



**ANSI E1.32 - 2012**  
**Guide for the Inspection of Entertainment  
Industry Incandescent Lamp Luminaires**  
(Document number EP/2006-7016r10)

[blank page]



# **ANSI E1.32 - 2012**

## **Guide for the Inspection of Entertainment Industry Incandescent Lamp Luminaires**

(Document number EP/2006-7016r10)

This document was approved as an American National Standard by the  
ANSI Board of Standards Review on 3 July 2012.

This standard was originally published when the Entertainment Services and Technology Association was  
operating under the name of PLASA North America.

ESTA has reverted to its original name, and this document has been rebranded with the current corporate  
name and logo. No changes have been made to the contents of the standard.

Copyright 2017 ESTA  
All rights reserved.

## **NOTICE and DISCLAIMER**

ESTA does not approve, inspect, or certify any installations, procedures, equipment or materials for compliance with codes, recommended practices or standards. Compliance with an ESTA standard or an American National Standard developed by ESTA is the sole and exclusive responsibility of the manufacturer or provider and is entirely within their control and discretion. Any markings, identification or other claims of compliance do not constitute certification or approval of any type or nature whatsoever by ESTA.

ESTA neither guarantees nor warrants the accuracy or completeness of any information published herein and disclaims liability for any personal injury, property or other damage or injury of any nature whatsoever, whether special, indirect, consequential or compensatory, directly or indirectly resulting from the publication, use of, or reliance on this document.

In issuing and distributing this document, ESTA does not either (a) undertake to render professional or other services for or on behalf of any person or entity, or (b) undertake any duty to any person or entity with respect to this document or its contents. 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.

### **Published by:**

Entertainment Services and Technology Association  
630 Ninth Avenue, Suite 609  
New York, NY 10036  
USA  
Phone: 1-212-244-1505  
Fax: 1-212-244-1502  
[standards@esta.org](mailto:standards@esta.org)

## **The ESTA Technical Standards Program**

The ESTA Technical Standards Program was created to serve the ESTA membership and the entertainment industry in technical standards related matters. The goal of the Program is to take a leading role regarding technology within the entertainment industry by creating recommended practices and standards, monitoring standards issues around the world on behalf of our members, and improving communications and safety within the industry. ESTA works closely with the technical standards efforts of other organizations within our industry as well as representing the interests of ESTA members to ANSI, UL, and the NFPA. The Technical Standards Program is accredited by the American National Standards Institute.

The Technical Standards Council (TSC) was established to oversee and coordinate the Technical Standards Program. Made up of individuals experienced in standards-making work from throughout our industry, the Council approves all projects undertaken and assigns them to the appropriate working group. The Technical Standards Council employs a Technical Standards Manager to coordinate the work of the Council and its working groups as well as maintain a "Standards Watch" on behalf of members. Working groups include: Control Protocols, Electrical Power, Event Safety, Floors, Fog and Smoke, Followspot Position, Photometrics, Rigging, and Stage Lifts.

ESTA encourages active participation in the Technical Standards Program. There are several ways to become involved. If you would like to become a member of an existing working group, as have over four hundred people, you must complete an application which is available from the ESTA office. Your application is subject to approval by the working group and you will be required to actively participate in the work of the group. This includes responding to letter ballots and attending meetings. Membership in ESTA is not a requirement. You can also become involved by requesting that the TSC develop a standard or a recommended practice in an area of concern to you.

The Electrical Power Working Group, which authored this Standard, consists of a cross section of entertainment industry professionals representing a diversity of interests. ESTA is committed to developing consensus-based standards and recommended practices in an open setting.

## **American National Standards**

The use of American National Standards are entirely voluntary. The existence of an ANSI standard in no way precludes anyone from manufacturing, selling, marketing, purchasing or using products, procedures or processing not conforming to a standard.

Approval of an American National Standard requires that the American National Standards Institute verify that the requirements for due process, consensus and other criteria required for approval have been met by ESTA.

Consensus is arrived at when, in the judgment of the American National Standard Institute Board of Standards review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement is more than a simple majority but not necessarily everyone. (ESTA requires a Super Majority—the affirmative vote of at least two-thirds of those who voted, excluding abstentions, and more than 50% of the total voting body, including abstentions—for approval). Consensus requires that all views and objections be considered and that an effort be made toward their resolution.

An American National Standard may be revised or withdrawn at any time.

The procedures of the American National Standard Institute require that a standard be periodically reviewed and reaffirmed, revised or withdrawn.

The American National Standards Institute does not develop standards and in no circumstances will give interpretations of ANSI standards.

