
NEMA
National Electrical Manufacturers Association
2022
ESPG
ELECTRICAL STANDARDS &
PRODUCTS GUIDE


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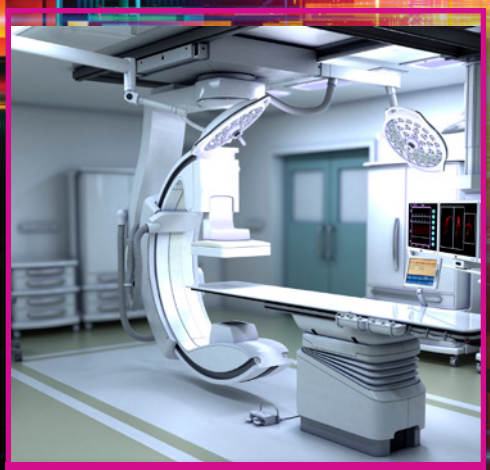


Medical Imaging

Building Systems

Founded in 1926, the **National Electrical Manufacturers Association (NEMA)** is the national trade association representing nearly 325 electrical equipment and medical imaging manufacturers that make safe, reliable, and efficient products and systems. These industries produce $130 billion in shipments and $38 billion in exports of electrical equipment and medical imaging technologies per year. Our combined industries account for 370,000 American jobs in more than 6,100 facilities covering every state.

NEMA members manufacture safe, reliable, and efficient products and systems serving seven major markets:

- Building Infrastructure
- Building Systems
- Industrial Products & Systems
- Lighting Systems
- Medical Imaging
- Transportation Systems
- Utility Products & Systems

Propelled by innovators across all sectors of the electrical and medical imaging industries, NEMA member companies make the electrification of all aspects of our industrial, commercial, and residential infrastructure possible. And across more than 100 years, our industries have delivered constantly improving products as measured by their efficiency in use and environmental stewardship in production.

Building Infrastructure

Transportation Systems

Value for NEMA Members

Market Development Through Standards

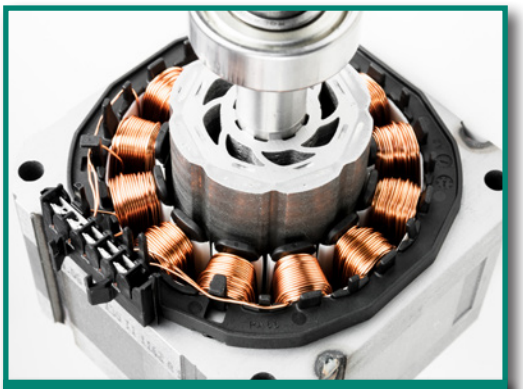
NEMA is an ANSI-accredited standards development organization comprised of business leaders, electrical experts, engineers, scientists, and technicians. We provide value for our members by developing standards to advance safety and sustainability, expand market opportunities, and create a level playing field.

From batteries, enclosures, and switchgear to lighting, motors, and medical imaging, NEMA publishes more than 1,000 electrical standards and technical papers that cover millions of member products. These standards play a key part in the design, production, and distribution of products destined for national and international commerce.

Advocacy at all Levels of Government

NEMA is the voice of the electroindustry that commands the attention of policymakers and regulators. We represent the collective interests of America's electrical and medical imaging manufacturers at every level of government, including local building codes, infrastructure funding, national energy laws, and international trade.

NEMA works for its members by engaging in policy advocacy to grow markets and reduce regulatory barriers.



Industrial Products & Systems

Actionable Business Intelligence

NEMA develops tailored, industry-specific market and statistical programs that benefit participating companies.

Our suite of Analytics and Business Intelligence Services includes exclusive industry market data, benchmarking studies, economic analysis and forecasting, custom survey research, and data gathering and packaging.

Events and Webinars

As a national trade association, NEMA convenes a neutral forum for members to discuss industry-wide concerns and objectives under a legal umbrella by trained NEMA Staff. Throughout the year, NEMA holds forums, events, and webinars allowing manufacturers within each market sector to discuss dynamic industry-wide issues and determine value-added opportunities for NEMA.

The NEMA Annual Meeting is the premier industry event for U.S. electroindustry executives and select industry suppliers to network, learn about the trends important to electrical and medical imaging manufacturers, and honor the best and brightest in the industry.

Advanced Imaging Technologies

The Medical Imaging & Technology Alliance (MITA), a division of NEMA, is the leading organization and collective voice of medical imaging equipment, radiopharmaceutical manufacturers, innovators, and product developers. MITA represents companies whose sales make up more than 90 percent of the global market for advanced imaging technologies. The alliance's mission is to reduce regulatory barriers, establish standards, and advocate for the medical imaging industry.

Utility Products & Systems

Lighting Systems

Shop the NEMA Standards Store and Save

Explore the NEMA Standards Store at www.nema.org/standards-store where you can:

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- Manage your Standards with a subscription
- Earn discounts with a customer rewards program

NEMA standards are often approved as American National Standards under the procedures of the American National Standards Institute (ANSI), usually under the Canvass Method.

Top 10 Selling Standards by Volume

- **ANSI Z535** Safety Alerting Standards, a series of American National Standards for safety signs, symbols, and colors
- **ANSI/NEMA MW 1000** Magnet Wire
- **NEMA 250** Enclosures for Electrical Equipment
- **NEMA MG 1** Motors & Generators
- **NEMA PB 1.1** General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 V or Less
- **ANSI/IEC 60529** American National Standard for Degrees of Protection Provided by Enclosures (IP Code) (Identical National Adoption)
- **ANSI C84.1** American National Standard for Electric Power Systems and Equipment— Voltage Ratings (60 Hz)
- **ANSI/NEMA WC 27500** American National Standard for Aerospace and Industrial Electrical Cable
- **NEMA BU 1.1** General Instructions for Handling, Installation, Operation and Maintenance of Busway Rated 600 V or Less
- **ANSI/NEMA HP 3** Electrical and Electronic Polytetrafluoroethylene (PTFE) Insulated High-Temperature Hook-Up Wire, Types ET (250 V), E (600 V) and EE (1,000 V)

New Releases

Lifecycle Best Practices Framework for Medical Imaging Devices
NEMA/MITA CSP 2

American National Standard for Lighting Systems—Networked Open Parking Lot Lighting Systems
ANSI C137.7

NEMA Position Paper: Use of Supplier's Declaration of Conformity (SDoC) in the U.S. Workplace
NEMA IRSC 100

Stainless Steel Conduit and Tubing
NEMA SSC 1

Germicidal Irradiation and the Energy Codes
NEMA LSD EB 84

American National Standard for Electricity Meters for the Measurement of DC Energy
ANSI C12.32

Metal Cable Bus Systems
NEMA CB 15000

Extruded Insulated Magnet Wire
NEMA XW 1000

High Ambient Temperature Test Procedure for Wiring Devices
NEMA WD 50000

American National Standard for Lighting Systems—Energy Reporting Requirements for Lighting Devices
ANSI C137.5

Lithium-Ion Battery Fires Guidance Document
NEMA BS 30000

American National Standard for Lighting Systems—Data Tagging Vocabulary (Semantic Model Elements)for Interoperability
ANSI C137.6

A NEMA Motor and Generator (IS-MG) Section Document Guide for Validating an Alternative Efficiency Determination Method (AEDM)
NEMA MG G2

American National Standard for Roadway and Area Lighting Equipment—Metering Performance Requirements for LED Drivers with Integral Energy Measurement
ANSI C136.52

In-Building Two-Way Emergency Responder Communications Enhancement Systems (ERCES) White Paper
NEMA ERCES 1

BIM Data Requirements for Electrical Products in Support of Design, Construction, Operation, and Maintenance
NEMA BIM 100

American National Standard for Lighting Equipment—LED Drivers Robustness
ANSI C82.15

Composite Insulators Guy Insulator Type (Uncoated or Painted Type)
NEMA C29.14b

Purchasing Specification Guidance for Circuit Breaker Control Cabinets
NEMA US G 111

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STANDARDS & OTHER PUBLICATIONS

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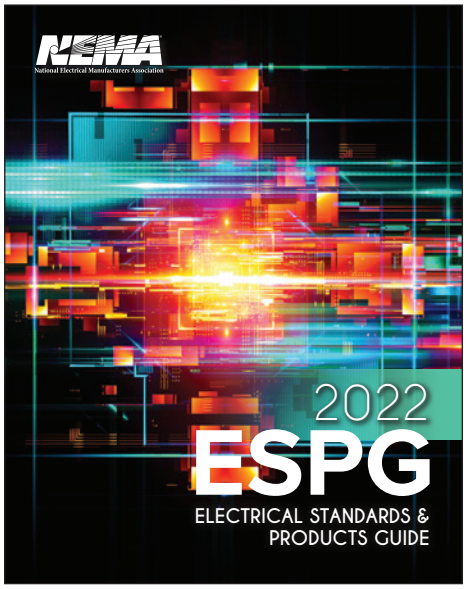

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National Electrical Manufacturers Association

About NEMA:

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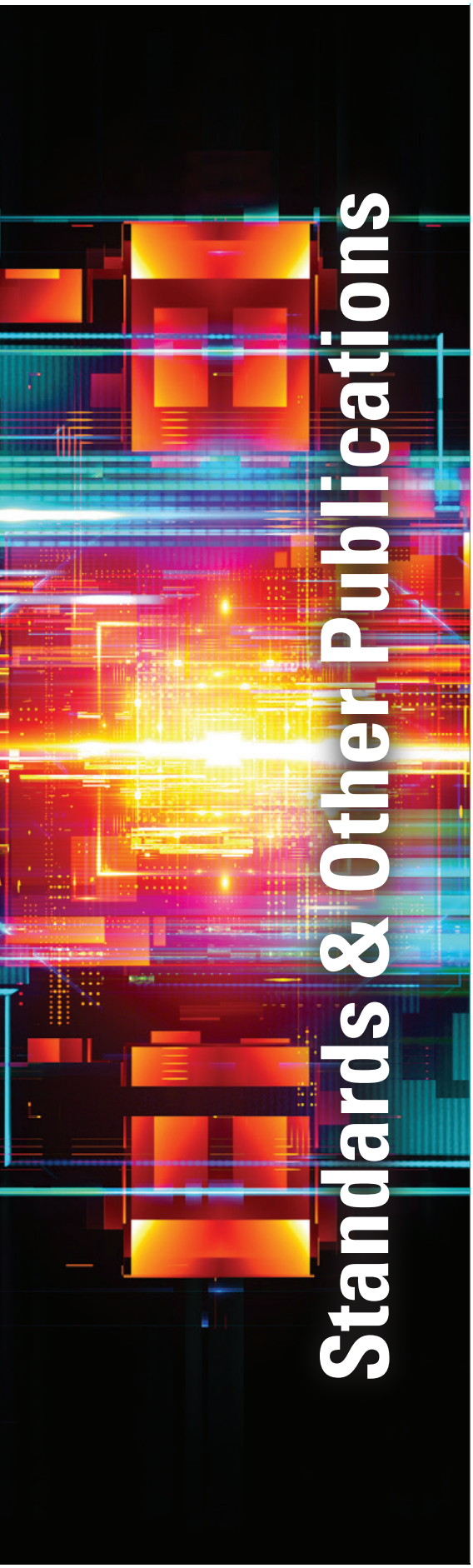

