American National Standard for Roadway Lighting Equipment—Enclosed Architectural Luminaires

Sponsor

Accredited Standards Committee on Roadway Lighting, C136

Accredited by the

American National Standards Institute

Secretariat

The Institute of Electrical and Electronics Engineers, Inc.

Approved 24 January 1997

American National Standards Institute

Abstract: Physical, operating, maintenance, and light distribution features that permit use of architectural luminaires in roadway applications when so specified are covered. Specific features for horizontal, pendant, and vertical architectural luminaires, together with various types of lamps to meet the individual needs of special architectural roadway lighting applications, are included.
Keywords: architectural luminaires, lighting, luminaires, roadway lighting equipment

The Institute of Electrical and Electronics Engineers, Inc.
345 East 47th Street, New York, NY 10017-2394, USA

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ISBN 1-55937-902-2

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Introduction

(This introduction is not a part of ANSI C136.23-1997, American National Standard for Roadway Lighting Equipment—Enclosed Architectural Luminaires.)

This standard was prepared by the Architectural Roadway Luminaire Task Force of Subcommittee C136-1, Subcommittee on Luminaires and Light-Sensitive Control Devices.

The Accredited Standards Committee on Roadway Lighting, C136, had the following voting members at the time this standard was approved:

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American National Standard for Roadway Lighting Equipment—Enclosed Architectural Luminaires

1. Overview

This standard is intended to cover physical, operating, maintenance, and light distribution features that permit use of architectural luminaires in roadway applications when so specified.

It is not intended that compliance with this standard will permit interchangeability with existing roadway equipment without thorough engineering review and evaluation.

Structural requirements for poles and brackets shall be evaluated with respect to both strength and vibration. Vibration dampers may be required.

Where specified, architectural luminaires of similar effective projected area and weight meeting the requirements of this standard, based on appropriate engineering review and evaluation, may be used in roadway applications with the assurance that

a) They will fit the standard roadway bracket arm.

b) Light distribution patterns and photometric data available from manufacturers will be consistent with standard roadway luminaires as specified in ANSI/IES RP8-1983.

c) Physical, operational, and maintenance characteristics will be similar to standard roadway luminaires.

Further, the scope of this standard is intended in the future, through the use of annexes, to prescribe specific features for horizontal, pendant, and vertical architectural luminaires, together with various type lamps to meet the individual needs of special architectural roadway lighting applications.

2. References

This standard shall be used in conjunction with the following publications. When any of these standards are superseded by an approved revision, the revision shall apply.

ANSI C78.40-1992, American National Standard Specifications for Mercury Lamps.[1]

ANSI C78.1300 series, American National Standards for Electric and Mercury Lamps.[2]

ANSI C82.4-1992, American National Standard for Ballasts—High-Intensity-Discharge and Low-Pressure Sodium Lamps (Multiple-Supply Type).

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[1]ANSI publications are available from the Sales Department, American National Standards Institute, 11 West 42nd Street, 13th Floor, New York, NY 10036, USA.

[2]For more information about specific standards in this series, contact ANSI.

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ANSI C82.9-1988, American National Standard for High-Intensity-Discharge and Low-Pressure Sodium Lamps, Ballasts and Transformers—Definitions.

ANSI C136.2-1996, American National Standard for Roadway Lighting Equipment—Luminaires Voltage Classification.[3]

ANSI C136.3-1995, American National Standard for Roadway Lighting Equipment—Luminaire Attachments.

ANSI C136.10-1996, American National Standard for Roadway Lighting Equipment—Locking-Type Photocontrol Devices and Mating Receptacle Physical and Electrical Interchangeability and Testing.

ANSI C136.11-1995, American National Standard for Roadway Lighting Equipment—Multiple Sockets.

ANSI C136.12-1996, American National Standard for Roadway Lighting Equipment—Mercury Lamps—Guide for Selection.

ANSI C136.13-1992 (Reaff 1997), American National Standard for Roadway Lighting—Metal Brackets for Wood Poles.

ANSI C136.15-1997, American National Standard for Roadway Lighting Equipment—High-Intensity-Discharge and Low-Pressure Sodium Lamps in Luminaires—Field Identification.

ANSI C136.19-1997, American National Standard for Roadway Lighting Equipment—High-Pressure Sodium Lamps— Guide for Selection.

ANSI C136.20-1990, American National Standard for Roadway Lighting Equipment—Fiber-Reinforced Plastic (FRP) Poles.

ANSI C136.21-1987 (Reaff 1992), American National Standard for Roadway Lighting—Vertical Tenons Used with Post-Top-Mounted Luminaires.

ANSI C136.22-1988, American National Standard for Roadway Lighting Equipment—Internal Labeling of Luminaires.

ANSI PC136.24/D4, Draft Standard for Roadway Lighting Equipment—Nonlocking-Type (Button) Photocontrols.[4]

ANSI/IES RP8-1983 (Reaff 1993), American National Standard Practice for Roadway Lighting.

