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Amendement 1

Installations électriques des bâtiments –

Partie 5-55:
Choix et mise en oeuvre des matériels électriques – Autres matériels

Amendment 1

Electrical installations of buildings –

Part 5-55:
Selection and erection of electrical equipment – Other equipment

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FOREWORD

This amendment has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

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

FDIS	Report on voting
64/1190/FDIS	64/1201/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

The committee has decided that the contents of this base publication and its amendments will remain unchanged until 2006. At this date, the publication will be

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- withdrawn;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

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CONTENTS

Insert the following new clause:

550.3 Definitions

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550.1 Scope

Add the following text at the end of the existing text and before the note:

Electrical standby supply systems, other than for safety services, are outside the scope of this standard.

This part of IEC 60364 does not apply for installations in hazardous areas (BE3).

Renumber the existing NOTE as NOTE 1 and add the following NOTE 2:

NOTE 2 For additional requirements for hazardous areas, see the IEC 60079 and IEC 61241 series.

550.2 Normative references

Add the following additional normative references:

IEC 60331-11, *Tests for electric cables under fire conditions – Circuit integrity – Part 11: Apparatus – Fire alone at a flame temperature of at least 750 °C*

IEC 60311-21, *Tests for electric cables under fire conditions – Circuit integrity – Part 21: Procedures and requirements – Cables of rated voltage up to and including 0,6/1,0 kV*

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

IEC 60364-1, *Electrical installations of buildings – Part 1: Fundamental principles, assessment of general characteristics, definitions*

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

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

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

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

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Add, after the Normative references, the following new clause:

550.3 Definitions

For the purpose of this part of IEC 60364, the following definitions apply:

550.3.1
self-contained battery unit
unit comprising a battery and a charging and testing unit

550.3.2
non-maintained mode
operating mode of electrical equipment, essential for safety services, operating only when the normal supply fails

550.3.3
maintained mode
operating mode of electrical equipment, essential for safety services, operating at all times

550.3.4
safety services
those services in a building which are essential

– for the safety of persons,

– for avoiding damage to the environment or other material

NOTE Examples of safety services include

– emergency (escape) lighting,

– fire pumps,

– fire brigade lifts,

– alarm systems, such as fire alarms, smoke alarms, CO alarms and intruder alarms,

– evacuation systems,

– smoke extraction systems,

– essential medical equipment.

550.3.5
electrical safety source

source intended to maintain the supply to electrical equipment essential for the safety services

550.3.6

electrical supply system for safety services

See IEC 60050(826)

550.3.7

rated operating time of a safety source
operating time for which a safety source is designed under normal operating conditions.

Pages 17, 19 and 21

Replace clauses 556 to 556.8.1 by the following:

556 Safety services

556.1 General requirements

556.1.1 Safety services required to operate in fire conditions shall meet the following requirements:

– a safety source shall maintain an electrical supply of adequate duration;

– equipment shall have a fire resistance of adequate duration either by suitable selection or erection.

NOTE 1 Safety services may also be required to comply with additional national or local regulations.

NOTE 2 Two types of electrical supply source may exist: the safety source and the normal source.

NOTE 3 The normal source is, for example, the public supply network

556.1.2 For protection against indirect contact, protective measures without automatic disconnection at the first fault are preferred.

In IT systems continuous insulation monitoring devices shall be provided to give an audible and visible indication of a first fault to earth.

556.2 Supplies to current-using equipment

Where electrical equipment is supplied by two different sources, a failure occurring in the circuit from one source shall not impair the protection against electric shock or the correct operation of the other source. Where such equipment requires a protective conductor, it shall be connected to the protective conductors of both circuits.

556.3 Special requirements

556.3.1 Protection against short-circuit and against electric shock, under normal conditions and in case of a fault, shall be ensured under any configuration of the normal and safety sources of supply.

556.3.2 Protection against overload may be omitted where the loss of supply may cause a greater hazard. Where protection against overload is omitted, the occurrence of an overload shall be monitored.

556.3.3 Depending on whether the safety source is to operate in parallel with or independently of the normal supply, the appropriate subclauses of clause 551 shall be taken into account.

556.4 Switchgear and controlgear

556.4.1 Switchgear and controlgear shall be provided, either by construction, location or erection, with protection ensuring fire resistance of adequate duration.

556.4.2 Controlgear shall not influence the operation of safety services, at any time when called upon to operate. The position of switching devices, whose operation could cause a hazard, shall be clearly and visibly indicated.

556.4.3 Switchgear and controlgear for the supply of safety service installations shall be physically separated from components of the normal supply installation.

556.4.4 Switchgear and controlgear, including safety lighting controls, shall be clearly identified and accessible only to skilled or instructed persons.

556.5 Electrical supply system

556.5.1 Electrical safety sources

NOTE See IEC 60364-1, clause 35 for general requirements of permissible sources.

556.5.1.1 Safety sources for supplying safety equipment shall be selected according to the required response time and rated operating time. Where a separate power supply is used, the required operating time of any batteries may be reduced if the safety equipment requiring power is supplied from the generating set for the required operating time.

NOTE A battery charger in itself is not a safety source.

556.5.1.2 Electrical safety sources shall be installed as fixed equipment. Failure of the normal supply shall not adversely affect the performance of the safety sources.

556.5.1.3 Electrical safety sources shall be accessible only to skilled or instructed persons.

556.5.1.4 The location of every electrical safety source shall be properly and adequately ventilated so that any exhaust gases, smoke or fumes from the source are prevented from penetrating areas occupied by persons.

556.5.1.5 Separate independent feeders shall not serve as the normal and electrical safety sources unless the suppliers give written assurance that the two supplies are unlikely to fail concurrently.

556.5.1.6 An electrical safety source may be used for purposes other than safety services, if the availability for safety services is thereby not impaired. In addition to the requirements of 556.2, a fault occurring in a circuit used for purposes other than safety services shall not lead to the interruption of any circuit for safety services.

NOTE In an emergency, where safety services are needed, it may be necessary to off-load equipment not providing safety services.

556.5.1.7 The operational status of the safety source (whether normal or fault condition) shall be indicated at a central point that is constantly monitored at all required times. This does not apply to self-contained battery units.

556.5.1.8 A dual supply system with two independent feeders may be used. This applies, for example, in the case of

– supply from a public distribution network and an independent power source,
– two independent public distribution networks (unlikely to fail concurrently).

The two separate feeders for a dual system shall meet the following requirement:

– a fault in the power supply system of one supply shall not cause faults in the power supply system of the other one.

If there is a fault in the normal source feed from one of the supplies the other supply shall at least ensure that the essential safety equipment is supplied.

556.5.1.9 Generating sets with reciprocating internal combustion engines, used as the prime mover, shall comply with ISO 8528-12.

NOTE These generally consist of a diesel engine as the prime mover and a synchronous machine as the generator. Other prime movers and generators may be used when they meet the requirements of ISO 8528-12 for fuel feed and cooling, operational performance, consistent voltage and frequency and adequate continuous short-circuiting power.

556.5.1.10 The safety source shall have sufficient capacity for the safety services.

556.5.1.11 Where the safety services of several buildings or locations are supplied from a single safety source, failure in the safety services of one building or location shall not endanger the normal operation of the safety source.

The following shall be indicated at a central, continuously monitored point throughout the period required for operation:

a) supply failure at switchgear and controlgear to which safety services are connected;

b) operational status of all switching devices in the system if they are critical as regards the safety services;

c) first fault to earth.

556.6 Wiring systems

556.6.1 Circuits for electrical safety services shall be independent of the supply to other circuits.

NOTE 1 This means that an electrical fault or any intervention or modification in one system will not affect the correct functioning of the other. This may necessitate separation by fire-resistant materials or different routes or enclosures.

NOTE 2 The charging supply to self-contained battery units may be dependent on the supply to other circuits.

556.6.2 Circuits for safety services shall not pass through locations exposed to fire risk (BE2), unless they possess inherently high resistance against fire and physical damage or are suitably protected. The circuit shall not in any case pass through zones exposed to explosion risk (BE3).

556.6.3 The following wiring systems shall be provided for safety services required to operate in fire conditions:

a) mineral-insulated cable complying with IEC 60702-1 and IEC 60702-2;

b) fire-resistant cables complying with IEC 60331-11, IEC 60331-21 and IEC 60332-1;

c) a wiring system maintaining the necessary fire and mechanical protection.

556.6.4 Wiring systems and cables for safety services, other than those mentioned in 556.6.3, shall be adequately and reliably separated from other cables, including cables of other safety services by distance or barriers.

NOTE For battery cables, special requirements may apply.

556.6.5 Supplies for safety services, with the exception of wiring for fire-brigade lifts, shall not be installed in lift shafts or other flue- like openings.

556.6.6 Safety circuits shall be installed and identified so as to avoid unintentional disconnection.

556.6.7 In rooms and escape routes with several emergency lighting luminaires, these shall be wired alternately from at least two separate circuits such that a level of illuminance is maintained along the escape route in the event of the loss of one circuit.

556.6.8 Wiring to battery chargers, including self-contained battery units, is not considered to be part of the safety circuit.

556.6.9 If the voltage of the safety power supply differs from that of the general power supply and transformers are required, they shall have separate windings