STANDARDS CATEGORIES

AFCIs

Circuit Breakers (CB)
Addresses CB AFCIs. AFCIs are available as circuit breakers and as receptacles (Outlet Branch Receptacle [OBR]). CB AFCIs are tested and Listed to UL-1699 requirements. Both types can be installed per the 2014 *National Electrical Code®*. A stand alone paper is available for each AFCI type. This paper addresses CB AFCIs. The OBC AFCI is described in a similar document available at www.nema.org/Standards/Pages/Outlet-Branch-Receptacle.aspx. Cross-referencing the two papers provides the user/specifier/installer with all the important facts to decide which type best suits the intended installation.
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Outlet Branch Receptacle (OBC)
Addresses OBC AFCIs. AFCIs are available as circuit breakers (CBs) and as receptacles. OBC AFCIs are tested and Listed to UL 1699A requirements. Both types can be installed per the 2014 *National Electrical Code®*. A stand alone paper is available for each AFCI type. The CB AFCI is described in a similar document available at www.nema.org/Standards/Pages/Circuit-Breakers.aspx. Cross-referencing the two papers provides the user/specifier/installer with all the important facts to decide which type best suits the intended installation.
No charge
Buy Now

ANSI C78.5-2017
American National Standard for Electric Lamps—Specifications for Performance of Self-ballasted Compact Fluorescent Lamps
This standard specifies the performance requirements together with the test methods and conditions required to show compliance of self-ballasted compact fluorescent lamps up to 60 W which are intended for domestic and similar general lighting purposes.
$68
Buy Now

ANSI C82.5-2016
American National Standard for Reference Ballasts—High-Intensity-Discharge and Low-Pressure Sodium Lamps
Describes the essential features and operating characteristics of reference ballasts for high-intensity discharge and low-pressure sodium lamps to operate on 60-Hz sinusoidal ballast systems.
$168
Buy Now

Arc Welding

ANSI/NEMA/IEC 60974-1-2019
American National Standard for Arc-Welding Equipment—Part 1: Welding Power Sources
This part of IEC 60974 is applicable to power sources for arc welding and allied processes designed for industrial and professional use, and supplied by a voltage not exceeding 1000 V, battery supplied or driven by mechanical means.
$223
Buy Now

ANSI/NEMA/IEC 60974-2-2021
American National Standard for Arc-Welding Equipment—Part 2: Liquid Cooling Systems
Specifies safety and construction requirements for industrial and professional liquid cooling systems used in arc welding and allied processes to cool torches. (national adoption of IEC 60974-2, edition 4 with modifications and revision of ANSI/NEMA/IEC 60974-2-2008).
$97
Buy Now

ANSI/NEMA/IEC 60974-3-2021
American National Standard for Arc-Welding Equipment—Part 3: Arc Striking and Stabilizing Devices
Specifies safety requirements for industrial and professional arc striking and arc stabilizing devices used in arc welding and allied processes. (national adoption of IEC 60974-3, edition 4 with modifications and revision of ANSI/NEMA/IEC 60974-3-2008).
$97
Buy Now

ANSI/NEMA/IEC 60974-5-2021
American National Standard for Arc-Welding Equipment—Part 5: Wire Feeders
Specifies safety and performance requirements for industrial and professional equipment used in arc welding and allied processes to feed filler wire. (national adoption of with modifications and revision of ANSI/NEMA/IEC 60974-5-2008).
$97
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ANSI/NEMA/IEC 60974-6 2019
Arc Welding Equipment—Part 6: Limited Duty Equipment
This part of IEC 60974 specifies safety and performance requirements applicable to limited duty arc welding and cutting power sources and auxiliaries designed for use by laymen. Electrically powered equipment is intended to be connected to the single phase public low-voltage supply system. Engine driven power sources cannot exceed output power of 7,5 kVA.
$166
Buy Now

ANSI/NEMA/IEC 60974-7-2021
American National Standard for Arc-Welding Equipment—Part 7: Torches
Specifies safety and construction requirements for torches used for arc welding and allied processes. This document is applicable to manual, mechanically guided, air-cooled, liquid-cooled, motorized, spool-on and fume extraction torches. (national adoption of IEC 60974-7, edition 4 with modifications and revision of ANSI/NEMA/IEC 60974-7-2009).
$111
Buy Now

ANSI/IEC 60974-8-2009 (R2020)
American National Standard for Arc-Welding Equipment—Part 8: Gas Consoles for Welding and Plasma Cutting Systems
Specifies requirements for safety and performance for gas consoles intended to be used with combustible gases or oxygen. An adoption, with U.S. differences, of the first edition of IEC 60974-8 (2004).
$105
Buy Now

ANSI/NEMA/IEC 60974-11-2009 (R2020)
American National Standard for Arc-Welding Equipment—Part 11: Electrode Holders
Details safety and performance requirements of electrode holders for manual metal arc welding using electrodes up to 10 mm in diameter. An adoption, with U.S. differences, of the second edition of IEC 60974-11 (2004).
$84
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ANSI/NEMA/IEC 60974-12-2009 (R2020)
American National Standard for Arc-Welding Equipment—Part 12: Coupling Devices for Welding Cables
Enumerates safety and performance requirements of coupling devices for cables used in welding (except underwater welding) and allied processes. The coupling devices covered are designed for connection and disconnection without the use of tools. An adoption, with U.S. differences, of the second edition of IEC 60974-12 (2005).
$84
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NEMA EW 1-1988 (R1994, R1999, R2004, R2019)
Electric Arc-Welding Power Sources
Defines performance characteristics, ratings and test procedures for ac and dc arc-welding apparatus and associated equipment, as well as recommended installation and test procedures for high-frequency stabilized arc-welding machines.
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NEMA EW 3-1983 (R1995, R1999, R2002, R2020)
Semi-Automatic Wire-Feed Systems for Arc Welding
Defines construction standards, performance characteristics and test procedures for wire-feed systems used in most types of arc-welding processes.
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NEMA EW 4-2009
Graphic Symbols for Arc-Welding and Cutting Apparatus
Establishes graphic symbols for arc-welding and cutting apparatus that identify controls, indicators, connection points, junctions and processes. Usage examples are also provided. Online access to artwork from Table 1 is forthcoming.
$200 | Electronic Copy: $0
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NEMA EW 6-2006
Guidelines for Precautionary Labeling for Arc-Welding and Cutting Products
Provides guidelines for manufacturers and suppliers in the arc-welding and cutting industry to assist them in preparation of precautionary labels for their products. Guidelines cover content, format and placement of text-only, text-and-symbol, symbol-only and multi-language labels.
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NEMA EW 9-2012
Arc Welding Power Sources—Energy Consumption Testing and Labeling
Provides the necessary guidance for manufacturers and importers of arc welding power source equipment to uniform energy consumption reporting requirements of the Mexican *Law for Sustainable Energy Use,* published in the Official Gazette of Federation, on November 28, 2008, article 23.
$74
Buy Now

Batteries

ANSI C18.1M, Part 1-2015
American National Standard for Portable Primary Cells and Batteries with Aqueous Electrolyte—General and Specifications
Applies to portable primary cells and batteries with aqueous electrolyte and a zinc anode.
$162
Buy Now

ANSI C18.1M, Part 2-2019
American National Standard for Portable Primary Cells and Batteries with Aqueous Electrolyte—Safety Standard
Specifies performance requirements for portable primary batteries with aqueous electrolyte and zinc anode (non-lithium) to ensure their safe operation under normal use and reasonably foreseeable misuse.
$126
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ANSI C18.2M, Part 1-2019
American National Standard for Portable Rechargeable Cells and Batteries—General and Specifications
Applies to portable rechargeable or secondary cells and batteries based on the following electrotechnical systems: nickel cadmium, nickel metal hydride and lithium ion.
$137
Buy Now

ANSI C18.2M, Part 2-2021
American National Standard for Portable Rechargeable Cells and Batteries—Safety Standard
Specifies performance requirements for standardized portable lithium ion, nickel cadmium and nickel metal hydride rechargeable cells and batteries to ensure their safe operation under normal use and reasonably foreseeable misuse.
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ANSI C18.3M, Part 1-2019
American National Standard for Portable Lithium Primary Cells and Batteries—General and Specifications
Applies to portable lithium primary cells and batteries, including the following electrochemical systems: lithium carbon monofluoride, lithium manganese dioxide and lithium iron disulfide.
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Buy Now

ANSI C18.3M, Part 2-2021
American National Standard for Portable Lithium Primary Cells and Batteries—Safety Standard
Specifies tests and requirements for primary cells and batteries, including lithium carbon monofluoride, lithium manganese dioxide and lithium iron disulfide, to ensure their safe operation under normal use and reasonably foreseeable misuse.
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ANSI C18.4M-2017
American National Standard for Portable Cells and Batteries—Environmental
Sets forth some general considerations that should be taken into account when developing battery standards that balance the need to achieve the intended product performance while reducing adverse environmental effects, and outlines ways in which provisions in battery standards might affect the environment during the stages of its life cycle.
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ANSI C18.5M, Part 1-2020
American National Standard for Portable Lithium Rechargeable Cells and Batteries—General and Specifications
Applies to portable rechargeable, or secondary, lithium cells and batteries, covering secondary lithium cells and batteries with a range of chemistries. Defines a minimum required level of performance and a standardized methodology.
$100
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Busways & Accessories

NEMA BU 1.1-2005 (Spanish)
Instrucciones Generales para el Manejo, Instalacion, Operacion y Mantenimiento de Electroductos Hasta 600 V Nominales o Menos
Esta norma se aplica a productos para la distribución de energía eléctrica hasta 600 V o menores, compuestos de electroductos cerrados en secciones prefabricadas con una capacidad nominal de 100 A o más y estructuras y accesorios asociados, clasificados en la forma siguiente a) electroducto alimentador (interior o exterior), b) electroducto conectador (solamente interior), y c) accesorios necesarios para completar el sistema de electroducto. Esta norma no aplica a los electroductos metálicos cerrados como se describe en la Norma C37.23 de la ANSI/IEEE.
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NEMA BU 1.1-2010
General Instructions for Handling, Installation, Operation and Maintenance of Busway Rated 600 V or Less
Covers products for distribution of electric power at 600 V or less, consisting of enclosed sectionalized prefabricated busbars rated at 100 A or more and associated structures and fittings, classified as follows feeder busways (indoor or outdoor), plug-in busways (indoor only) and accessories required to complete the busway system.
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NEMA BU 1.2-2002 (R2008, R2013)
Application Information for Busway Rated 600 V or Less
Covers products for distribution of electric power at 600 V or less, consisting of enclosed sectionalized prefabricated busbars rated at 100 A or more.
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NEMA CB 15000-2020
Metal Cable Bus Systems
Provides technical requirements concerning the construction, testing, and performance of metal cable bus systems.
$44
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Carbon/Manufactured Graphite

