

INTERNATIONAL STANDARD

**Low-voltage electrical installations –
Part 5-56: Selection and erection of electrical equipment – Safety services**



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**Low-voltage electrical installations –
Part 5-56: Selection and erection of electrical equipment – Safety services**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

**Part 5-56: Selection and erection of electrical equipment –
Safety services**

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 60364-5-56 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

This third edition cancels and replaces the second edition published in 2009. This edition constitutes a technical revision.

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

- 1) Modifications to normative references and terms and definitions.
- 2) Under electrical circuits for safety services, addition of requirements concerning circuit and overcurrent protection in order to maintain reliability of safety service power supplies under fire conditions.
- 3) Under electrical circuits for safety services, addition of requirements stating that circuits for safety services are not to be protected by RCDs or AFDDs.

- 4) Under emergency lighting applications, addition of requirements to prevent emergency lighting systems being adversely affected by any control system.
- 5) Addition of requirements for all emergency luminaires in the area to provide full design light output in the event of any final circuit failure.
- 6) Addition of a new Annex D (informative): Fire switch.
- 7) Addition of a new Annex E (informative): Example of installation methods of safety services with cable management system.
- 8) Addition of a new Annex F (informative): Wiring systems.
- 9) Addition of a new Annex G (informative): Guidance on suitable locations for electrical sources for safety services.

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

FDIS	Report on voting
64/2316/FDIS	64/2341/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.

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

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 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.

A bilingual version of this publication may be issued at a later date.

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 5-56: Selection and erection of electrical equipment – Safety services

560.1 Scope

This part of IEC 60364 covers general requirements for safety services, selection and erection of electrical supply systems for safety services and the electrical source for safety services.

Standby electrical supply systems are outside the scope of this document. This document does not apply to installations in hazardous areas (BE3), for which requirements are given in IEC 60079-14.

560.2 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 60331 (all parts), *Tests for electric cables under fire conditions – Circuit integrity*

IEC 60332-1-2, *Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame*

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

IEC 60364-5-52, *Low-voltage electrical installations – Part 5-52: Selection and erection of electrical equipment – Wiring systems*

IEC 60598-2-22, *Luminaires – Part 2-22: Particular requirements – Luminaires for emergency lighting*

IEC 60702-1, *Mineral insulated cables and their terminations with a rated voltage not exceeding 750 V – Part 1: Cables*

IEC 60702-2, *Mineral insulated cables and their terminations with a rated voltage not exceeding 750 V – Part 2: Terminations*

IEC 62040-1, *Uninterruptible power systems (UPS) – Part 1: Safety requirements*

IEC 62040-2, *Uninterruptible power systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements*

IEC 62040-3, *Uninterruptible power systems (UPS) – Part 3: Method of specifying the performance and test requirements*

ISO 8528-12, *Reciprocating internal combustion engine driven alternating current generating sets – Part 12: Emergency power supply to safety services*

ISO 30061:2007, *Emergency lighting*

560.3 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>

560.3.1

electrical supply system for safety services

supply system intended to maintain the operation of essential parts of an electrical installation and equipment

- for the health and safety of persons and livestock, and/or
- to avoid damage to the environment and to other equipment

Note 1 to entry: The supply system includes the source and the electrical circuits up to the terminals of electrical equipment.

560.3.2

electrical source for safety services

electrical source intended to be used as part of an electrical supply system for safety services

560.3.3

electrical circuits for safety services

electrical circuits intended to be used as part of an electrical supply system for safety services

560.3.4

standby electrical supply system

supply system intended to maintain, for reasons other than safety, the functioning of an electrical installation or parts thereof, in case of interruption of the normal supply

560.3.5

standby electrical source

electrical source intended to maintain, for reasons other than safety, the supply to an electrical installation or parts thereof, in case of interruption of the normal supply

560.3.6

emergency lighting

lighting provided for use when the supply to the normal lighting fails

[SOURCE: ISO 30061:2007, 4.1]

560.3.7

emergency lighting luminaire

luminaire which may or may not be provided with its own electrical source for safety services and which is used for safety or emergency lighting

560.3.8

escape sign luminaire

luminaire that indicates and assists the identification of escape routes

560.3.9**maintained mode**

operating mode of a lighting system in which the emergency lighting lamps are energized at all times when normal or emergency lighting is required

560.3.10**non-maintained mode**

operating mode of a lighting system in which the emergency lighting lamps are in operation only when the supply to the normal lighting fails

560.3.11**response time**

time that elapses between the failure of the normal power supply and the electrical source for safety services energizing the equipment

560.3.12**central power supply system**

system which supplies the required emergency power to essential safety equipment

560.3.13**escape route**

route to follow for access to a safe area in the event of an emergency

560.3.14**preferential circuit**

circuit derived directly from the incoming supply to the building intended to supply safety services which, in case of emergency, shall remain in operation for as long as possible

560.3.15**minimum illuminance**

illuminance for emergency lighting throughout the whole rated operating time

560.3.16**safety service**

electrical system for electrical equipment provided to protect or warn persons in the event of a hazard, or essential to their evacuation from a location

EXAMPLE:

- emergency (escape) lighting;
- fire pumps;
- fire rescue services lifts;
- alarm systems, such as fire alarms, CO alarms and intruder alarms;
- evacuation systems;
- smoke extraction systems;
- essential medical systems.

Note 1 to entry: Safety services is equipment installed in buildings to detect fire or danger in its initial stage, also limit fire spread and extinguish fire and control smoke and enable safe and effective evacuation

560.3.17**fire condition**

condition defined by the temperature-time curve of ISO 834-1, or by local legislation

560.3.18**suitable location**

constructional enclosure or separate fire protected compartment or room ensuring normal operation of equipment under fire conditions