

INTERNATIONAL STANDARD



Low voltage electrical installations ~~of buildings~~ –
Part 7-711: Requirements for special installations or locations – Exhibitions,
shows and stands



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INTERNATIONAL STANDARD



**Low voltage electrical installations of buildings –
Part 7-711: Requirements for special installations or locations – Exhibitions,
shows and stands**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW VOLTAGE ELECTRICAL INSTALLATIONS ~~OF BUILDINGS~~ –

Part 7-711: Requirements for special installations or locations – Exhibitions, shows and stands

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60364-7-711 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

This second edition cancels and replaces the first edition published in 2007. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) in 711.3.1 and 711.3.2 addition of "outdoors" to the list of suitable locations;
- b) alignment with IEC 60364-4-41.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
64/2248/FDIS	64/2260/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60364 series, published under the general title *Low voltage electrical installations*, can be found on the IEC website.

The reader's attention is drawn to the fact that Annex A lists all of the "in-some-country" clauses on differing practices of a less permanent nature relating to the subject of this standard.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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INTRODUCTION

~~The requirements of this part of IEC 60364 modify or replace certain of the general requirements of IEC 60364.~~

~~The clause numbering of part 7-711 follows the pattern and corresponding references of IEC 60364.~~

~~The numbers following the particular number of part 7-711 are those of the corresponding parts or clauses of IEC 60364.~~

~~The absence of reference to a part or a clause means that the general requirements of IEC 60364 are applicable.~~

For the purpose of this part of IEC 60364 (IEC 60364-7-711) the requirements of the general Parts 1 to 6 of IEC 60364 apply.

The IEC 60364-7-7XX parts of IEC 60364 contain particular requirements for special installations or locations which are based on the requirements of the general parts of IEC 60364 (IEC 60364-1 to IEC 60364-6). These IEC 60364-7-7XX parts are considered in conjunction with the requirements of the general parts.

The particular requirements of this part of IEC 60364 supplement, modify or replace certain of the requirements of the general parts of IEC 60364 being valid at the time of publication of this part. The absence of reference to the exclusion of a part or a clause of a general part means that the corresponding clauses of the general part are applicable (undated reference).

Requirements of other 7XX parts being relevant for installations covered by this part also apply. This part may therefore also supplement, modify or replace certain of these requirements valid at the time of publication of this part.

The clause numbering of this part follows the pattern and corresponding references of IEC 60364. The numbers following the particular number of this part are those of the corresponding parts, or clauses of the other parts of the IEC 60364 series, valid at the time of publication of this part, as indicated in the normative references of this document (dated reference).

If requirements or explanations additional to those of the other parts of the IEC 60364 series are needed, the numbering of such items appears as 711.101, 711.102, 711.103 etc.

In the case where new or amended general parts with modified numbering were published after this part was issued, the clause numbers referring to a general part in this 711 part may no longer align with the latest edition of the general part. Dated references should be observed.

LOW VOLTAGE ELECTRICAL INSTALLATIONS ~~OF BUILDINGS~~ –

Part 7-711: Requirements for special installations or locations – Exhibitions, shows and stands

711 Exhibitions, shows and stands

~~711.1 Scope, object and fundamental principles~~

711.1 Scope

The particular requirements of this part of IEC 60364, ~~in association with IEC 60364, parts 1 to 6,~~ apply to the temporary electrical installations ~~in~~ of exhibitions, shows and stands (including mobile and portable displays and equipment) ~~to protect users.~~

~~Unless specifically stated, this part does not apply to exhibits for which requirements are given in the relevant standards.~~

711.2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

~~IEC 60038:1983, IEC standard voltages~~

~~IEC 60050(826):1982, International Electrotechnical Vocabulary (IEV) — Chapter 826: Electrical installation of buildings~~

~~IEC 60204-1:1992, Electrical equipment of industrial machines — Part 1: General requirements~~

~~IEC 60227-1:1993, Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V — Part 1: General requirements~~

~~IEC 60245-1:1994, Rubber insulated cables of rated voltages up to and including 450/750 V — Part 1: General requirements~~

~~IEC 60332-1:1993, Tests on electric cables under fire conditions — Part 1: Test on a single vertical insulated wire or cable~~

~~IEC 60332-3:1992, Tests on electric cables under fire conditions — Part 3: Tests on bunched wires or cables~~

~~IEC 60364-3:1993, Electrical installations of buildings — Part 3: Assessment of general characteristics~~

~~IEC 60364-4-41:1992, Electrical installations of buildings — Part 4: Protection for safety — Chapter 41: Protection against electric shock~~

~~IEC 60364-4-42:1980, Electrical installations of buildings — Part 4: Protection for safety — Chapter 42: Protection against thermal effects~~