NEMA CB 1-2000 (R2012)
Brushes for Electrical Machines
Provides definitions, dimensions and tolerances, test procedures for physical properties, and test procedures for shunt connections for brushes used in the electrical manufacturing industry. Included are carbon, carbon graphite, graphite, electrographite, metal graphite, metal impregnated and resin-bonded brushes.
$261
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NEMA CG 1-2013
Manufactured Graphite/Carbon Electrodes
This edition of NEMA CG 1 harmonized dimensions with two IEC documents (IEC/TR 62157 – Cylindrical Machined Carbon Electrodes—Nominal Dimensions and IEC 60239—Graphite electrodes for electric arc furnaces—Dimensions and designation). Therefore electrode dimensions are not contained in this document and instead reference directly to these IEC document.
$96
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NEMA CG 2-2004
Powdered Graphite
Covers terminology and test methods for those physical and chemical properties relevant to the material characterization of powdered graphite, generally less than 75 microns, used in the electrical industry.
$101
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Communications & Signaling

NEMA BS 30000-2021
Lithium-Ion Battery Fires Guidance Document
Provides information on the issues related to the use of lithium-ion batteries, how fires start in batteries and on how they may be detected, controlled, suppressed and extinguished.
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NEMA ERCES 1-2021
In-Building Two-Way Emergency Responder Communications Enhancement Systems (ERCES) White Paper
Provides educational awareness to installation contractors, engineers, and end-users, Authorities Having Jurisdiction (AHJs), and Federal Communication Commission (FCC) License Holders about ensuring indoor wireless communications for Emergency Responders.
No charge
Buy Now

ANSI/NEMA SB 40-2015
Communications Systems for Life Safety in Schools
Covers the application, installation, location, performance and maintenance of school communications systems and their components associated with the life safety of students, faculty, administrative staff and all other occupants affiliated with educational facilities.
$40 | Electronic Copy: $0
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NEMA GD 3-2019
Evaluating Earthquake Damaged Electrical Equipment Guide
Provides information on how to evaluate electrical equipment that has been exposed to earthquakes. This guide is designed for suppliers, installers, inspectors, and users of electrical products. *Also available in Spanish.
No Charge
Buy Now

NEMA GD 3-2019 (Spanish)
Guía de evaluación de equipos eléctricos dañados por terremotos
Proporciona información sobre cómo evaluar equipos eléctricos que han estado expuestos a terremotos. Esta guía está diseñada para proveedores, instaladores, inspectores y usuarios de productos eléctricos.
No Charge
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NEMA SB 1-2014
Quality Informational Guide for Automatic Fire Detection and Alarm Systems
Provides guidance to Authorities Having Jurisdiction (AHJ) for establishing programs to ensure highly reliable fire detection and alarm systems in his or her community. This document contains a recommended model ordinance to assist AHJ through improving the reliability of existing systems, including dealing with false, or nuisance, alarms.
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NEMA SB 2-2016
Training Manual on Fire Alarm Systems
Covers terminology, basic theory of operation, installation details, system start-up techniques and general maintenance of fire alarms, and is intended to be used as source material for the fire service, fire marshals and all fire alarm sales, design and installation organizations. It is ideal as a reference guide and can be used in a classroom setting for learning about fire alarm systems.
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NEMA SB 7-2018
Applications Guide for Carbon Monoxide Alarms and Detectors
Covers carbon monoxide (CO) detection devices, including single- and multiple-station CO alarms and system-connected CO detectors and sensors connected to a control unit.
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NEMA SB 10-2016
Audio Standard for Nurse Call Systems
Contains requirements and test procedures for evaluating audio quality of installed nurse call systems.
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Guide for Proper Use of System Smoke Detectors
Provides information about applications of smoke detectors used in conjunction with fire alarm systems. Outlines operating characteristics of detectors and environmental factors that aid or prevent their operation.
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NEMA SB 11-2017 Spanish
Guía para el uso adecuado de los detectores de humo del sistema
El objetivo de esta guía es proporcionar información sobre la aplicación correcta de los detectores de humo utilizados junto con los sistemas de alarma contra incendios. En esta se exponen los principios básicos que deben tenerse en cuenta en la aplicación de los dispositivos de alerta temprana de incendios y detección de humos.
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NEMA SB 13-2020
Guide for Proper Use of Smoke Detectors in Duct Applications
Provides information concerning the proper use of smoke detectors in duct applications.
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NEMA SB 20-2015
Guide to Understanding Smoke Control Systems
This guide is intended to offer a general understanding of smoke control systems to individuals who have a need or desire for solid basic information but do not need the in-depth knowledge necessary to design smoke control systems.
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NEMA SB 23-2016
Guide for Application of Flame Detection
Provides information concerning the proper use of flame-detection systems. It covers the major technologies used for flame detection, application, selection, installation, and testing.
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NEMA SB 50-2021
Emergency Communications Audio Intelligibility Applications Guide
Assists specifiers and Authorities Having Jurisdiction with the concepts and terminology used to enhance intelligibility for emergency voice paging systems.
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NEMA SB 50-2021 SPANISH
Guía de aplicaciones de inteligibilidad de audio para comunicaciones de emergencia
Ayuda a los especificadores y a las Autoridades con Jurisdicción con los conceptos y la terminología utilizados para mejorar la inteligibilidad de los sistemas de localización por voz de emergencia.
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NEMA SBP 1-2010
Looking Ahead to UL 2560
Discusses the upcoming UL standard for minimum performance of emergency call systems in senior living communities, including likely requirements.
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NEMA SBP 2-2021
Multi-Criteria Detectors (MCD)
Provides an introduction to the next evolution in life saving early warning smoke and fire detection.
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NEMA SBP 3-2017
The Changing Communications within Fire Alarm System Reporting
Explains options for fire alarm system communications.
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NEMA SBP 4-2015
Low Frequency Audible Signals
Addresses the need for and the development of the low-frequency audible signal used in fire alarms, carbon monoxide (CO) alarms, and fire or CO alarm systems.
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NEMA SBP 5-2015
Considerations in Planning Code Call Implementation in Health Care Facilities
Assists facility developers and owners in designing a code call system and associated call handling processes, with the purposes of optimizing response time and complying with regulatory requirements.
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NEMA SBP 6-2008
UL 1069 Standard for Hospital Signaling and Nurse Call Equipment White Paper
These requirements cover the individual units employed to form a hospital nurse call system (NCS) intended to provide audible and visual communication between patients and hospital personnel. They also cover miscellaneous signaling equipment employed in hospitals.
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Conduit

Annular Space Protection of Openings Created by Penetrations of Tubular Steel Conduit, A Review of UL Special Service Investigation, File NC 546, Project 90NK11650
Summarizes the results of a study of various annular space protection materials installed in a concrete block wall, concrete floor assemblies, gypsum wallboard/wood joist/plywood deck floor-ceiling assemblies and two varieties of gypsum wallboard/steel stud wall assemblies.
No charge
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Conduit-in-Casing Construction
Lists the types of casings, conduit and spacers that are used, provides details about how the conduit-in-casing process works, and explains the process of laying power/communication cables under a surface obstruction.
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Instrucciones Generales para el Manejo, Instalacion, Operacion y Mantenimiento Correcto de Tableros de Distribucion de Frente Muerto Hasta 600 V Nominales o Menos
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Application Guide for Ground-Fault Protective Devices for Equipment
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EV Charging Network Interoperability Standard Part 2: A Contactless RFID Credential for Authentication (U_R Interface)
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Programmable Controllers (PLC), Part 8: Guidelines for the Application and Implementation of Programming Languages
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American National Standard for Incandescent Lamps—A, G, PS and Similar Shapes with E39 Mogul Screw Bases
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American National Standard for Electric Lamps—Self-Ballasted Mercury Lamps
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American National Standard for Electric Lamps—LED (Light Emitting Diode) Lamps—Method of Designation
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American National Standard for Electric Lamps—LED (Light Emitting Diode) Direct Replacement Lamps—Method of Designation
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American National Standard for Electric Lamps—Specification Sheet for Tubular Fluorescent Replacement and Retrofit LED Lamps
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American National Standard for Electric Lamps—LED Lamp Specification Sheets for HID Replacement and Retrofit Applications
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American National Standard for Electric Lamps—Double-Capped Fluorescent Lamps—Dimensional and Electrical Characteristics
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American National Standard for Electric Lamps—Specifications for Fluorescent Lamp Starters
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American National Standard for Specification for Tubular Incandescent Infrared Lamps
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ANSI C78.357-2010
American National Standard for Incandescent Lamps—Tungsten Halogen Lamps (Non-Vehicle)
Specifies performance requirements for various single-ended, double-ended, integral reflector, and PAR tungsten halogen lamps, with rated voltages up to 277 V, and used for projection, photographic, (floodlight), special purpose, general lighting service (GLS), and stage-studio lighting applications.
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American National Standard for Method of Designation for Electric Lamps—Photographic, Stage and Studio
Describes a system for the designation of photographic, stage and studio lamps.
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American National Standard for Electric Lamps—Amendments to ANSI C78.370-1997 and ANSI C78.390-1998
Supplements C78.370-1997 and C78.390-1998.
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American National Standard for Electric Lamps—Light-Emitting Diode Package Specification Sheet for General Illumination Applications
Specifies the standardized white light-emitting diode (LED) package specification sheet, or data reporting format, as the means of communication between LED package producers and users in general illumination applications. The minimum defined contents and format of the specification sheet are provided.
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American National Standard for Electric Lamps—Fluorescent Lamps—Guide for Electrical Measures
Describes the procedures to be followed and the precautions to be observed in obtaining uniform and reproducible measurements of the electrical characteristics of fluorescent lamps under standard conditions when operated on alternating current (ac) circuits. These methods are applicable both to lamps having hot cathodes—switch-start (preheat-start), rapid-start (continuously heated cathodes), or instant-start—and to lamps of the cold-cathode variety.
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American National Standard for Electric Lamps—Specifications for the Chromaticity of Fluorescent Lamps
Covers the objectives and tolerances for the chromaticity of fluorescent lamps at their normal 100 hour rating point. The colors included are 2700K, 3000K/warm white, 3500K/white, 4000K/4100K/cool white, 5000K, and 6500K/daylight.
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American National Standard for Electric Lamps—Specifications for the Chromaticity of Solid State Lighting (SSL) Products
Specifies the range of chromaticities recommended for general lighting with SSL products and ensures that the white light chromaticities of the products can be communicated to consumers. Applies to LED-based SSL products with control electronics and heat sinks incorporated.
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American National Standard for Electric Lamps—Classification of the Beam Patterns of Reflector Lamps
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American National Standard for Electric Lamps—High-Intensity Discharge (HID)—Method of Designation
Describes a system for the designation of high-intensity discharge lamps, including compact, enclosed-arc discharge light sources such as mercury, metal halide, high-pressure sodium, and similar types of lamps. For convenience, low-pressure sodium lamps, although technically not high-intensity discharge lamps, are included with the group.
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ANSI C78.381-1961 (R2011, S2016)
American National Standard for Electric Lamps—Method for the Designation of Glow Lamps
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Describes a designation system for glow lamps.
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ANSI C78.385-1961 (S2016)
American National Standard for Electric Lamps—Methods of Measurement of Glow Lamps
Outlines the procedures to be followed and the precautions to be observed in testing glow lamps.
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ANSI C78.389-2004 (S2018)
American National Standard for Electric Lamps—High-Intensity Discharge (HID)—Methods of Measuring Characteristics
Describes the procedures to be followed and the precautions to be observed in measuring the electrical characteristics of HID lamps as outlined in the ANSI specifications for mercury, high-pressure sodium and metal halide lamps, as referenced in Clause 2, Normative References.
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ANSI C78.390-2006 (S2020)
American National Standard for Electric Lamps—Miniature and Sealed-Beam Incandescent Lamps—Method of Designation
Describes a voluntary system for the method of designation of miniature and sealed-beam lamps. The method is intended to provide lamp manufacturers a means to request a designation.
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ANSI C78.391-2004 (R2009, R2016)
American National Standard for Electric Lamps—Characteristics of Subminiature Lamps of T1 and T1-3/4 Shapes
This standard sets forth the physical and electrical characteristics of those groups of subminiature incandescent lamps with T1 and T1-3/4 bulb shapes. Lamps with various base or termination configurations are included.
$101
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ANSI C78.682-1997 (R2016)
American National Standard for Electric Lamps—Standard Method of Measuring the Pinch Temperature of Quartz Tungsten-Halogen Lamps
Specifies details of the type of thermocouple to be used to measure the pinch temperature of quartz-tungsten-halogen lamps, the methods of preparation of the lamp and thermocouple, and the measurement to be made.
$128
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ANSI C78.901-2016
American National Standard for Electric Lamps—Single-Based Fluorescent Lamps—Dimensional and Electrical Characteristics
Sets forth the physical and electrical characteristics required to ensure interchangeability and to assist in the proper application of single-based fluorescent lamps.
$638
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ANSI C78.1195-2016
American National Standard for Electric Lamps—Double-Capped Fluorescent Lamps—Safety Specifications
Adopted by ANSI ASC C78 as a nationally acknowledged international standard, this revision of IEC 61195, ed2.2 (2014-09) includes deviations for clauses 2 and 3.
$65
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ANSI C78.1199-2016
American National Standard for Electric Lamps— Single-Capped Fluorescent Lamps—Safety Specifications
The American National Standards ASC C78 adopts IEC 61199, ed 3.2 (2014-07) as a Nationally Acknowledged International Standard with deviations given in clauses 2 and 3.
$65
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ANSI C78.1381-1998
American National Standard for Electric Lamps—70 W, M85 Double-Ended Metal Halide Lamps
Includes metal halide lamp designations assigned in accordance with C78.380.
$63
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ANSI C78.1401-2004 (R2009, R2016)
American National Standard for Electric Lamps—Dimensions for Projection Lamps—Double-Contact, Medium Ring (Special B), Base-up Type
This standard establishes the dimensions essential to the interchangeability of lamps of the double-contact, medium ring (Special B), base-up type. It is not intended to prescribe either operating characteristics or details of design, such as the shape of the ventilation ports or the method of attachment of the prefocus ring to the base.
$68
Buy Now

