

INTERNATIONAL STANDARD

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Protection of structures against lightning – Part 1: General principles

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Withdrawn

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PROTECTION OF STRUCTURES AGAINST LIGHTNING**Part 1: General principles**

FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

PREFACE

This standard has been prepared by IEC Technical Committee 81: Lightning protection.

It forms Part 1 of a series dealing with the protection of structures against lightning.

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

Six Months' Rule	Report on Voting	Two Months' Procedure	Report on Voting
81(CO)6	81(CO)8	81(CO)9 81(CO)11	81(CO)10 and 10A 81(CO)12

Full information on the voting for the approval of this standard can be found in the Voting Reports indicated in the above table.

The following IEC publications are quoted in this standard:

Publications Nos. 50(826) (1982): International Electrotechnical Vocabulary (IEV), Chapter 826: Electrical installations of buildings.

364-4-41 (1982): Electrical installations of buildings, Part 4: Protection for safety – Chapter 41: Protection against electric shock.

PROTECTION OF STRUCTURES AGAINST LIGHTNING

Part 1: General principles

INTRODUCTION

It should be noted that a lightning protection system cannot prevent the formation of lightning.

A lightning protection system, designed and installed in accordance with this standard, cannot guarantee absolute protection to structures, persons, or objects; however, application of this standard will significantly reduce risk of damage caused by lightning to the structure protected by it.

The type and location of a lightning protection system should be carefully considered at the design stage of a new structure, thereby enabling maximum advantage to be taken of the electrically conductive parts of the structure. Thus design and construction of an integrated installation is made easier, the overall aesthetic aspects can be improved, and the effectiveness of the lightning protection system can be increased at minimum cost and effort.

Access to ground and proper use of foundation steelwork for the purpose of forming an effective earth termination may well be impossible once construction work on a site has commenced. Therefore, soil resistivity and the nature of the earth should be considered at the earliest possible stage of a project. This information is fundamental to the design of an earth termination system which may influence the foundation design work of architects.

To avoid unnecessary work, regular consultation between lightning protection system designers, architects and builders is essential.

This standard provides information on setting up Lightning Protection Systems (LPS) for common structures.

Future standards will provide additional information on lightning protection for non-common structures, such as:

- tall structures;
- structures with risk of panic;
- structures with risk of fire or explosion.

Other publications will cover particular aspects related to protection of electric and electronic equipment against lightning interference.

Moreover, application guides will assist users in the assessment of the risk, in the selection of the appropriate protection level and in the construction of LPSs.

The design, installation and materials of LPS should fully comply with the provisions of this standard.

1. General

1.1 *Scope and object*

1.1.1 *Scope*

This standard is applicable to the design and installation of Lightning Protection Systems (LPS) for common structures up to 60 m high.

The following cases are outside the scope of this standard:

- a) railway systems;
- b) electrical transmission, distribution and generating systems external to a structure;
- c) telecommunication systems external to a structure;
- d) vehicles, ships, aircraft, offshore installations.

Note. – Usually the systems from a) to d) are under special regulations made by various specific authorities.

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