~~IEC 60364-4-481:1993, Electrical installations of buildings – Part 4: Protection for safety – Chapter 48: Choice of protective measures as a function of external influences – Section 481: Selection of measures for protection against electric shock in relation to external influences~~

~~IEC 60364-5-537:1981, 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 60364-5-54:1980, Electrical installations of buildings – Part 5: Selection and erection of electrical equipment – Chapter 54: Earthing arrangements and protective conductors~~

~~IEC 60364-6-61:1986, Electrical installations of buildings – Part 6: Verification – Chapter 61: Initial verification~~

~~IEC 60742:1983, Isolating transformers and safety isolating transformers – Requirements~~

~~IEC 60947-2:1995, Low-voltage switchgear and controlgear – Part 2: Circuit-breakers~~

~~IEC 61008-1:1990, Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) – Part 1: General rules~~

~~IEC 61009-1:1991, Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) – Part 1: General rules~~

~~IEC 61046:1993, DC or a.c. supplied electronic step-down converters for filament lamps – General and safety requirements~~

IEC 60227 (all parts), Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V

IEC 60245 (all parts), Rubber insulated cables – Rated voltages up to and including 450/750 V

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

IEC 60309-2, Plugs, socket-outlets and couplers for industrial purposes – Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories

IEC 60332-1-1, Tests on electric and optical fibre cables under fire conditions – Part 1-1: Test for vertical flame propagation for a single insulated wire or cable – Apparatus

IEC 60332-3 (all parts), Tests on electric and optical fibre cables under fire conditions – Part 3: Test for vertical flame spread of vertically-mounted bunched wires or cables

IEC 60364-4-41:2005, Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock

IEC 60364-4-41:2005/AMD1:2017

IEC 60364-7-705, Low-voltage electrical installations – Part 7-705: Requirements for special installations or locations – Agricultural and horticultural premises

IEC 61034 (all parts), Measurement of smoke density of cables burning under defined conditions

IEC 61084 (all parts), Cable trunking and ducting systems for electrical installations

IEC 61386 (all parts), *Conduit systems for cable management*

IEC 61558 (all parts), *Safety of transformers, reactors, power supply units and combination thereof*

IEC 61347 (all parts), *Lamp controlgear*

711.3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

711.3.1 exhibition

event intended for the purpose of displaying and/or selling products etc., which can take place ~~in~~ at any suitable location, ~~either~~ for example a room, building or temporary structure or outdoors

711.3.2 show

display, presentation or performance which can take place in any suitable location, ~~either~~ for example a room, building or temporary structure or outdoors

711.3.3 stand

area or temporary structure used for display, marketing, sales, entertainment, etc.

711.3.4 temporary structure

unit or a part of a unit including mobile portable units, situated indoors or outdoors, designed and intended to be assembled and dismantled

711.3.5 temporary electrical installation

electrical installation erected and dismantled ~~at the same time as~~ in conjunction with, for example the stand or display with which it is associated

711.3.6 origin of the temporary electrical installation

point on the permanent installation or other source of supply from which electrical energy is delivered to the temporary electrical installation

~~711.3 Assessment of general characteristics~~

711.31 Purposes, supplies and structure

711.313 Supplies

Add the following:

The nominal supply voltage to earth of ~~temporary~~ electrical installations in exhibitions, shows and stands shall not exceed 230/400 V RMS AC or 350 V ripple free DC ~~(see IEC 60038)~~.

~~711.32 Classification of external influences~~

~~The external influence conditions are those of the particular locations where temporary electrical installations are erected, e.g. presence of water, mechanical stresses.~~

711.4 Protection for safety**711.41 Protection against electric shock****~~711.413 Protection against indirect contact~~****~~711.413.1 Protection by automatic disconnection of supply~~****~~711.413.1.3 TN system~~**

~~Where the type of system earthing is TN, the installation shall be TN-S.~~

~~711.413.1.3.4 For the application of protective measures against indirect contact by automatic disconnection of supply, the conventional voltage limit in locations in which animals are kept is $U_L = 25$ V a.c. r.m.s. or 60 V ripple-free d.c., and the maximum disconnecting time is that indicated in IEC 60364-4-481, table 48A.~~

~~These conditions are also applicable in locations connected by extraneous conductive parts to the locations where animals are kept.~~

~~711.413.1.6 Supplementary equipotential bonding~~

~~711.413.1.6.1 In locations used for animals, supplementary equipotential bonding shall connect all exposed conductive parts and extraneous conductive parts which can be touched simultaneously, and the protective conductor of the installation.~~

~~If a metallic grid is laid in the floor, it shall be connected to the local supplementary bonding required for locations where animals are kept.~~

~~711.413.1.6.2 The extraneous conductive parts of a vehicle, wagon, caravan or container shall be bonded to the protective conductor of the installation in more than one place if the type of construction does not ensure continuity. The nominal cross-sectional area of conductors used for this purpose shall be not less than 4 mm² copper.~~

~~If the vehicle, wagon, caravan or container is made substantially of insulating material, these requirements do not apply to metal parts which are unlikely to become live in the event of a fault.~~

711.410 Introduction**711.410.3 General requirements****711.410.3.5** *Replace the requirement with the following:*

The protective measures:

- obstacles, and
- placing out of reach

as specified in IEC 60364-4-41:2005, Annex B shall not be used.

