JIS

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS Z 9290-3 : 2019

(IEIEJ/JSA)

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

ICS 29.020;91.120.40

Reference number : **JIS Z 9290-3** : **2019** (**E**)

Date of Establishment: 2014-12-25
Date of Revision: 2019-06-28
Date of Public Notice in Official Gazette: 2019-06-28
Investigated by: Japanese Industrial Standards Committee
Standards Board for ISO area
Technical Committee on Architecture

JIS Z 9290-3:2019, First English edition published in 2020-12

Translated and published by: Japanese Standards Association
Mita MT Building, 3-13-12, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

Printed in Japan

HT/AT

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Foreword

This Japanese Industrial Standard has been revised by the Minister of Land, Infrastructure, Transport and Tourism through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by The Institute of Electrical Installation Engineers of Japan (IEIEJ)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14. Consequently **JIS Z 9290-3**:2014 is replaced with this Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, applications for a patent after opening to the public or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public or utility model rights.

JIS Z 9290 series consisting of the following 3 parts under the general title " *Protection against lightning*":

Part 1: General principles

Part 3: Physical damage to structures and life hazard

Part 4: Electrical and electronic systems within structures

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

Introduction

This Japanese Industrial Standard was established in 2014 based on the second edition of **IEC 62305-3**:2010 with some modifications of the technical contents, and has been revised at this time to make further modifications in light of the specific conditions in Japan.

The vertical lines on both sides and dotted underlines indicate changes from the corresponding International Standard. A list of modifications with the explanations is given in Annex JA. The comparison table between previous and current editions of this Standard on technically significant revisions is given in Annex JB.

This Standard deals with the protection, in and around a structure, against physical damage and injury to living beings (human and livestock) due to touch and step voltages.

The main and most effective measure for protection of structures against physical damage is considered to be the lightning protection system (LPS). It usually consists of both external and internal lightning protection systems.

An external LPS (see **3.2**) is intended to

a) intercept a lightning flash to the structure (with an air-termination system),

b) conduct the lightning current safely towards earth (using a down-conductor system),

c) disperse the lightning current into the earth (using an earth-termination system).

An internal LPS (see **3.5**) prevents dangerous sparking within the structure using either equipotential bonding or separation distance (and hence electrical insulation) between the external LPS components and other electrically conducting elements internal to the structure.

Main protection measures against injury to living beings due to touch and step voltages are intended to:

1) reduce the dangerous current flowing through bodies by insulating exposed conductive parts, and/or by increasing the surface soil resistivity,

2) reduce the occurrence of dangerous touch and step voltages by physical restrictions and/or warning notices.

The type and location of an LPS should be carefully considered in the initial design of a new structure, thereby enabling maximum advantage to be taken of the electrically conductive parts of the structure. By doing so, design and construction of an integrated installation is made easier, the overall aesthetic aspects can be improved, and the effectiveness of the LPS can be increased at minimum cost and effort.

Access to the ground and the 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