ANSI C78.1402-2004 (S2018)
American National Standard for Electric Lamps—Four-Pin, Prefocus, Base-Down Type
Establishes the dimensions essential to the interchangeability of four-pin, prefocus projection lamps for base-down operation of T10 and T12 bulb sizes.
$54
Buy Now

ANSI C78.1403-1997
American National Standard for Electric Lamps—Tungsten Halogen (TH) Lamps with G6.35, GX6.35 and GY6.35 Bases

Defines the dimensional limits and other physical characteristics required to ensure interchangeability and to assist in the proper application of a specific category of lamps. This category is TH lamps with G6.35, GX6.35 and GY6.35 two-pin bases and 27.0 to 40 mm nominal light center length.

$88

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ANSI C78.1406-2004(S2020)
American National Standard for Electric Lamps—P28 Single-Contact Medium Prefocus-Based Projection Lamps for Base-Down Operation—Dimensions

Establishes the dimensions essential to interchangeability of single-contact medium prefocus-based projection lamps of T10 and T12 bulb sizes.

$54

Buy Now

C78.1407-2004 (S2020)
American National Standard for Electric Lamps—Condenser-Reflector, Four-Pin Prefocus-Base Projection Lamps—Dimensions

Specifies the dimensions essential to the interchangeability of condenser-reflector lamps having four-pin prefocus bases, T12 or T14 bulbs, and used in 8mm motion-picture projectors.

$60

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ANSI C78.1408-2004 (S2020)
American National Standard for Electric Lamps—CBA Projection Lamp

Provides information on the description, ratings, restrictions, physical characteristics, dimensions, life, illumination, seal temperature and operating temperature of a lamp that has been Lamp Code Designated as a CBA projection lamp.

$60

Buy Now

ANSI C78.1413-2001
American National Standard for Dimensions and Centering Systems for Projection Lamps—51 mm (2 in.) Integral Reflector, Rim Reference Lamps with GX5.3, GY5.3 and GU5.3 Bases

Specifies detailed dimensions for 51 mm (2 in.) integral reflector rim reference projection lamps with GX5.3, GY5.3, or GU5.3 bases to ensure interchangeability within the appropriate holding systems. The lamps provide references for mounting at their reflector rims.

$111

Buy Now

ANSI C78.1417-1997
American National Standard for 1.65 in. (42 mm) Integral Reflector, Rim Reference Projection Lamps with GX5.3 or GY5.3 Bases—Dimensions and Centering Systems

Specifies the detailed lamp dimensions for those lamps in the family of 1.65 in. (42 mm) integral reflector, rim reference lamps with GX5.3 or GY5.3 bases such that interchangeability within the appropriate holding system will be ensured.

$75

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ANSI C78.1420-2001
American National Standard for Microfilm Projection Lamps—2 in. (51 mm) Dichroic Coated Integral Reflector, Rim Reference Tungsten Halogen Lamps with GX5.3 Bases

Consolidates the lamps commonly used for microfilm projectors into a single performance standard.

$129

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ANSI C78.1421-2002
American National Standard for Dimensions and Centering Systems for Projection Lamps—35 mm Integral Reflector, Rim Reference Lamps with GZ4 Bases

Specifies lamp dimensions of 35 mm (1.38 in.) diameter integral reflector rim reference projection lamps with GZ4 bases so that interchangeability with the appropriate holding systems will be ensured.

$84

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ANSI C78.1430-1997 (R2009, R2016)
American National Standard for Electric Lamps—Slide Projector Lamps, Condensing, Dichroic, 1.65-in. (42 mm), Integral Reflector, Rim Reference Tungsten-Halogen Lamps with GX5.3 Bases

This standard consolidates the lamps commonly used for slide projectors into a single standard. The lamps contained in this standard are not to be considered as interchangeable, although physically they will all fit the common GX5.3 sockets. The photometry of each lamp is dependent upon the system for which it was designed and on the system in which it is used. A sample system and representative photometric values are found in the Annex.

$68

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ANSI C78.1431-1997 (R2016)
American National Standard for Electric Lamps—Slide Projector Lamps, Condensing, Dichroic, Two-inch (51 mm), Integral Reflector, Rim Reference Tungsten-Halogen Lamps with GY 5.3 Bases

Consolidates the lamps commonly used for slide projectors into a single standard. The lamps contained in this standard are not to be considered as interchangeable—they will all fit the common socket used for these lamps.

$76

Buy Now

ANSI C78.1432-1997 (S2018)
American National Standard for Tungsten Halogen (TH) Lamps with GZ9.5 Two-Pin, Prefocus Bases and 36.5 mm Nominal Light Center Length

Defines the dimensional limits and other physical characteristics required to ensure commonality and interchangeability and to assist in the proper application of TH lamps.

$59

Buy Now

ANSI C78.1433-2001 (S2018)
American National Standard for 2 in. (51 mm) Dichroic Coated Integral Reflector, Rim Reference Tungsten Halogen (TH) Large-Screen Projection Lamps with GX5.3 Bases

Consolidates standards for low voltage 2 in. (51 mm) dichroic coated integral reflector, rim reference TH lamp types with GX5.3 bases designed for large-screen projection systems and used in 8 mm and 16 mm projection, slide projector, photo enlarger and printing applications.

$105

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ANSI C78.1434-2001 (S2018)
American National Standard for Condensing Dichroic Coated Integral Reflector Side-Pin Tungsten Halogen (TH) Projection Lamps with GX7.9 Bases

Consolidates previous standards for certain low voltage condensing dichroic coated integral reflector side-pin TH projection lamps with GX7.9 bases designed for large-screen projection systems and used in 8 mm and 16 mm projector applications.

$145

Buy Now

ANSI C78.1435-2002 (S2018)
American National Standard for Projection Lamps—Tungsten Halogen Lamps with G5.3 Bases

Consolidates projection lamps with G5.3 bases into a single standard.

$70

Buy Now

ANSI C78.1450-1983 (R2002)
American National Standard for Projection Lamps, Incandescent—Method for Life Testing

Defines the dimensional limits and other physical characteristics required to ensure commonality and interchangeability and to assist in the proper application of projection lamps.

$49

Buy Now

ANSI C78.1451-2002 (S2018)
American National Standard for Electric Lamps—Use of Protective Shields with Tungsten Halogen (TH) Lamps—Cautionary Notice

Applies to the use of protective shields with all TH lamps that do not have an integral device that protects against shattering and ultraviolet emissions.

$9

Buy Now

ANSI C78.1452-2004 (S2020)
American National Standard for Electric Lamps—Projection Lamps—Vocabulary

Provides definitions for a wide range of terms used in the design, manufacturing and application of photographic lamps. Serves as a common reference for all lamp standards in the C78.1400 series, thus reducing the number of terms that need to be defined in individual standards.

$203

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ANSI C78.1460-2004 (S2020)
American National Standard for Electric Lamps—Single-Ended Tungsten-Halogen Lamps GZ9.5 Base, T6 Bulb, 36.5mm LCL, 76.2mm MOL with Proximity Reflector

This standard defines the dimensional, physical, and other characteristics to assist in the proper application of tungsten-halogen lamps with GZ9.5 bases, T6 (T19) bulbs at 36.5 mm LCL and 76.2 mm maximum overall length with internal proximity reflectors. Lamps of various wattage and voltage designs are included.

$68

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ANSI C78.1500-2001
American National Standard for Tungsten Halogen (TH) Lamps with a Light Center Length (LCL) of 89 mm (3½ in.)

Defines the dimensional limits and other physical characteristics required to ensure interchangeability and assist in the proper application of TH lamps with P28 bases and 89 mm nominal LCL.

$100

Buy Now

ANSI C78.1501-2016
American National Standard for Electric Lamps—Tungsten-Halogen Lamps with G22 Bases and 63.5 mm LCL

Defines the dimensional limits and other physical characteristics required to ensure interchangeability and assist in the proper application of TH lamps with G22 bases and 63.5 mm nominal LCL.