711.410.3.6

Replace the requirement with the following:

The protective measures:

- non-conducting location,
- earth-free equipotential bonding, and
- electrical separation for the supply of more than one current-using equipment

as specified in IEC 60364-4-41:2005 and IEC 60364-4-41:2005/AMD1:2017, Annex C shall not be used.

711.410.3.101 All final circuits not exceeding 32 A supplying socket-outlets, all final circuits for lighting, except emergency lighting and all final circuits supplying hand-held electrical equipment that has a rated current not exceeding 32 A shall:

- be protected by automatic disconnection of supply together with additional protection by the use of residual current devices (RCD) having a rated residual operating current not exceeding 30 mA (IEC 60364-4-41:2005, 415.1.1), or
- be supplied by SELV or PELV (IEC 60364-4-41:2005, 414), or
- have electrical separation of circuits (IEC 60364-4-41:2005, 413), each socket-outlet and hand-held electrical equipment being supplied by an individual isolating transformer or by separate windings of an isolating transformer.

711.411 Protective measure: automatic disconnection of supply

711.411.3 Requirements for fault protection

711.411.3.2 Automatic disconnection in case of a fault

711.411.3.2.101 For circuits supplying temporary structures, RCDs shall be used as automatic disconnection devices.

711.411.4 TN system

711.411.4.101 A PEN conductor shall not be used in the installation.

711.414 Protective measure: extra-low voltage provided by SELV and PELV

711.414.4 Requirements for SELV and PELV circuits

711.414.4.5 *Replace the subclause with the following:*

Irrespective of the nominal voltage, in AC and DC circuits, the requirement for basic protection shall be provided by the following:

- basic insulation in accordance with IEC 60364-4-41:2005, Clause A.1, or
- barriers or enclosures in accordance with IEC 60364-4-41:2005, Clause A.2.

711.415 Additional protection

711.415.2 Additional protection: supplementary protective equipotential bonding

Add the following:

In locations intended for livestock, consideration shall be given to applying the relevant supplementary protective equipotential bonding requirements of IEC 60364-7-705.

711.42 Protection against thermal effects**~~711.42.01~~**

~~NOTE — Attention is drawn to the increased risk of fire and burns in these locations and the need to comply with the requirements of IEC 60364-4-42.~~

~~**711.42.02** Where SELV or PELV is used, the protection of conductors shall be provided by insulation capable of withstanding a test voltage of 500 V a.c. for 1 min, or by barriers or enclosures affording a degree of protection of at least IP4X or IPXXD.~~

~~711.462 Isolation~~

~~**711.462.5** Every separate temporary structure, such as a vehicle, a stand or a unit, intended to be occupied by one specific user and each distribution circuit supplying outdoor installations shall be provided with their own readily accessible and properly identifiable means of isolation. The means of isolation shall be selected and erected in accordance with IEC 60364-5-537, clause 537.2. Switches, circuit breakers, residual current devices etc. considered suitable for isolation by the relevant IEC standards may be used.~~

~~711.47 Application of protective measures for safety~~**~~711.471 Measures of protection against electric shock~~****~~711.471.1 Protection against electric shock in normal service~~**

~~Protective measures against direct contact by means of obstacles (see IEC 60364-4-41, clause 412.3) and by placing out of reach (see IEC 60364-4-41, clause 412.4) shall not be used.~~

~~711.471.2 Protection against electric shock in case of a fault~~

~~Protective measures against indirect contact by non-conducting location (see IEC 60364-4-41, clause 413.3) and by earth-free equipotential bonding (see IEC 60364-4-41, clause 413.4) shall not be used.~~

~~711.48 Choice of protective measures as a function of external influences~~

~~**711.481.3.1.3** Automatic supply disconnection of cables which are intended to supply temporary structures should be provided at the origin by residual current devices whose rated residual operating current does not exceed 500 mA. These devices shall provide a delay by using a device in accordance with IEC 60947-2, or be of the S-type in accordance with IEC 61008-1 or IEC 61009-1 for discrimination with RCDs protecting final circuits.~~