3. Definition of “architectural” luminaire

For the purpose of this standard, “architectural luminaire” will be considered to be any significant deviation from the luminaire’s style that has evolved in the industry as predominant (commonly known as “cobrahead” style). The architectural luminaires would include modern “decorative” variations, including the rectilinear (shoe box), curvelinear (hockey puck), spherical, and semispherical styles. It also would include the broad family of luminaires/lanterns proposed to duplicate or replicate “historical” or “nostalgic” styles of luminaires/lanterns for use on roadways.

[3]ANSI C136 publications are available from the Institute of Electrical and Electronics Engineers, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, USA.

[4]This is an authorized standards project that was not yet approved at the time this publication went to press. For information about obtaining drafts, contact the IEEE.

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Annex A

(normative)

Enclosed side-mounted architectural luminaires for high-intensity discharge lamps used in roadway lighting

A.1 Scope

The architectural luminaires covered by this annex include side mounted, square, rectangular, cylindrical, spherical, and other types of decorative or nostalgic historical style fixtures proposed for use in roadway lighting applications.

A.2 Mounting provisions

A.2.1 Tenon

Horizontal tenon mounting shall be furnished, unless otherwise specified by the user.

Luminaires meeting the requirements of this standard shall

a) Accept a straight tubular section of 3.175 cm (1.25 in) NPS pipe tenon not more than 19.05 cm (7.5 in) long or a 5.08 cm (2 in) NPS pipe tenon not more than 25.4 cm (10 in) long in accordance with Table 2 of ANSI C136.3-1995 and Section 6 of ANSI C136.13-1992.

b) Provide a shoulder or stop to limit the depth of insertion of the pipe tenon during installation.

c) Permit leveling through no less than +3° from the axis of the attachment if specified.

d) Prevent entrance of wildlife by limiting opening around the pipe tenon mounting area to 0.635 cm (0.25 in) over the range of tenon sizes and leveling adjustment. This may be accomplished by use of supplemental closures.

A.3 Terminal blocks

A terminal block with a minimum of two line-side pressure type wire connectors having slotted-head screws shall be securely mounted in the luminaire such that incoming conductors will clear all internal accessories. Each connector shall accept one copper or aluminum conductor, either solid or stranded, from 8 AWG to 14 AWG.

A.4 Latching and hinging

The luminaire shall be equipped with a latch-hinge combination to secure the lens door and permit access to the lamp compartment. Unless otherwise specified, the latch shall be operable with protective gloves but without tools. The hinge shall be designed so that a free-swinging door will not accidentally disengage.

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A.5 Voltage classification

The luminaires shall be of the 250 V or 600 V classification, as specified by the user and as defined in ANSI C136.2-1996.

A.6 Socket

Luminaires shall be equipped with either a medium screw base socket or a multiple mogul socket meeting the requirements of ANSI C136.11-1995.

A.7 Refractor or lens replacement

The refractor, lens, or lens assembly shall be secured by one or more movable supports so that it remains securely in place with the access door open and so that it may be removed from the door while it is open. The refractor lens or lens assembly shall be replaceable without tools or with a blade-type screwdriver.

A.8 Optical assembly

The optical assembly shall be effectively sealed by conforming gaskets to minimize the entrance of atmospheric contaminants. When opening the luminaire, the gasket shall remain securely attached to the intended surface. The design of the reflector shall permit operation of the lamp in accordance with ANSI C78.40-1992 and the ANSI C78.1300 series of standards.

A.9 Light distribution and photometric data

The light distribution characteristics of the luminaire shall conform to the latest revision of ANSI/IES RP8-1983. Photometric data shall be available for each architectural luminaire upon request by the user.

A.10 Ballast

The luminaire shall be equipped with a ballast to operate a high-intensity discharge lamp, as specified on the nameplate. It shall conform to the test requirements and method described in Section 6.2 of ANSI C82.4-1992.

A.11 Starting devices

Starting devices shall conform to the provisions of ANSI C82.9-1988.

A.12 Grounding

If specified, a means shall be provided for grounding the noncurrent-carrying metal parts of the luminaire.

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A.13 Barriers

Barriers (heat or other), if employed, shall be designed for the life of the luminaires.

A.14 Photocontrol

When the luminaire is photocontrol operated, the photocontrol or receptacle shall meet the applicable provisions of ANSI C136.10-1996, including the “adjustable” characteristics required for “north” orientation, or of ANSI PC136.24/D4.

A.15 Materials and protective coatings

Materials and protective coatings used for luminaire assembly (including latches, hinges, mounting, assembly, and reflector) shall individually and as a system be resistant to atmospheric conditions, including the corrosive and erosive action of conditions of service encountered in industrial and seaboard areas.

All wiring and electrical components, including a photocontrol and/or receptacle, if used, shall not exceed their temperature design limits when the luminaire is operated in still air at a minimum ambient temperature of 25 °C or as otherwise specified.

A.16 Labeling

Luminaires shall be provided with one or more permanently affixed durable nameplates or labels that provide the information specified by ANSI C136.22-1988.

A.17 External identification of lamp size and type

External identification of the lamp used in the luminaire, if specified, shall be in accordance with ANSI C136.15-1986.

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