

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



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**Protection against lightning –  
Part 3: Physical damage to structures and life hazard**

**Protection contre la foudre –  
Partie 3: Dommages physiques sur les structures et risques humains**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**PROTECTION AGAINST LIGHTNING –****Part 3: Physical damage to structures and life hazard**

## FOREWORD

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International Standard IEC 62305-3 has been prepared by IEC technical committee 81: Lightning protection.

This second edition cancels and replaces the first edition, published in 2006, and constitutes a technical revision.

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

- 1) Minimum thicknesses of metal sheets or metal pipes given in Table 3 for air-termination systems are assumed as not able to prevent hot-spot problems.
- 2) Steel with electro-deposited copper is introduced as material suitable for LPS.
- 3) Some cross-sectional areas of LPS conductors were slightly modified.
- 4) For bonding purposes, isolating spark gaps are used for metal installations and SPD for internal systems.

- 5) Two methods – simplified and detailed – are provided for evaluation of separation distance.
- 6) Protection measures against injuries of living beings due to electric shock are considered also inside the structure.
- 7) Improved information for LPS in the case of structures with a risk of explosion are given in Annex D (normative).

This bilingual version (2012-06) corresponds to the monolingual English version, published in 2010-12.

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

FDIS	Report on voting
81/372/FDIS	81/382/RVD

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

The French version of this standard has not been voted upon.

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

A list of all the parts in the IEC 62305 series, under the general title *Protection against lightning*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

In the United States, based on the requirements of NFPA 780: Standard for the Installation of Lightning Protection Systems:2008 <sup>[1]</sup> 1 and practical experience in the use of horizontal earth electrodes, the minimum length of horizontal earth electrodes is not required to be twice that required for vertical electrodes.

In France and Portugal:

- natural components cannot substitute as lightning protection components but may be used to complete/enhance the LPS;
- aluminium solid round diameters should be increased from 8 mm to 10 mm;
- stranded conductors cannot be used as down-conductors;
- diameter of solid round conductors should be increased from 16 mm to 18 mm;
- hot dip galvanized steel solid tape thickness should be increased from 2 mm to 3,5 mm.

In Russia the use of piping carrying and tanks containing readily-combustible or explosive materials as air-termination natural components or down-conductor natural components are not allowed in any case.

In Japan the minimum values of the cross-section are reduced from:

- 16 mm<sup>2</sup> to 14 mm<sup>2</sup> for copper and 25 mm<sup>2</sup> to 22 mm<sup>2</sup> for aluminium, for bonding conductors connecting different bonding bars and conductors connecting the bars to the earth-termination system;
- 6 mm<sup>2</sup> to 5 mm<sup>2</sup> for copper, 10 mm<sup>2</sup> to 8 mm<sup>2</sup> for aluminium and 16 mm<sup>2</sup> to 14 mm<sup>2</sup> for steel, for bonding conductors connecting internal metal installations to the bonding bars.

<sup>1</sup> References in square brackets refer to the bibliography.

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