$122

Buy Now

ANSI C78.1503-2001
American National Standard for Tungsten Halogen (TH) Lamps with G9.5 Bases and 60.5 mm Light Center Length (LCL)

Defines the dimensional limits and other physical characteristics required to ensure interchangeability and assist in the proper application of TH lamps with G9.5 bases and 60.5 mm nominal LCL.

$100

Buy Now

ANSI C78.1504-2001
American National Standard for Tungsten Halogen (TH) Lamps with P28 Bases and 55.5 mm Light Center Length (LCL)

Defines the dimensional limits and other physical characteristics required to ensure interchangeability and assist in the proper application of TH lamps with P28 bases and 55.5 mm nominal LCL.

$60

Buy Now

ANSI C78.1505-2001
American National Standard for Tungsten Halogen (TH) Lamps with G38 Bases and 127 mm Light Center Length (LCL)

Defines the dimensional limits and other physical characteristics required to ensure interchangeability and assist in the proper application of TH lamps with G38 bases and 127 mm nominal LCL.

$100

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ANSI C78.60360-2002 (S2016)
American National Standard for Electric Lamps—Standard Method of Measurement of Lamp Cap Temperature Rise

Describes the standard method of measurement of lamp cap temperature rise which is used when testing incandescent or discharge lamps for compliance with the limits. Temperature-rise limits for particular lamp types are listed in IEC 60432.

$128

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ANSI C78.60432:1-2007
American National Standard for Electric Lamps—Incandescent Lamps—Safety Specifications, Part 1: Tungsten Filament Lamps for Domestic and Similar General Lighting Purposes

Covers tungsten filament lamps for domestic and similar general lighting purposes.

$36

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ANSI C78.60432.2-2007 (S2018)
American National Standard for Electric Lamps—Safety Specifications, Part 2: Tungsten Halogen (TH) Lamps for Domestic and Similar General Lighting Purposes

Covers TH lamps for domestic and similar general lighting purposes.

$36

Buy Now

ANSI C78.60432.3-2007 (S2018)
American National Standard for Electric Lamps—Incandescent Lamps—Safety Specifications, Part 3: Tungsten Halogen (TH) Lamps (Non-Vehicle)

Covers TH lamps (non-vehicle).

$36

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ANSI C78.62612-2018
American National Standard for Electric Lamps—Self-Ballasted LED Lamps—Performance Specifications

Specifies the performance requirements, together with the test methods and conditions, required to show compliance of LED lamps with integral means for stable operation, intended for domestic and similar general lighting purposes.

$62

Buy Now

ANSI C78.62717-2018
American National Standard for Electric Lamps— LED Modules for General Lighting—Performance Requirements

Specifies the performance requirements for LED modules, together with the test methods and conditions, required to show compliance with this standard.

$62

Buy Now

ANSI C78.62035-2016
American National Standard for Electric Lamps—Discharge Lamps (Excluding Fluorescent Lamps)—Safety Specifications

This standard sets forth safety specifications for discharge lamps (excluding fluorescent lamps) with deviations to IEC 62035 (2014-04) Ed. 2.0.

$65

Buy Now

ANSI C78.LL 3-2003 (S2020)
American National Standard for Electric Lamps—Procedures for High Intensity Discharge Lamp Sample Preparation and the Toxicity Characteristic Leaching Procedure
Procedures for preparation of high-intensity discharge (HID) lamps for the Toxicity Characteristic Leaching Procedure (TCLP) are presented. These procedures are intended to supplement the TCLP by supplying specific instructions for size reduction and for other critical procedures specific to the testing of HID lamps.
$68
Buy Now

ANSI C78.LL4-2003 (S2018)
American National Standard for Procedures for Incandescent Lamp Sample Preparation and the Toxicity Characteristic Leaching Procedure (TCLP)
Supplements the TCLP by supplying specific instructions for size reduction and other critical procedures specific to the testing of incandescent lamps.
$44
Buy Now

ANSI C78.LL 1256-2003 (S2020)
American National Standard for Electric Lamps—Procedures for Fluorescent Lamp Sample Preparation and the Toxicity Characteristic Leaching Procedure
Procedures for preparation of fluorescent lamps for Toxicity Characteristic Leaching Procedure (TCLP) are presented. These guidelines are intended to supplement the TCLP by supplying specific instructions for size reduction of lamps including integral electronic compact, pin-based compact, linear and U-shaped fluorescent lamps.
$141
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ANSI C81.61-2019
American National Standard for Electrical Lamp Bases—Specifications for Bases (Caps) for Electric Lamps
Sets forth the specifications for bases (caps) used on electric lamps. This revision includes specifications for the G6.6 base.
$660
Buy Now

ANSI C81.62-2019
American National Standard for Electric Lampholders
Sets forth the specifications for lampholders for electric lamps.This revision includes specifications for the G6.6 lampholder.
$485
Buy Now

ANSI C81.63-2019
American National Standard for Gauges for Electric Lamp Bases and Lampholders
Standard sets forth the specifications for gauges for bases (caps) and lampholders for electric lamps.
$579
Buy Now

ANSI C81.64-2005 (R2014, S2020)
American National Standard—Guidelines and General Information for Electrical Lamp Bases, Lampholders and Gauges
Gives guidance and information to designers and testing personnel on the use of ANSI_IEC C81.61, ANSI_IEC C81.62 and ANSI_IEC C81.63 and their supplements.
$155
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ANSI C82.1-2004 (R2008, R2015, S2020)
American National Standard for Lamp Ballasts—Line Frequency Fluorescent Lamp Ballasts
Covers ballasts which have rated open circuit voltages of 2000 V or less and are intended to operate lamps at a frequency of 50 Hz or 60 Hz.
$126
Buy Now

ANSI C82.2-2002 (R2007, R2016, S2021)
American National Standard for Lamp Ballasts—Method of Measurement of Fluorescent Lamp Ballasts
Outlines the procedures and the precautions to be observed in measuring and testing line frequency fluorescent lamp ballasts as specified in C82.1 with either hot- or cold-cathode fluorescent lamps.
$188
Buy Now

ANSI C82.3-2016
American National Standard for Reference Ballasts for Fluorescent Lamps
Describes the essential design features and operating characteristics of reference ballasts for fluorescent lamps.
$91
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ANSI C82.4-2017
American National Standard for Lamp Ballasts—Ballasts for High-Intensity Discharge and Low-Pressure Sodium (LPS) Lamps (Multiple-Supply Type)
Provides specifications for and operating characteristics of ballasts for mercury, metal halide, high-pressure sodium and LPS lamps. The ballasts operate from multiple-supply sources of 600 V maximum at a frequency of 60 Hz.
$188
Buy Now

ANSI C82.6-2015 (R2020)
American National Standard for Lamp Ballasts—Ballasts for High-Intensity Discharge (HID) Lamps—Methods of Measurement
Describes the procedures to be followed and the precautions to be taken in measuring performance of low-frequency ballasts (electromagnetic and electronic ballasts that operate at less than 400 Hz) for high-intensity discharge (HID) lamps.
$379
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ANSI C82.9-2016
American National Standard for Lamp Ballasts—High-Intensity Discharge (HID) and Low-Pressure Sodium (LPS) Lamps—Definitions

Provides definitions relative to specific terms contained in HID and LPS lamps and ballast standards. Covers the dimensional limits and other physical characteristics required to ensure the commonality, interchangeability and proper application of these lamps.

$134

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ANSI C82.11-2017
American National Standard for Lamp Ballasts—High Frequency Fluorescent Lamp Ballasts

Covers high frequency ballasts that have rated open-circuit voltages of 2,000 V or less and are intended to operate at a supply frequency of 50 or 60 Hz.

$536

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ANSI C82.13-2020
American National Standard for Lamp Ballasts—Definitions—for Fluorescent Lamps and Ballasts

Provides definitions of terms used in ANSI C78 and C82 series standards for fluorescent lamps and ballasts. Individual standards may also include additional definitions specific to that standard.

$95

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ANSI C82.14-2016
American National Standard for Lamp Ballasts—Low-Frequency Square Wave Electronic Ballasts—for Metal Halide Lamps

Provides specifications for and operating characteristics of low-frequency square wave electronic ballasts for metal halide lamps. Covers lamp operating-current frequencies from greater than 60 Hz up to 400 Hz (some exclusionary frequency ranges may apply).

$95

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ANSI C82.15-2021
American National Standard for Lighting Equipment—LED Drivers Robustness

Applies to hardware and microcontroller (microprocessor)-based LED drivers. This American National Standard describes testing methods used to evaluate LED drivers' robustness or their ability to withstand the specific stresses described within.

$105

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ANSI C82.16-2020
American National Standard for Light-Emitting Diode Drivers—Methods of Measurement

Describes the procedures to be followed and the precautions to be taken in measuring performance of LED drivers. The scope includes, but is not limited to, LED drivers with these characteristics: General lighting, exterior lighting, and roadway lighting applications Input supply voltage up to 600 VDC or 600 VAC (50 or 60 Hz) Output open-circuit voltage of 600 V or less Constant-current or constant-voltage DC output Fixed, variable (dimmable), pulse width modulation, or programmable (tunable) output power External (standalone) or internal (enclosed in luminaire).

$194

Buy Now

ANSI C82.17-2017
American National Standard for Lamp Ballasts— High Frequency (HF) Electronic Ballasts for Metal Halide Lamps

Provides specifications for, and operating characteristics of, high-frequency electronic ballasts for metal halide lamps.

$83

Buy Now

ANSI C82.77-2002
American National Standard for Harmonic Emission Limits—Related Power Quality Requirements for Lighting Equipment

Specifies harmonic limits and methods of measurement for lighting equipment.

$322

Buy Now

ANSI C82.77-1-2020
American National Standard for Lighting Equipment—Electromagnetic Compatibility (EMC) General Requirements and Criteria

Defines the electromagnetic compatibility "EMC" (immunity and Interference) performance levels, testing methods, and performance criteria for lighting products in a frequency range from 0 to 400 GHz. Applies to lighting products intended to be directly connected to the mains (up to 600V), DC (up to 250VDC), battery operated or to a non-public, low voltage power distribution system.

$88

Buy Now

ANSI C82.77-2-2020
American National Standard for Lighting Equipment—Electrostatic Discharges

Adopts IEC 61000-4-11 Edition 2.1 2017-05 as a nationally acknowledged international standard with deviations. It specifies testing and measurement techniques–voltage dips, short interruptions, and voltage variations immunity tests for lighting equipment.

$56

Buy Now

ANSI C82.77-3-2020
American National Standard for Lighting Equipment—Electromagnetic Compatibility (EMC) Testing and Measurement Techniques—Radiated, Radio-Frequency Electromagnetic Field Immunity Test

Adopts IEC 61000-4-3, ed3.2 (2010-04), as a Nationally Acknowledged international standard with deviations. It specifies EMC testing and measurement techniques—radiated, radio-frequency electromagnetic field immunity tests for lighting equipment.