~~NOTE — The recommendation for additional protection relates to the increased risk of damage to cables in temporary locations.~~

~~**711.481.3.1.4** Except for emergency lighting all final circuits for lighting and socket outlets rated up to 32 A shall be additionally protected by an RCD with a rated residual operating current not exceeding 30 mA.~~

~~711.482 Protection against fire~~

~~NOTE — This should be taken into consideration when assessing the external influence conditions according to IEC 60364-3, clause 322.5.~~

~~**711.482.2.8** A motor which is automatically or remotely controlled and which is not continually supervised shall be fitted with a manual reset protective device against excess temperature.~~

711.422 Precautions where particular risks of fire exist

711.422.4 Locations with combustible constructional materials

~~711.482.3.2~~ 711.422.4.101 Heat generation

Lighting equipment such as incandescent lamps, spotlights and small projectors, and other equipment or appliances with high temperature surfaces shall be suitably guarded, and installed and located in accordance with the relevant standard. All such equipment shall be arranged well away from combustible material to prevent contact.

Showcases and signs shall be constructed of materials having an adequate heat resistance, mechanical strength, electrical insulation and ventilation, taking into account the combustibility of exhibits in relation to the heat generation.

Stand installations containing a concentration of electrical apparatus, lighting fittings or lamps liable to generate excessive heat shall not be installed unless adequate ventilation provisions are made, for example well-ventilated ceilings constructed of incombustible material.

711.5 Selection and erection of electrical equipment

711.51 Common rules

711.51.101 Control and protective switchgear shall be placed in closed cabinets which can only be opened by the use of a key or a tool, except for those parts designed and intended to be operated by ordinary persons (BA1 in IEC 60364-5-51:2005, Table 51A) ~~as defined in IEC 60364-3, clause 322.1.~~

711.511 Compliance with standards

711.511.1 Add the following:

Where interchangeability is required:

- socket-outlets with a rated current not exceeding 16 A shall comply with IEC 60309-2 or relevant national standards, and
- socket-outlets with a rated current exceeding 16 A but not exceeding 125 A shall comply with IEC 60309-2.

Sockets-outlets shall comply with IEC 60309-1 where:

- the rated current exceeds 125 A, or
- interchangeability is not required.

~~711.514 Identification~~

~~ELV transformers and converters shall be clearly labelled, stating~~

- ~~— the precise details of any integral secondary circuit protective devices;~~
- ~~— that they are manual reset;~~
- ~~— the rated power output in VA.~~

711.52 Wiring systems

711.52.101

~~Armoured cables or cables protected against mechanical damage shall be used wherever there is a risk of mechanical damage.~~

~~Wiring cables shall be copper and have a minimum cross-sectional area of 1,5 mm², and they shall comply with IEC 60227 or IEC 60245 as appropriate.~~

~~Trailing flexible cords shall not exceed 2 m in length.~~

Conductors shall have a cross-sectional area of not less than 1,5 mm² copper or equivalent.

Cables shall be in accordance with IEC 60227 (all parts) or IEC 60245 (all parts), as appropriate.

Flexible cables shall not be laid in areas accessible to the public unless they are protected against mechanical damage.

711.521 Types of wiring systems

711.521.101

Where no fire alarm system is installed in a building used for exhibitions, etc. cable systems shall be either:

- non-flame ~~retardant~~ propagating according to IEC 60332-1-1 or IEC 60332-3 (all parts), and low smoke according to IEC 61034 (all parts), or
- single or multicore unarmoured cables enclosed in metallic or non-metallic conduit or trunking, providing ~~fire protection~~ resistance to flame propagation in accordance with ~~IEC 60614~~ IEC 61386 (all parts) or IEC 61084 (all parts), providing a degree of protection of at least IP4X or IPXXD.

711.526 Electrical connections

711.526.101

Joints shall not be made in cables except where necessary as a connection into a circuit. Where joints are made, these shall be either using connectors in accordance with the relevant IEC standards or the connection shall be made in an enclosure with a degree of protection of at least IP4X or IPXXD.

~~Where strain can be transmitted to terminals the connection shall incorporate cable anchorage(s).~~

~~NOTE — The degree of protection specified relates to the particular danger of wire coat hangers and other temporary wire hangers used by exhibitors (ordinary persons) in exhibitions, shows and stands.~~

711.53 Isolation, switching and control

711.535 Co-ordination of various protective devices

711.535.3 Discrimination between residual current protective devices

Replace the first paragraph with:

Discrimination between residual current protective devices installed in series shall be provided.

711.536 Isolation and switching

711.536.2 Isolation

711.536.2.1.1

Add the following: