

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Low-voltage electrical installations –
Part 5-54: Selection and erection of electrical equipment – Earthing
arrangements and protective conductors**

**Installations électriques à basse tension –
Partie 5-54: Choix et mise en œuvre des matériels électriques – Installations
de mise à la terre et conducteurs de protection**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 60364-5-54 edition 3.1 contains the third edition (2011-03) [documents 64/1755/FDIS and 64/1766/RVD] and its amendment 1 (2021-04) [documents 64/2479/FDIS and 64/2481/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 60364-5-54 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

This third edition constitutes a technical revision.

The main changes with respect to the previous edition are listed below:

- clarification of the definition of protective conductor;
- improved specification of mechanical characteristics of the earth electrode;
- introduction of earth electrode for protection against electric shock and lighting protection;
- annexes describing concrete-embedded foundation earth electrodes and soil-embedded earth electrode.

It has the status of a basic safety publication in accordance with IEC Guide 104.

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

The reader's attention is drawn to the fact that Annex E 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, under the general title: *Low-voltage electrical installations*, can be found on the IEC website.

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INTRODUCTION

Clause numbering is sequential, preceded by the number of this Part. Numbering of figures and tables takes the number of this part followed by a sequential number, i.e. Table 54.1, 54.2, etc. Numbering of figures and tables in annexes takes the letter of the annex, followed by the number of the part, followed by a sequential number, e.g. A.54.1, A.54.2, etc.

To define a clear borderline between functional earthing and protective earthing the following explanations are given:

Functional earthing

- Functional earthing

If any connection of the functional earthing is interrupted, it does not impair any kind of protection or any kind of protective measure or protective provision provided for electrical safety. Therefore, its application mainly relates to:

- communication,
- measurement, and
- EMC as regards radiated disturbances and conducted high frequency disturbances.

- Protective earthing

If any connection of the protective earthing is interrupted, it impairs the protection or the function of a protective measure or protective provision provided for electrical safety.

Requirement for protective earthing are given in:

- IEC 60364-4-41 for protection against electric shock;
- IEC 60364-4-42 for protection against thermal effects;
- IEC 60364-4-44 for protection against conducted disturbances.

INTRODUCTION to Amendment 1

The main changes provided in this Amendment 1 are:

- clarification and necessary modifications to define a clear borderline between functional earthing and protective earthing (see INTRODUCTION);
- introduction of additional requirements for functional earthing and functional-equipotential-bonding for information technology systems and communication equipment (ICT).