$56

Buy Now

ANSI C82.77-4-2020
American National Standard for Lighting Equipment—Power Line Frequency Magnetic Field Immunity Test

Adopts IEC 61000-4-8 Edition 2 2009-09 as a Nationally Acknowledged international standard with deviations. It specifies power line frequency magnetic field immunity limits and test requirements for lighting equipment.

$56

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ANSI C82.77-5-2017
American National Standard for Lighting Equipment—Voltage Surge Requirements

Specifies voltage surge limits and testing requirements for lighting equipment.

$84

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ANSI C82.77-7-2020
American National Standard for Lighting Equipment—Testing and Measurement Techniques—Voltage Dips, Short Interruptions, and Voltage Variations Immunity Tests

Adopts IEC 61000-4-11 Edition 2.1 2017-05 as a Nationally Acknowledged international standard with deviations. It specifies testing and measurement techniques–voltage dips, short interruptions, and voltage variations immunity tests for lighting equipment.

$56

Buy Now

ANSI C82.77-8-2020
American National Standard for Lighting Equipment—Fast Transients

Adopts IEC 61000-4-4:2012 as a Nationally Acknowledged international standard with deviations. It specifies fast transient limits and testing requirements for lighting equipment.

$56

Buy Now

ANSI C82.77-9-2020
American National Standard for Lighting Equipment—Injected Currents

An adoption of IEC 61000-4-6 Edition 4 2013-10 as a Nationally Acknowledged International standard with regional deviations.

$56

Buy Now

ANSI C82.77-10-2020
American National Standard for Lighting Equipment–Harmonic Emission Limits–Related Power Quality Requirements

Specifies harmonic limits, their methods of measurement, and power factor (PF) for lighting equipment. This standard covers all types of lighting equipment that is used for general illumination typically found in residential, commercial, and industrial applications.

$110

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ANSI C136.1-2012 (R2018)
American National Standard for Roadway and Area Lighting Equipment—Filament Lamps—A Guide for Selection

Provides a guide for the proper selection of filament lamps for use in roadway and area lighting equipment covered by the following standards ANSI C136.4, ANSI C136.5, ANSI C136.6 and ANSI C136.11.

$53

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ANSI C136.2-2018
American National Standard for Roadway and Area Lighting Equipment—Dielectric Withstand and Electrical Transient Immunity Requirements

This standard covers luminaires and control devices classified for up to 600 V operation and intended for use in roadway and area lighting applications. It contains minimum performance requirements and test procedures for evaluating luminaire and control devices under test (DUTs) for dielectric withstand and electrical transient immunity.

$53

Buy Now

ANSI C136.3-2020
American National Standard for Roadway and Area Lighting Equipment—Luminaire Attachments

Covers attachment features of luminaires used in roadway and area lighting equipment. The features covered apply to luminaires that are side-, post top- or pendant-mounted.

$49

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ANSI C136.4-2019
American National Standard for Roadway and Area Lighting Equipment—Series Sockets and Series-Socket Receptacles
Covers series sockets having medium-impact strength and intended for service at high temperatures, series sockets having high-impact strength and intended for service at limited temperatures, and series-socket receptacles in the 5,000 V classification.
$76
Buy Now

ANSI C136.5-2003 (R2013)
American National Standard for Roadway and Area Lighting Equipment—Film Cutouts
Covers operating and dimensional features of single-shot film cutouts used with series roadway lighting equipment and circuits that function by dielectric breakdown and subsequent partial fusing of components to establish a shunting electrical circuit to bypass non-operative series roadway lighting equipment.
$53
Buy Now

ANSI C136.6-2004 (R2012, R2018)
American National Standard for Roadway and Area Lighting Equipment—Metal Heads and Reflector Assemblies—Mechanical and Optical Interchangeability
Covers dimensional features of luminaires with metal heads that permit mechanical and optical interchangeability of head and reflector assemblies.
$53
Buy Now

ANSI C136.9-2003 (R2012, R2018)
American National Standard for Roadway and Area Lighting Equipment—Socket Support Assemblies for Metal Heads—Mechanical Interchangeability
Covers the following equipment for use in metal heads that are in accordance with the latest revision of C136.6 high-intensity discharge lamp ballast and socket assemblies, and mogul and medium multiple incandescent lamp socket and support assemblies.
$53
Buy Now

ANSI C136.10-2017
American National Standard for Roadway and Area Lighting Equipment—Locking-Type Photocontrol Devices and Mating Receptacles—Physical and Electrical Interchangeability and Testing
Covers the following roadway and area lighting equipment, which may be physically and electrically interchanged to operate within established values locking-type photocontrol; locking-type mating receptacle; and shorting and non-shorting caps.
$84
Buy Now

ANSI C136.11-2011 (R2016, S2021)
American National Standard for Roadway and Area Lighting Equipment—Multiple Sockets
Discusses medium and mogul screw base sockets used in multiple fixture circuits or in luminaires designed and intended for parallel wired circuits. Provides interchangeability of lamps, minimum safety standards for operating personnel, and minimum performance criteria in lighting roadways and areas open to the public.
$53
Buy Now

ANSI C136.12-2014
American National Standard for Roadway and Area Lighting Equipment—Mercury Lamps—Guide for Selection
Covers the selection of mercury vapor lamps recommended for use in roadway and area lighting equipment.
$53
Buy Now

ANSI C136.13-2020
American National Standard for Roadway and Area Lighting Equipment—Metal Brackets for Wood Poles
Covers metal pipe, tubing and structural brackets for wood poles designed to support luminaires of generally spherical, ellipsoidal or rectangular shapes used in roadway and area lighting.
$74
Buy Now

ANSI C136.14-2020
American National Standard for Roadway and Area Lighting Equipment—Elliptically Shaped, Enclosed Side-Mounted Luminaires
Covers dimensional, maintenance and light distribution features that permit the interchange of enclosed side-mounted luminaires for horizontal-burning high-intensity discharge (HID) lamps and other light sources used in roadway and area lighting equipment.
$53
Buy Now

ANSI C136.15-2020
American National Standard for Roadway and Area Lighting Equipment—Luminaire Field Identification
The intent of this standard is to provide a simple, uniform method for identifying the type and wattage rating of a luminaire used for roadway and area lighting.
$53
Buy Now

ANSI C136.16-2019
American National Standard for Roadway and Area Lighting Equipment— Enclosed Post Top-Mounted Luminaires

Covers dimensional, maintenance, and light distribution features that permit the interchange of enclosed, post top–mounted high-intensity discharge (HID), solid state light (SSL) source (also referred to as LED (Light Emitting Diode), compact fluorescent, and induction luminaires whose center of mass is approximately over the mounting tenon.

$53

Buy Now

ANSI C136.17-2005 (R2010, S2017)
American National Standard for Roadway and Area Lighting Equipment—Enclosed Side-Mounted Luminaires for Horizontal-Burning High-Intensity Discharge Lamps—Mechanical Interchangeability of Refractors

Covers the dimensional features and the materials of refractors as shown in this standard and as described in C136.14.

$70

Buy Now

ANSI C136.18-2018
American National Standard for Roadway and Area Lighting Equipment—High-Mast Side-Mounted Luminaires for Horizontal- or Vertical-Burning High-Intensity Discharge Lamps

Covers physical, operational, maintenance and light-distribution features that permit use of high-mast luminaires in roadway applications when specified.

$49

Buy Now

ANSI C136.19-2017
American National Standard for Roadway and Area Lighting Equipment—High-Pressure Sodium (HPS) and Retrofit HPS Lamps for Mercury Ballasts—Guide for Selection

Covers the selection of HPS lamps recommended for use in roadway and area lighting equipment.

$53

Buy Now

ANSI C136.20-2012 (R2021)
American National Standard for Roadway and Area Lighting Equipment—Fiber-Reinforced Composite (FRC) Lighting Poles

Applies to FRC lighting poles used for roadway and area lighting. Includes nomenclature, dimensional data, performance criteria and some interchangeability features for standard poles as well as those that must meet breakaway requirements for poles as described in AASHTO LTS *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.*

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ANSI C136.21-2014
American National Standard for Roadway and Area Lighting Equipment—Vertical Tenons Used with Post Top–Mounted Luminaires

Covers the attachment features of vertical tenons on pole tops or brackets used in roadway and area lighting that permit the interchangeability of post top–mounted luminaires.

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ANSI C136.22-2019
American National Standard for Roadway and Area Lighting Equipment—Internal Labeling of Luminaires

Covers internal luminaire identification labels for all styles of luminaires used for roadway lighting.

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ANSI C136.23-2021
American National Standard for Roadway and Area Lighting Equipment—Enclosed Architectural Luminaires

Covers physical, operating, maintenance and light-distribution features that permit use of architectural luminaires in roadway applications.

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ANSI C136.24-2020
American National Standard for Roadway and Area Lighting Equipment—Non-Locking (Button)–Type Photocontrols

Covers the electrical and mechanical interchangeability of non-locking–type photocontrols for mounting within a roadway or off-roadway luminaire.

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ANSI C136.25-2019
American National Standard for Roadway and Area Lighting Equipment—Ingress Protection (Resistance to Dust, Solid Objects and Moisture) for Luminaire Enclosures

Addresses the protection of luminaires from ingress based on the anticipated environment.

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ANSI C136.26-2010 (R2015, S2020)
American National Standard for Roadway and Area Lighting Equipment—Troubleshooting Guide for High-Intensity Discharge (HID) Luminaires

Offers step-by-step guidance for use in troubleshooting HID lighting fixtures by technicians in the field.

