# INTERNATIONAL STANDARD

# IEC 60364-5-55

**Edition 1.1**
2002-05

Edition 1:2001 consolidated with amendment 1:2001

## Electrical installations of buildings –

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



*This **English-language** version is derived from the original **bilingual** publication by leaving out all French-language pages. Missing page numbers correspond to the French-language pages.*

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

# ELECTRICAL INSTALLATIONS OF BUILDINGS –

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

## FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.



International Standard IEC 60364-5-55 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

The IEC 60364 series (parts 1 to 6), is currently being restructured, without any technical changes, into a more simple form (see annex A).

According to a unanimous decision by the Committee of Action (CA/1720/RV (2000-03-21)), the restructured parts of IEC 60364 have not been submitted to National Committees for approval.

The text of this first edition of IEC 60364-5-55 is compiled from and replaces

– part 5-551, first edition (1994),
– part 5-559, first edition (1999),
– part 5-56, first edition (1980) and its amendment 1 (1998), and
– part 3, second edition (1993), its amendment 1 (1994) and its amendment 2 (1995).

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

This consolidated version of IEC 60364-5-55 consists of the first edition (2001) and its amendment 1 (2001) [documents 64/1190/FDIS and 64/1201/RVD].

The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience.

It bears the edition number 1.1.

A vertical line in the margin shows where the base publication has been modified by amendment 1.

Annex A is for information only.

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

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

# ELECTRICAL INSTALLATIONS OF BUILDINGS –

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

## 550 Introduction

### 550.1 Scope

This part of IEC 60364 covers requirements for low-voltage generating sets. Particular requirements for supplies for safety services are given in clause 556 while clause 559 applies to the selection and erection of luminaires and lighting installations intended to be part of the fixed installation.

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).

NOTE 1 Requirements of the public supply undertaking should be ascertained before a generating set is installed in an installation which is connected to the public supply.

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

### 550.2 (551.1.2)(559.2) Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60364. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 60364 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.



IEC 60050(195):1998, *International Electrotechnical Vocabulary – Part 195: Earthing and protection against electric shock*

IEC 60050(826):1982, *International Electrotechnical Vocabulary – Part 826: Electrical installations of buildings*

IEC 60079 (all parts), *Electrical apparatus for explosive gas atmospheres*

IEC 60245-3:1994, *Rubber insulated cables – Rated voltages up to and including 450/750 V – Part 3: Heat resistant silicone insulated cables*

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 60364-4-41:2001, *Electrical installations of buildings – Part 4-41: Protection for safety – Protection against electric shock*

IEC 60364-4-42:2001, *Electrical installations of buildings – Part 4-42: Protection for safety – Protection against thermal effects*

IEC 60364-4-43:2001, *Electrical installations of buildings – Part 4-43: Protection for safety – Protection against overcurrent*

IEC 60364-5-52:2001, *Electrical installations of buildings – Part 5-52: Selection and erection of electrical equipment – Wiring systems*

IEC 60364-5-53:2001, *Electrical installations of buildings – Part 5-53: Selection and erection of electrical equipment – Isolation, switching and control*

IEC 60364-5-54:1980, *Electrical installations of buildings – Part 5: Selection and erection of electrical equipment – Chapter 54: Earthing arrangements and protective conductors*[1)]

IEC 60364-7-713:1996, *Electrical installations of buildings – Part 7: Requirements for special installations and locations – Furniture*

IEC 60364-7-714:1996, *Electrical installations of buildings – Part 7: Requirements for special installations and locations – External lighting installations*

IEC 60364-7-715,1999, *Electrical installations of buildings – Part 7-715: Requirements for special installations and locations – Extra-low voltage lighting installations*

IEC 60417 (all parts), *Graphical symbols for use on equipment*

IEC 60598 (all parts), *Luminaires*

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*

### 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

1) Currently being revised under the modified title "*Electrical installations of buildings – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors and equipotential bonding*"

**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.

## 551 Low-voltage generating set

### 551.1 (551.1.1.1) Scope

This part 5-55 of IEC 60364 applies to low-voltage and extra-low voltage installations which incorporate generating sets intended to supply, either continuously or occasionally, all or part of the installation. Requirements are included for installation with the following supply arrangements:

– supply to an installation which is not connected to the public supply;

– supply to an installation as an alternative to the public supply;

– supply to an installation in parallel with the public supply;

– appropriate combinations of the above.

This part does not apply to self-contained items of extra-low voltage electrical equipment which incorporate both the source of energy and the energy-using load and for which a specific product standard exists that includes the requirements for electrical safety.

**551.1.1** (551.1.1.2) Generating sets with the following power sources are considered:

– combustion engines;
– turbines;
– electric motors;
– photovoltaic cells;
– electrochemical accumulators;
– other suitable sources.

**551.1.2** (551.1.1.3) Generating sets with the following electrical characteristics are considered:

– mains-excited and separately excited synchronous generators;
– mains-excited and self-excited asynchronous generators;
– mains-commutated and self-commutated static inverters with or without by-pass facilities.

**551.1.3** (551.1.1.4) The use of generating sets for the following purposes is considered:

– supply to permanent installations;
– supply to temporary installations;
– supply to portable equipment which is not connected to a permanent fixed installation.

## 551.2 General requirements

**551.2.1** The means of excitation and commutation shall be appropriate for the intended use of the generating set and the safety and proper functioning of other sources of supply shall not be impaired by the generating set.

NOTE See 551.7 for particular requirements where the generating set may operate in parallel with a public supply.

**551.2.2** The prospective short-circuit current and prospective earth fault current shall be assessed for each source of supply or combination of sources which can operate independently of other sources or combinations. The short-circuit rating of protective devices within the installation and, where appropriate, connected to the public supply network, shall not be exceeded for any of the intended methods of operation of the sources.

**551.2.3** Where the generating set is intended to provide a supply to an installation which is not connected to the public supply or to provide a supply as a switched alternative to the public supply, the capacity and operating characteristics of the generating set shall be such that danger or damage to equipment does not arise after the connection or disconnection of any intended load as a result of the deviation of the voltage or frequency from the intended operating range. Means shall be provided to automatically disconnect such parts of the installation as may be necessary if the capacity of the generating set is exceeded.

NOTE 1 Attention should be given to the size of individual loads as a proportion of the capacity of the generating set and to motor starting currents.

NOTE 2 Attention should be given to the power factor specified for protective devices in the installation.

NOTE 3 The installation of a generating set within an existing building or installation may change the conditions of external influence for the installation (see IEC 60364-1), for example by the introduction of moving parts, parts at high temperature or by the presence of noxious gases, etc.