## **Contact Information**

### **Technical Standards Manager**

Karl G. Ruling  
ESTA  
630 Ninth Avenue, Suite 609  
New York, NY 10036  
USA  
1-212-244-1505  
[karl.ruling@esta.org](mailto:karl.ruling@esta.org)

### **Assistant Technical Standards Manager**

Erin Grabe  
ESTA  
630 Ninth Avenue, Suite 609  
New York, NY 10036  
USA  
1-212-244-1505  
[erin.grabe@esta.org](mailto:erin.grabe@esta.org)

### **Technical Standards Council Chairpersons**

Mike Garl  
Mike Garl Consulting LLC  
1-865-389-4371  
[mike@mikegarlconsulting.com](mailto:mike@mikegarlconsulting.com)

Mike Wood  
Mike Wood Consulting LLC  
1-512-288-4916  
[mike@mikewoodconsulting.com](mailto:mike@mikewoodconsulting.com)

### **Electrical Power Working Group Co-Chairpersons**

Mitch Hefter  
1-972-839-8488  
[mkhefter.p@DesignRelief.com](mailto:mkhefter.p@DesignRelief.com)

Ken Vannice  
Ken Vannice LLC  
1-503-244-8732  
[kvannice@aol.com](mailto:kvannice@aol.com)

## Acknowledgments

The Electrical Power Working Group members when this document was approved by the working group on 5 January 2012 are shown below. The company or organization listed is the company or organization represented if the member is a voting member.

### Voting members:

Patric J. Abaravich; I.A.T.S.E. Local 728; U  
Joe Boardman; Bender GmbH & Co. KG; MP  
Ron Bonner; PLASA EU; U  
Louis Bradfield; U  
Vincent J. Cannavale; Motion Laboratories; CP  
James Davey; AC Power Distribution Inc.; CP  
Jeff deRecat; Actuant Corporation; MP  
William Drake; Actuant Corporation; MP  
Howard Forryan; Harting KGAA; G  
Ian Foulds; Entertainment Electrical Safety Committee of Ontario; G  
Ed Garstkiewicz; Harting KGAA; G  
Jerry Gorrell; Theatre Safety Programs; U  
Bill Grande; Leviton Manufacturing Co., Inc.; MP  
Torsten Gruhn; Bender GmbH & Co. KG; MP  
Mitch Hefter; USITT; U  
Peter Herrmann; Motion Laboratories; CP  
David Herrmann; Motion Laboratories; CP  
Wendy Holt; Alliance of Motion Picture and Television Producers; G  
Edwin S. Kramer; I.A.T.S.E. Local 1; U  
W. G. Krokaugger PE; Mole-Richardson Co.; CP  
Roger Lattin; I.A.T.S.E. Local 728; U  
Michael Lay; Royal Philips Electronics ; MP  
Nathan Leonard; Bender GmbH & Co. KG; MP  
George Long; Aggreko; DR  
Bob Luther; Lex Products Corp.; CP  
Greg Mayberry; AC Power Distribution Inc.; CP  
Tyrone Mellon Jr.; Lex Products Corp.; CP  
Elizabeth E. (Lizz) Pittsley; U  
R. Bruce Prochal; I.A.T.S.E. Local 728; U  
Alan M. Rowe; I.A.T.S.E. Local 728; U  
Michael Scudday; SSRC, Inc.; CP  
Sean Sloat; Lex Products Corp.; CP  
Steve Terry; Electronic Theatre Controls, Inc.; MP  
Ken Vannice; Leviton Manufacturing Co., Inc.; MP  
Art Wanuch; Entertainment Electrical Safety Committee of Ontario; G  
Jody Williquette; Electrivers, Inc.; CP  
Alex Yoon; Mole-Richardson Co.; CP

### Observer (non-voting) members:

Daniel Ayers; Norcostco; DR  
Robert Barbagallo; Solotech Inc.; DR  
Lee J. Bloch; Bloch Design Group, Inc.; G  
Eric Bouchard; Cirque du Soleil; CP  
André Broucke; G  
John (Javid) D. Butler; Integrated Theatre, Inc.; CP  
Michael J. Carnaby; Mikan Theatricals; DR  
Edward R. Condit; U



Kenny Delahoussaye; Aggreko; DR  
Marsha DuBois; Pintech Stage Connectors, Inc.; CP  
Steve DuBois; Pintech Stage Connectors, Inc.; CP  
James Eade; PLASA; G  
Don Earl; Earl Girls, Inc.; DR  
Richard L. Eberth\_Jr.; Airpax Corporation; MP  
Jose J. Flores; Kino Flo, Inc.; MP  
Trevor Forrest; Helvar Lighting Control; MP  
Douglas Franz; QVC Network; U  
Phillip M. Gallo; TMB; DR  
Richard B. Glickman; Rosco Laboratories; MP  
Reuben Goldberg; Technic Services; U  
Jim Holladay; Luxence; G  
Simon Hunt; IATSE Local 891; U  
Kirk D. Keen; Hollywood Lighting, Inc.; DR  
Hiroshi Kita; Marumo Electric Co., Ltd.; MP  
Wayne Kowalski; Coleman Cable Inc.; MP  
Charles (Chuck) Kurten; Underwriters Laboratories, Inc.; G  
Marty Lazarus; Chicago Spotlight, Inc.; DR  
William L. Maiman; U  
Paul F. Mardon; Pulsar Ltd.; MP  
Pat Miller; Hubbell Inc. ; MP  
Martin Moore; DE  
David Murray; IPC Resistors Inc.; CP  
Kevin O'Brien; Bestek Lighting & Staging; U  
Natti Pierce-Thomson; North American Theatre Technology; U  
Larry Schoeneman; DesignLab Chicago, Inc.; DE  
Ford Sellers; Cornell University; U  
Mike Skinner; Alliance of Motion Picture and Television Producers; U  
Arnold Tang; Arnold Tang Productions; G  
Eric Tishman; Rosco Laboratories; MP  
Stephen Vanciel; U  
Dominic Vincenty; Television Production Service; DR  
Colin Waters; TMB; DR  
Richard Wolpert; Union Connector Company; CP  
Keith S. Woods; IATSE Local 891; U  
Jiantong Wu; Beijing Special Engineering Design & Research Institute; G

**Interest category codes:**

CP = custom-market producer  
DE = designer  
DR = dealer rental company  
G = general interest  
MP = mass-market producer  
U = user

## Table of Contents

Acknowledgments .....	v
1 Scope.....	1
2 Entertainment Industry Luminaire Inspections and Preventative Maintenance .....	1
3 Definitions .....	2
4 Before Use Luminaire Inspections .....	2
5 Routine Luminaire Inspections .....	2
6 Comprehensive Luminaire Inspections .....	3
7 Replacement Of Burned Out or Defective Lamps .....	4
8 Safety Ground and Leakage .....	4
9 Luminaires Containing Asbestos .....	4
Appendix A, Sample Inspection Checklists .....	5
Appendix B, Responsible Mercury-Containing Lamp Use .....	8
Appendix C. Bibliography .....	9

---

## ANSI E1.32 – 2012, Guide for the Inspection of Entertainment Industry Incandescent Lamp Luminaires

---

### 1 Scope

This document provides guidance in the inspection of luminaires used in the entertainment industry that use incandescent lamps, with the exception of automated luminaires. This inspection guide is intended to aid those who wish to create a luminaire inspection program and to assist a technician in identifying defects that may be hazardous to life or health and defects that may impair the appearance and/or functioning of the luminaire.

Sections of the program may be required to be modified to meet the particular requirements or needs of a facility and/or user.

The information contained in this document is intended to supplement, not replace, the information contained in manufacturer's maintenance instructions.

When there is a conflict between this recommended practice and the manufacturer's instructions, the manufacturer's instructions shall be followed.

The current version of this document does not include luminaires that use power supplies, ballast or starters. Future versions may include luminaires that use power supplies, ballasts, or starters.

Appendices are for information or illustration only and not part of the requirements of this standard.

### 2 Entertainment Industry Luminaire Inspections and Preventative Maintenance

The inspections in this document are Before Use, Routine and Comprehensive inspection of entertainment luminaires without powers supplies. The frequency of routine and comprehensive inspections should be determined by the owner/user based on usage and the working environment of the luminaire. Unless it is practical to do a comprehensive inspection in place, it is recommended that all luminaires on running productions and permanent installations be replaced with newly inspected units or removed, inspected and replaced.

Inspections should be at minimum directed by and preferably conducted by a qualified person or persons knowledgeable in the equipment being inspected the facility and/or owner's operating procedures.

In the event that any luminaire is involved in an incident, such as a batten run-away or other similar incident, it is recommended that each luminaire receives an inspection based on the inspection checklists described in sections 4 thru 6 of this document.

Any luminaire that has been removed from service because it has failed inspection or was otherwise determined to be defective shall be repaired, re-inspected, or tagged noting the defect. Tagged equipment shall not be placed in service until repaired and passes re-inspection. Tags shall not be removed until the luminaire is repaired and passes re-inspection.

All inspections shall include any additional inspections and checks required by the equipment manufacturer.

All repairs shall be made using materials that are known to meet or exceed the original materials being replaced.

*(FPN) Entertainment industry luminaires often operate at higher temperatures than general use luminaires. Wire that looks like Type SFF2 rated 150°C, normally not marked, is actually special wire rated 250°C. Crimp terminals that look like common items are actually special nickel-plated high-temperature terminals.*

All luminaire repairs should be recorded.