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ANSI C136.27-2021
American National Standard for Roadway and Area Lighting Equipment—Tunnel Lighting and Underpass Luminaires
Covers luminaires used for illuminating roadway tunnels and underpasses. The requirements in this standard are limited to general attributes of tunnel luminaires because of the wide variety of possible designs.
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ANSI C136.28-2006 (R2011, S2017)
American National Standard for Roadway and Area Lighting Equipment—Glass Lenses Used in Luminaires
Covers flat and molded glass of soda-lime and borosilicate materials used as lenses for roadway and area lighting luminaires. Includes definitions, criteria and test methods for mechanical and impact strength, thermal shock resistance and temper for both materials.
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ANSI C136.29-2011 (R2018)
American National Standard for Roadway and Area Lighting Equipment—Metal Halide Lamps—Guide for Selection
Includes information on screw base single-ended metal halide lamps that can be used in roadway and area lighting equipment.
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ANSI C136.30-2015
American National Standard for Roadway and Area Lighting Equipment—Pole Vibration
Covers the minimum vibration withstand requirements and testing procedures for poles used in roadway and area lighting. The guide is intended for poles of 50-ft. mounting height and under.
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ANSI C136.31-2018
American National Standard for Roadway and Area Lighting Equipment—Luminaire Vibration
Covers the minimum vibration withstand capability and vibration test methods for roadway and area luminaires.
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ANSI C136.32-2020
American National Standard for Roadway and Area Lighting Equipment—Enclosed Setback Luminaires and Directional Floodlights for High-Intensity Discharge (HID) Lamps
Covers dimensional, maintenance and electrical features that permit the interchange of similar style enclosed luminaires having the same light distribution classification or type for HID lamps used in roadway and area lighting equipment. Luminaires covered by this standard are generally yoke-, trunnion- or tenon-mounted and are traditionally called floodlights or setback luminaires.
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ANSI C136.34-2020
American National Standard for Roadway and Area Lighting Equipment—Vandal Shields for Roadway and Area Lighting Luminaires
Covers supplementary vandal shields used to protect luminaires and luminaire accessories used for roadway and area lighting.
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ANSI C136.35-2020
American National Standard for Roadway and Area Lighting Equipment—Locking-Type Power Taps (LTPT)
Covers the electrical and mechanical compatibility of electrical devices mounted into a locking-type photocontrol receptacle for the purpose of providing ancillary power to an external device.
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ANSI C136.37-2019
American National Standard for Solid State Light Sources Used in Roadway and Area Lighting
Defines interchangeability and some requirements for solid state lighting (SSL) source fixtures. Includes requirements for operating temperature, correlated color temperature, mounting provisions, dimming, ingress protection, and wiring and grounding. Sets protocol for surge-test waveforms, the basic insulation test, and specific product ratings.
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ANSI C136.38-2015 (R2020)
American National Standard for Roadway and Area Lighting Equipment—Induction Lighting
Defines electrical and mechanical requirements of induction-type light sources for use in roadway and area lighting luminaires.
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ANSI C136.40-2014
American National Standard for Roadway and Area Lighting Equipment—Solar Lighting Systems
Defines requirements for the specification and installation of DC solar-powered roadway and area lighting systems.
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ANSI C136.41-2013
American National Standard for Roadway and Area Lighting Equipment—Dimming Control Between an External Locking Type Photocontrol and Ballast or Driver
Describes methods of light level control between an external locking type photocontrol (or similar device) and a dimmable ballast or driver for street and area lighting equipment. Mechanical, electrical, and marking requirements are established for dimming, locking type photocontrols and mating receptacles.
$80
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ANSI C136.42-2019
American National Standard For Roadway and Area Lighting Equipment—Solid State Lighting Retrofit Kits
Defines the mechanical and electrical requirements for transforming an installed HID roadway and area luminaire to a solid state roadway and area luminaire. This standard is limited to non-screwbase retrofit kits only.
$45
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ANSI C136.45-2011 (R2016, S2021)
American National Standard for Roadway and Area Lighting Equipment—Aluminum Lighting Poles
Provides specification information for aluminum lighting poles as used in roadway and area lighting applications.
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ANSI C136.46-2020
American National Standard For Roadway and Area Lighting Equipment—Concrete Lighting Poles
Applies to concrete lighting poles used in roadway and area lighting equipment and includes nomenclature, performance criteria, marking and record keeping requirements and certain minimal material needs. It does not cover concrete poles manufactured with any modified concrete mix incorporating the use of polymers or other modifiers.
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ANSI C136.47-2010 (R2015, S2021)
American National Standard for Roadway and Area Lighting Equipment—Steel Roadway and Area Lighting Poles
Provides construction and performance guidance for steel poles used in roadway and area lighting applications.
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ANSI C136.48-2018
American National Standard For Roadway and Area Lighting Equipment—Wireless Networked Lighting Controllers
Defines the minimum requirements for wireless networked lighting controllers (NLC) intended for use with roadway and area lighting systems.
$72
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ANSI C136.49-2016
American National Standard for Roadway and Area Lighting Equipment—Plasma Lighting
Defines the electrical and mechanical requirements of plasma type light sources for use in roadway and area lighting luminaires.
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ANSI C136.50-2021
American National Standard for Roadway and Area Lighting Equipment—Energy Measurement for a Network Lighting Control (NLC) Device with a Locking-Type Receptacle
Describes methods and requirements for the measurement of energy consumption and the reporting of the consumption for a Network Lighting Controller (NLC) device in an outdoor lighting application.
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Buy Now

ANSI C136.52-2021
American National Standard for Roadway and Area Lighting Equipment—Metering Performance Requirements for LED Drivers with Integral Energy Measurement
Establishes acceptable metering performance criteria for LED drivers with built in (integral to the driver) energy consumption measurement functionality for use in outdoor luminaire applications. It describes two metering device performance levels for roadway and area lighting applications: 2% Accuracy Class and 5% Accuracy Class.
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Buy Now

ANSI C136.53-2017
American National Standard for Roadway and Area Lighting Equipment—Enclosed Pendant Mounted Luminaires
Covers dimensional, maintenance, and light distribution features that permit the interchange of enclosed pendant-mounted luminaires whose center mass is directly below the mounting bracket.
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ANSI C136.58-2019
American National Standard for Roadway and Area Lighting Equipment—Luminaire Four-Pin Extension Module and Receptacle—Physical and Electrical Interchangeability and Testing
Provides mechanical and electrical specifications for interfacing street and area lighting with controls and sensor accessories.
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ANSI C137.0-2017
American National Standard For Lighting Systems—Lighting Systems Terms and Definitions
Definitions listed in this document apply or are directly related to lighting systems and are used in multiple lighting system standards.
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ANSI C137.1-2019
American National Standard for Lighting Systems— 0-10V Dimming Interface for LED Drivers, Fluorescent Ballasts, and Controls
Specifies the 0-10 volt control interface method and performance requirements for dimmable LED drivers, fluorescent ballasts, and dimming control units where output power is adjustable between minimum/off and maximum via a control input signal.
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ANSI C137.2-2019
American National Standard—Cybersecurity Requirements for Lighting Systems—Parking Lots
Provides cybersecurity requirements for lighting systems used in parking lots with public access.
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ANSI C137.3-2017
American National Standard for Lighting Systems—Minimum Requirements for installation of Energy Efficient Power over Ethernet (PoE) Lighting Systems
Specifies the minimum requirements for installation of Power over Ethernet (PoE) lighting systems to ensure minimal energy losses.
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ANSI C137.4-2019
American National Standard for Lighting Systems— Digital Interface with Auxiliary Power
Specifies the minimum requirements for devices such as drivers, controls, sensors, and communication devices supporting a digital interface between devices.
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ANSI C137.5-2021
American National Standard for Lighting Systems—Energy Reporting Requirements for Lighting Devices
Specifies the minimum performance requirements for lighting devices that report energy data. These requirements include the specific energy data types to be reported, the nominal and statistical accuracy performance for all reported data types, and references to other standards that define the information model for all data types.
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ANSI C137.6-2021
American National Standard for Lighting Systems—Data Tagging Vocabulary (Semantic Model Elements)for Interoperability
Contains a Controlled Vocabulary of terms for Lighting Systems. These terms enable the development of semantic model elements, e.g., tags that facilitate the exchange of data and metadata used in control and analytics. The terms contained in this standard are intended to be used by available semantic models such as, but not limited to, the future ASHRAE 223P Standard, Project Haystack, and Brick.
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ANSI C137.7-2020
American National Standard for Lighting Systems—Networked Open Parking Lot Lighting Systems
Sets forth a minimum set of functionalities required in networked open parking lot lighting systems. This standard does not apply to covered parking garages.
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NEMA 77-2017
Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria
Recommends a method of quantifying the visibility of temporal light artifacts (TLA), and recommends initial, broad application-dependent limits on TLA.
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NEMA 100-2021
Wire Insulation Colors for Lighting Systems
Specifies a visual reference for the violet, pink, and red colors of the wire insulation supplied with luminaires, controls, ballasts, drivers, and other devices that are part of a lighting system.
No charge
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NEMA BIM 100-2021

BIM Data Requirements for Electrical Products in Support of Design, Construction, Operation, and Maintenance

Provides a list of properties and data types for electrical products to enhance BIM models with interoperable data for design, construction, operation and maintenance of electrical systems in buildings. This standard covers: Light Fixtures Electrical Devices (Receptacles, Switches) Electrical Appliances (Refrigerators, Ranges, etc.) Electrical Equipment (Circuits, Panels and Transformers) This standard is not intended to cover geometry for creating 3-D BIM models, but rather define electrical product data requirements with optional levels of compliance to support electrical system design, construction, operation, and maintenance. *Packaged with this standard is an accompanying white paper, BIM Content for Electrical Products: Current Status and Industry Needs, and a text file of code, NEMA Standard Shared Parameters, that users can import into Revit, a CAD software system. Download the full package here: BIM 100-2021 Whitepaper and Standard.

No charge

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NEMA BL 3-2013 (R2021)

Dimming Ballast Energy Performance

Provides a methodology for applying existing test methods for program start ballasts to fluorescent dimming ballasts and provides a way to calculate BLE for fluorescent dimming ballasts. This standard offers BLE limits for ballasts of common four-foot bipin lamps, such as T8 and T5 lamps, that are not covered by the most recent Federal Rulemaking.

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NEMA DCP 1-2018

Direct Current in Buildings

Summarizes the results from a survey on DC in buildings and provides background on the primary drivers for DC systems. It also highlights potential benefits of using DC in buildings and opportunity areas in next five to ten years.

No charge

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NEMA FL SET

Fluorescent Set

The fluorescent lamps and ballasts package classifies as either double-ended or single-ended lamps. Glow starters are also covered by this product. Set includes ANSI C78.5, ANSI C78.30, ANSI C78.81, ANSI C78.180, ANSI C78.375, ANSI C78.376, ANSI C79.1, ANSI C81.61, ANSI C81.62, ANSI C81.63, ANSI C82.1, ANSI C82.11, ANSI C82.12, ANSI C82.13, ANSI C82.2, ANSI C82.3, ANSI C82.77.

$2,379

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NEMA HID SET

HID Set

High intensity discharge lamps and ballasts standards set contains low/high pressure lamps and metal-halide lamps. Set includes ANSI C78.30, ANSI C78.40, ANSI C78.41, ANSI C78.42, ANSI C78.43, ANSI C78.44, ANSI C78.45, ANSI C78.379, ANSI C78.380, ANSI C78.389, ANSI C79.1, ANSI C81.61, ANSI C81.62, ANSI C81.63, ANSI C82.14, ANSI C82.4, ANSI C82.6, ANSI C82.77, ANSI C82.9.

$2,842

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NEMA IL SET

Incandescent Set

The incandescent lamps set package are general lighting, projector lamps, miniature lamps, automotive lamps, aircraft lamps, stage lamps and studio lamps. Set includes ANSI C78.20, ANSI C78.21, ANSI C78.22, ANSI C78.23, ANSI C78.24, ANSI C78.30, ANSI C78.260, ANSI C78.261, ANSI C78.357, ANSI C78.370, ANSI C78.370.390, ANSI C78.379, ANSI C78.390, ANSI C78.391, ANSI C78.1401, ANSI C78.1402, ANSI C78.1403, ANSI C78.1406, ANSI C78.1407, ANSI C78.1408, ANSI C78.1413, ANSI C78.1417, ANSI C78.1420, ANSI C78.1421, ANSI C78.1431, ANSI C78.1432, ANSI C78.1433, ANSI C78.1434, ANSI C78.1435, ANSI C78.1450, ANSI C78.1451, ANSI C78.1460, ANSI C78.604321, ANSI C78.604322, ANSI C78.604323, ANSI C79.1, ANSI C81.61, ANSI C81.62, ANSI C81.63, ANSI C82.77.

