

ANSI C136.25-2013

---

American National  
Standard for Roadway  
and Area Lighting  
Equipment - Ingress  
Protection (Resistance  
to Dust, Solid Objects,  
and Moisture) for  
Luminaire Enclosures





ANSI C136.25-2013

## American National Standard

*For Roadway and Area Lighting Equipment—  
Ingress Protection (Resistance to Dust, Solid Objects, and  
Moisture) for Luminaire Enclosures*

Secretariat

National Electrical Manufacturers Association

Approved August 28, 2013

Published October 2, 2013

American National Standards Institute, Inc.

## NOTICE AND DISCLAIMER

The information in this publication was considered technically sound by a consensus among persons engaged in its development at the time it was approved. Consensus does not necessarily mean there was unanimous agreement among every person participating in the development process.

American National Standards Institute (ANSI) standards and guideline publications, of which the document herein is one, are developed through a voluntary standards development process. This process brings together volunteers and/or seeks out the views of persons who have an interest in the topic covered by this publication. Although NEMA administers the process and establishes rules to promote fairness in the development of consensus, it does not write the documents, nor does it independently test, evaluate, or verify the accuracy or completeness of any information or the soundness of any judgments contained in its standards and guideline publications.

NEMA disclaims liability for any personal injury, property, or other damages of any nature, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use of, application, or reliance on this document. NEMA disclaims and makes no guaranty or warranty, express or implied, as to the accuracy or completeness of any information published herein, and disclaims and makes no warranty that the information in this document will fulfill any particular purpose(s) or need(s). NEMA does not undertake to guarantee the performance of any individual manufacturer's or seller's products or services by virtue of this standard or guide.

In publishing and making this document available, NEMA is not undertaking to render professional or other services for or on behalf of any person or entity, nor is NEMA undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstance. Information and other standards on the topic covered by this publication may be available from other sources, which the user may wish to consult for additional views or information not covered by this publication.

NEMA has no power, nor does it undertake to police or enforce compliance with the contents of this document. NEMA does not certify, test, or inspect products, designs, or installations for safety or health purposes. Any certification or other statement of compliance with any health- or safety-related information in this document shall not be attributable to NEMA and is solely the responsibility of the certifier or maker of the statement.

## **AMERICAN NATIONAL STANDARD**

Approval of an American National Standard requires verification by ANSI. ANSI states that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer.

Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means significantly more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and a concerted effort be made toward their resolution.

The use of American National Standards is completely voluntary, and their existence does not in any respect preclude anyone, whether they have approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards, and will under no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

Caution Notice: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Published by

**National Electrical Manufacturers Association  
1300 North 17th Street, Falls Church, Virginia 22209**

© 2013 National Electrical Manufacturers Association. All rights, including translation into other languages, reserved under the Universal Copyright Convention, the Berne Convention for the Protection of Literary and Artistic Works, and the International and Pan American copyright conventions.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, and without the prior written permission of the publisher.

Printed in the United States of America

<This page intentionally left blank.>

Currently in preview, click buy full version

**TABLE OF CONTENTS**

FORWORD ..... vi

1 SCOPE ..... 1

2 INFORMATIVE REFERENCES ..... 1

3 DEFINITIONS ..... 1

4 DESIGNATION OF PROTECTION ..... 2

5 DEGREES OF PROTECTION AGAINST ACCESS TO HAZARDOUS PARTS (FIRST NUMERAL) . 2

6 DEGREES OF PROTECTION AGAINST FOREIGN OBJECTS, SUCH AS DUST ..... 3

7 DEGREES OF PROTECTION AGAINST INGRESS OF MOISTURE (SECOND NUMERAL) ..... 4

8 MARKINGS ..... 5

9 GENERAL TEST REQUIREMENTS ..... 6

10 SUGGESTED RATINGS ..... 6

**List of Tables**

Table 1: Degrees of Protection (of Persons) Against Access to Hazardous Parts, as Indicated by the First Characteristic Numeral ..... 3

