

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Low voltage electrical installations –
Part 7-704: Requirements for special installations or locations – Construction
and demolition site installations

Installations électriques à basse tension –
Partie 7-704: Exigences pour les installations ou emplacements spéciaux –
Installations de chantiers de construction et de démolition



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW VOLTAGE ELECTRICAL INSTALLATIONS –

**Part 7-704: Requirements for special installations or locations –
Construction and demolition site installations**

FOREWORD

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International Standard IEC 60364-7-704 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

This bilingual version (2018-10) corresponds to the monolingual English version, published in 2017-03.

This third edition cancels and replaces the second edition published in 2005. This edition constitutes a technical revision.

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

- a) clarification of the Scope;
- b) clarification of compliance with standards;
- c) clarification of devices for isolation.

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

FDIS	Report on voting
64/2155/FDIS	64/2167/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.

The French version of this standard has not been voted upon.

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-countries” 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

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- withdrawn,
- replaced by a revised edition, or
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INTRODUCTION

For the purpose of this part of IEC 60364 (IEC 60364-7-704) 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).

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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 704.101, 704.102, 704.103 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 704 part may no longer align with the latest edition of the general part. Dated references should be observed.

LOW VOLTAGE ELECTRICAL INSTALLATIONS –

Part 7-704: Requirements for special installations or locations – Construction and demolition site installations

704 Construction and demolition site installations

704.1 Scope

The requirements of this part of IEC 60364 apply to installations for construction and demolition sites for use during the period of the construction or demolition work which are intended to be taken out of service upon completion of the works. Examples include the following:

- construction work of new buildings;
- repair, alteration, extension or demolition of existing buildings or parts of existing buildings;
- engineering works;
- earthworks;
- work of similar nature.

The requirements apply to fixed or moveable installations.

The requirements do not apply to installations in administrative locations of construction sites (e.g. offices, cloakrooms, meeting rooms, canteens, restaurants, dormitories, toilets).

704.2 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 60245-4, *Rubber insulated cables – Rated voltages up to and including 450/750 V – Part 4: Cords and flexible cables*

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 60364 (all parts), *Low voltage electrical installations*

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

IEC 60364-5-53:2001¹, *Electrical installations of buildings – Part 5-53: Selection and erection of electrical equipment – Isolation, switching and control*

IEC 60364-5-53:2001/AMD1:2002

IEC 60364-5-53:2001/AMD2:2015

IEC 61439-4, *Low-voltage switchgear and controlgear assemblies – Part 4: Particular requirements for assemblies for construction sites (ACS)*

704.3 Terms and definitions

No terms and definitions are listed in this document.

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>

704.30 Assessment of general characteristics

704.30.101 The clearances for overhead lines above construction sites shall be agreed with the owner of the overhead power line, on the basis of the dimensions of the construction site machines, such as cranes, and equipment, such as ladders and scaffolding, to be used.

704.31 Purposes, supplies and structure

704.313 Supplies

The following note is added:

NOTE A single construction site can be served by several sources of supply, including generating sets; see IEC 60364-5-55:2011, Clause 551.

704.4 Protection for safety

704.41 Protection against electric shock

704.410 Introduction

704.410.3 General requirements

704.410.3.5 *Replace 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.

704.410.3.6 *Replace with the following:*

The protective measures

¹ A consolidated version of this publication exists, comprising IEC 60364-5-53:2001, IEC 60364-5-53:2001/AMD 1:2002 and IEC 60364-5-53:2001/AMD 2:2015.

- 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, Annex C shall not be used.

704.410.3.101 Circuits supplying socket-outlets with rated current up to and including 32 A and other circuits supplying hand-held electrical equipment with rated current up to and including 32 A shall:

- be protected by automatic disconnection of supply together with additional protection by the use of residual current devices having a rated residual operating current not exceeding 30 mA (see IEC 60364-4-41:2005, 415.1.1), or
- be supplied by SELV or PELV (see IEC 60364-4-41:2005, 414), or
- have electrical separation of circuits (see 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.

704.411 Protective measure: automatic disconnection of supply

704.411.3 Requirements for fault protection

704.411.3.2 Automatic disconnection in case of a fault

704.411.3.2.101 For circuits supplying socket-outlets with a rated current exceeding 32 A, residual current devices shall be used as disconnection devices.

704.414 Protective measure: Extra-low voltage provided by SELV and PELV

704.414.4 Requirements for SELV and PELV circuits

704.414.4.5 *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:

- 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.

704.44 Protection against voltage disturbances and electromagnetic disturbances

704.443 Protection against transient overvoltages of atmospheric origin or due to switching

704.443.1 General

704.443.1.101 Cranes, lifts, cement mixers and similar items of equipment are liable to produce switching overvoltages. Where such equipment is present, consideration should be given to the need for protection against switching overvoltages.

704.5 Selection and erection of equipment

704.51 Common rules

704.511 Compliance with standards

704.511.1 *Add the following:*

All assemblies on construction and demolition sites (ACS) for the distribution of electricity shall be in compliance with the requirements of IEC 61439-4.

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.

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

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

704.512 Operational conditions and external influences

704.512.2 External influences

Add the following:

Consideration shall be given to the risk of damage to electrical equipment by corrosive substances, movement of structures and vehicles, wear and tear, tension, flexing, impact, abrasion, severing and ingress of liquids or solids.

704.52 Wiring systems

704.522.8 Other mechanical stresses (AJ)

704.522.8.101

To avoid damage, cables should not be run across site roads or walkways. Where this is necessary, special protection against mechanical damage and contact with construction plant machinery shall be provided.

Particular attention shall be given to the protection of surface run and overhead cables against mechanical damage, given the environment and activities at the construction site.

Flexible cables that are subject to movement shall be IEC 60245-4 type 66 or equivalent, resistant to abrasion and to water.

704.53 Isolation, switching and control

704.536 Isolation and switching

704.536.2 Isolation

704.536.2.2 Devices for isolation

The following requirements are added:

Each assembly for construction sites (ACS) shall incorporate devices for isolating the incoming supply.

Devices for isolating the incoming supply shall be suitable for securing in the off position (see IEC 60364-5-53:2001, 536.2.1.2) (for example, by providing a padlocking facility on the device or by locating the device inside a lockable enclosure). Safety and standby supplies shall be connected by means of devices arranged to prevent interconnection of the different supplies.

704.56 Safety services

Add the following:

Site conditions may require the provision of safety services, for example escape lighting.

704.6 Verification

704.6.101 Site work is in a constant state of change and, therefore, the associated electrical installation is subject to risk of damage or misuse. Therefore, in addition to initial and periodic verification, the installation shall be inspected frequently, for example daily, weekly, or monthly, as appropriate. Examples of some items to be inspected include:

- the adequacy of connections and the condition of the protective conductors;
- the condition of flexible conductors and their connections to portable equipment and hand-held equipment;
- the rating and condition of fuses and the setting of the circuit-breakers to ensure that they are not unduly altered;
- the functioning of residual current devices.

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