by placing out of reach shall not be used.



### 709.413 Protection against indirect contact

#### 709.413.1 Protection by automatic disconnection of supply

##### 709.413.1.3 Use of a TN system in marinas

In the case of a TN system, only a TN-S system shall be used. Residual current protective devices shall be used except where protection is provided by an onshore isolating transformer (see 709.413.5.1).

##### 709.413.1.6 Supplementary bonding for pleasure craft

With the exception of the case referred to in 709.413.5.1.3 (see annex A, figure A.4), accessible conductive parts of the pleasure craft that are likely to attain fault voltage or earth potential, shall be connected to each other through an equipotential bonding conductor, and to the protective conductor.

The equipotential bonding conductor shall have a cross-sectional area of at least 4 mm<sup>2</sup> copper and shall be flexible (regarding the cross-sectional area, see IEC 364-5-54, subclause 547.1.2).

This does not apply to metal parts that are insulated to prevent direct contact, for example, by basic insulation.

##### 709.413.3 Protection by non-conducting location

Protection by a non-conducting location shall not be used.

NOTE – This precludes the use of class 0 equipment.

##### 709.413.5 Protection by electrical separation

Isolating transformers in accordance with IEC 742 shall be used.

NOTE – For examples of the use of r.c.d.s in conjunction with on-board isolating transformers see annex A, figures A.3 and A.4.

##### 709.413.5.1 Isolating transformers

a) Connection to shore supply through an on-shore isolating transformer.

NOTE – See annex A, figure A.2.

The isolating transformer shall comply with IEC 742.

No connection of the bonding of the pleasure craft with the protective conductor of the shore supply shall be made and only one pleasure craft shall be connected to each secondary winding of an isolating transformer.

The following items shall be effectively connected to a bonding conductor which, in turn, shall be connected to one of the secondary winding terminals of the isolating transformers:

- Metal parts of the pleasure craft in electrical contact with the water, more than one connection point being required if the type of construction does not ensure continuity;

NOTE – The above requirements do not apply to metal parts mounted on insulating material or which are insulated from other metal parts.

- the protective contact of each socket-outlet;
- the exposed conductive parts of equipment.