Table 2: Degrees of Protection Against Solid Foreign Objects, as Indicated by the First Characteristic Numeral ..... 4

Table 3: Degrees of Protection Against Water, as Indicated by the Second Characteristic Numeral ..... 5

Table 4: Suggested IP Ratings for ANSI C136 Equipment ..... 6

## FOREWORD

At the time this standard was approved, the ANSI C136 committee was composed of the following members:

Alabama Power Company	Lites
American Electric Lighting	Los Angeles City Bureau of Street Lighting
Caltrans	National Grid
Ceravision	OSRAM Sylvania
City of Kansas City, Missouri	Philips Hadco
Duke Energy	Philips Lumec
Duke Energy - Florida	PNNL
Eaton Cooper Lighting	ROAM/DTL
Edison Electric Institute	SELC
EPRI	Shakespeare Composite Structures
EYE Lighting	South Carolina Electric & Gas
Florida Power and Light	SouthConn Technologies, Inc.
FRE Composites (2005) Inc.	StressCrete Group
GE Lighting Solutions	Sunrise Technologies, Inc. FP, LLC
Georgia Power Company	TE Connectivity
Gulf Power Company	Toshiba
Hapco	Utility Metals Division of Fabricated Metals, LLC
Holophane, An Acuity Brands Company	Valmont Industries, Inc.
Hubbell Lighting, Inc.	Vamas Engineering and Consultants
Inovus Solar	Xcel Energy
Kauffman Consulting, LLC	
LED Roadway Lighting	

## 1 SCOPE

This standard details the requirements for ingress protection of luminaires in roadway and area lighting equipment, installed for their intended use and specified by end user. While these requirements are suitable for most types of lighting equipment, it should not be assumed that all the listed degrees of protection are applicable to a particular type of equipment. The manufacturer of the equipment should be consulted to determine the degrees of protection available.

The adoption of this standard should promote uniform methods of describing the protection provided by the lighting equipment (luminaire) enclosure.

NOTE—The bases for this standard are the documents IEC 60529, *Degrees of protection provided by enclosures (IP Code)*; and IEC 60598-1, *Luminaires – Part 1: General requirements and tests*, Section 9, Resistance to dust, solid objects and moisture. Tables 1, 2, and 3, in particular, are based on IEC 60529.

The types of protection covered by this standard are as follows:

- a) Protection of persons against contact with, or approach to, energized electrical components inside the light fixture (luminaire) enclosure, and protection of the equipment against ingress of solid foreign bodies; and
- b) Protection of equipment inside an enclosure against harmful ingress of water, solid foreign objects, or dust

It should be noted that the IP rating of a luminaire has no bearing on its Dirt Depreciation characteristics. Testing is performed on new luminaires and is not an indicator of the life or reliability of the luminaire during its service life. Some components, such as seals and gaskets, deteriorate over time with exposure to heat and the environment and should be evaluated separately.

## 2 INFORMATIVE REFERENCES

This standard is intended to be used in conjunction with the following publications. The latest edition of the publication applies (including amendments).

IEC 60529, Edition 2.1, *Degrees of protection provided by enclosures (IP Code)*

IEC 60598-1, Edition 7, *Luminaires – Part 1: General requirements and tests*, Section 9, Resistance to dust, solid objects and moisture.

## 3 DEFINITIONS

**Degrees of protection:** The extent of protection provided by a lighting fixture (luminaire) enclosure against ingress of foreign objects or water, verified by standardized test methods.

**Direct contact:** Contact of persons with energized components.

**Enclosure:** A part that provides protection of equipment against external effects and direct contact.

**Hazardous live part:** A part that, when energized, presents a danger to human touch.

**Hazardous part:** A part that presents a danger to human touch.

**IP code:** A coding system to indicate the degree of protection afforded by a lighting fixture (luminaire) enclosure against ingress of foreign objects or water.