$2,527

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NEMA SSL SET

SSL Set

Solid state lighting standards include semiconductor light sources—light emitting diodes (LEDs), laser diodes, organic LEDs, and any other semiconductor light sources; controlgear; light emitting diode (LED) drive circuits; and microwave power supplies for electrodeless lamps.

The set includes: ANSI C78.30, ANSI C78.377, ANSI C78.79, ANSI C81.61, ANSI C81.62, ANSI C81.63, ANSI C82.77, NEMA SSL 1, NEMA SSL 3, NEMA SSL 4, NEMA SSL 6, and NEMA SSL 7A.

$1,917

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NEMA LC 1-2007 (R2013, 2018)
Test Procedure for Compatibility of Hearing Aids and Ultrasonic Lighting Control Devices

Sets forth test procedures for use with a small acoustic chamber to evaluate potential interactions between hearing aids and ultrasonic lighting control devices (occupancy sensors). Test procedures are designed to simulate and test occupancy sensors at three typical, specific frequencies (25 kHz, 32.7 kHz and 40 kHz) and one type of hearing aid.

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NEMA LE 4-2012 (R2018)
Recessed Luminaires, Ceiling Compatibility

Contains definitions, dimensions and tolerances for recessed luminaires designed to use fluorescent high-intensity discharge and incandescent light sources.

$102

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NEMA LE 5-2001
Procedure for Determining Luminaire Efficacy Ratings for Fluorescent Luminaires

Establishes a luminaire efficacy rating based on rated lumens per watt and organizes luminaires into categories that will reasonably represent the characteristics of high-volume luminaires. Serves as the basis for the National Voluntary Information and Rating Program for widely used luminaires. When rating a fixture in accordance with EPAct 1992, use this standard. For other purposes, see NEMA LE 6, a newer standard for luminaire efficacy that supersedes the LE 5 series.

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NEMA LE 5A-1999
Procedure for Determining Luminaire Efficacy Ratings for Commercial, Non-Residential Downlight Luminaires

Provides a standardized test method for determining the luminaire efficacy rating of incandescent, compact fluorescent and low-wattage high-intensity discharge downlight luminaires. When rating a fixture in accordance with EPAct 1992, use this standard. For other purposes, see NEMA LE 6, a newer standard for luminaire efficacy that supersedes the LE 5 series.

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NEMA LE 5B-1998
Procedure for Determining Luminaire Efficacy Ratings for High-Intensity Discharge (HID) Industrial Luminaires

Provides standardized tests to evaluate the energy efficiency of HID industrial luminaires. Provides a procedure for determining the luminaire efficacy ratings under laboratory test conditions, including visual tasks involved, luminaire placement, such performance characteristics as color and glare, lighting maintenance, on/off level control and a ballast's ability to regulate lamp wattage. When rating a fixture in accordance with EPAct 1992, use this standard. For other purposes, see NEMA LE 6, a newer standard for luminaire efficacy that supersedes the LE 5 series.

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NEMA LE 6-2014
Procedure for Determining Target Efficacy Ratings for Commercial, Industrial, and Residential Luminaires

Provides a procedure for the determination of TER for luminaires under laboratory test conditions and describes categories or types of product used in common indoor and outdoor lighting applications. This standard does not apply to luminaires for specialized applications, including but not limited to products intended to be aimed, accent luminaires, rough or hazardous use luminaires or emergency lighting.

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NEMA LE 7-2015
Recessed Luminaires Intended for Contact with Expanding Polyurethane Foam Insulation

Defines a subset of insulation contact (Type IC) luminaires that are appropriate for use with polyurethane spray foam. This standard also provides requirements and recommendations for Type IC recessed luminaires intended for installation in contact with low-density and medium-density polyurethane foam thermal insulation.

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NEMA LL 8-2010
Limits on Mercury Content in Self-Ballasted Compact Fluorescent Lamps

Covers limited integral, self-ballasted compact fluorescent lamps of all base types. Applies to integral, self-ballasted compact fluorescent lamps manufactured or imported after September 2010.

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NEMA LL 9-2011
Dimming of T8 Fluorescent Lighting Systems
Provides recommendations for dimmable T8 fluorescent lighting systems for the full range of light output.
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NEMA LL 10-2020
Replacing HID Lamps with LED Lamps: Light Output Equivalency Claims
Assists manufacturers in preparing HID equivalency claims for LED products replacing HID lamps.
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NEMA LS 20000-2021
Physical Interface of Luminaire-Integrated Control Devices
Provides a set of recommended mechanical shapes and minimum keep-out area dimensions for indoor luminaires to interface with luminaire integrated control devices.
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NEMA LS 20001-2021
White Paper on Unified Glare Rating (UGR)
Explains the original intent of Unified Glare Ratio (UGR), its proper uses, and common misuses of the standard.
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NEMA LS 20004-2017 (R2021)
Understanding the New Fluorescent Ballast Rule EPCA 10 CFR 430
Provides educational information about the Fluorescent Ballast Rule and the associated measurement methods. (Formerly NEMA LSD 66-2017).
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NEMA LSCR-PP 1-2015
Light Source Color Rendition
Responds to the Illuminating Engineering Society's Standard TM-30-15 IES *Method for Evaluating Light Source Color Rendition.*
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NEMA LSD 1-2003 (R2016, S2020)
Tungsten Halogen (TH) Lamps (Bulbs): Ultraviolet, Rupture and High Temperature Risks
Addresses the benefits and the safe operation of TH lamps.
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NEMA LSD 2-2012 (R2016, S2020)
Wiring Requirements for T8 Lamps with Instant-Start Ballasts
Addresses field problems related to the retrofit of T-8 lamps and instant-start ballasts into existing luminaires.
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NEMA LSD 7-1999 (R2012, R2016, S2020)
Ultraviolet Radiation (UV) from Fluorescent Lamps
Discusses various scientific studies on possible effects of exposure to light sources reported in the popular press. This interest has been stimulated by the fact that: 1) most light sources emit some small amount of UV energy, and 2) extended exposure to the high UV levels in sunlight can cause adverse effects in the skin.
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NEMA LSD 8-2020
Power Quality Implications of Self-ballasted Lamps in Residences
This paper provides information about self-ballasted lamps and the implications these lamps present from a power quality perspective. It focuses on the use of self-ballasted lamps in residences and on residential power quality. Self-ballasted lamps have dedicated ballasts that are part of the lamp itself. This allows the lamp to be used in some sockets that were originally meant for incandescent lamps. The ballast intercepts the electrical current before it enters the bulb itself, and it cannot be removed from the base. CFLs and some LED lamps are examples of self-ballasted lamps.
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NEMA LSD 9-2000 (R2011, R2017)
Compatibility of Add-on Tube Guards with T8 Fluorescent Lamps Operating on High-Frequency Electronic Ballasts
Addresses concerns that arise in the field regarding the use of plastic tube guards on T-8 fluorescent lamps operated on high-frequency electronic ballasts.
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NEMA LSD 9-2000 (R2011, R2017, S2021)
Compatibility of Add-on Tube Guards with T8 Fluorescent Lamps Operating on High-Frequency Electronic Ballasts
Addresses concerns that arise in the field regarding the use of plastic tube guards on T-8 fluorescent lamps operated on high-frequency electronic ballasts.
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NEMA LSD 14-2012 (R2019)
Guidelines on the Application of Dimming to High-Intensity Discharge Lamps
Imparts general information and considerations in the design and application of such systems. Contact the manufacturers of the lamps, ballasts, and dimming systems for specific recommendations.
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NEMA LSD 18-2018
Selection of Electronic Ballasts for Fluorescent Lamps in Frequently Switched Applications
Provides guidance in the selection of ballast type as a function of lamp switching rate to achieve the desired energy savings while maintaining acceptable lamp life.
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NEMA LSD 21-2019
End-of-life Operation of Small Diameter (5/8 in. Diameter or Less) Pin-Based Fluorescent Lamps
Addresses variations in electrical and thermal parameters of small-diameter fluorescent lamps.
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NEMA LSD 22-2001 (R2020)
Demand Reduction and Energy Savings Using Occupancy Sensors
Provides unique and valuable data about occupancy sensor demand reduction and energy savings potential.
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NEMA LSD 23-2016 (R2020)
Recommended Practice—Lamp Seasoning for Fluorescent Dimming Systems
This paper provides a recommended practice to season lamps for Fluorescent Dimming Systems.
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NEMA LSD 24-2019
Marking of Luminaire Codes on Metal Halide Lamps
Provides information on marking metal halide lamps with the manufacturer's commercial designation, including lamp wattage, ANSI code, lamp type, electrical code, and luminaire code.
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NEMA LSD 27-2012
Best Practices for Operating Fluorescent Lighting Systems
Summarizes information and recommendations found in more detailed NEMA papers on individual topics, as well as additional information and recommendations. The information benefits customers seeking to ensure proper operation of flurescent systems to maximize system reliability and operational economy.
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NEMA LSD 28-2014 (R2019)
Minimizing the Potential of Base Arcing Between Certain Wattage HID Lamps and Lampholders
Provides information regarding *Use of Appropriate HID Lamp Holders to Minimize Potential Base Arcing with Certain HID Lamp Wattages.*
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NEMA LSD 29-2019
Incompatibility of T8 Ballasts (RS, PS, Dimming) and Shunted Bi-Pin Lampholders
Provides information on incorrect applications of bi-pin lampholders (tombstones) used with rapid-start (RS), programmed start (PS) and dimming ballasts. These incorrect applications have occurred in both new luminaires and field lamp and ballast retrofits.
No charge
Buy Now

NEMA LSD 34-2012 (R2020)
Recommended Practices for T8 Rapid-Start Fluorescent Lamp Dimming (17 W, 25 W, 32 W and 40 W Lamps)
Addresses the selection, integration, installation, application and maintenance of the dimming system components that together constitute a T8 fluorescent lamp-dimming system.
No charge
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NEMA LSD 40-2019
Failure Modes for Self-Ballasted Compact Fluorescent Lamps (SBCFLs)—A NEMA Update
Explains in simplified terms why SBCFLs have different failure modes from normal incandescent lamps.
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NEMA LSD 41-2020
UN2911 Labeling and Transportation of Lamps Containing Radioactive Substances
Provides information about shipping and labeling of lamps that contain radioactive substances. The vast majority of light bulbs, also called lamps by the lighting industry, do not contain any radioactive materials. Certain types contain very small amounts of radioactive isotopes which help to improve lamp ignition, lamp life and lumen maintenance.
No charge
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NEMA LSD 46-2019
Photo-Luminescent Exit Signage—Factual Review
Describes concerns regarding the marketing and application recommendations common to photo-luminescent exit signage in the U.S. and Canada. Intended to educate potential users as to the considerations regarding installing and relying upon this type of emergency equipment.
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NEMA LSD 49-2010
Solid State Lighting for Incandescent Replacement—Best Practices for Dimming
Provides recommendations for the dimming and design of screw-based incandescent replacement solid state lighting products.
No charge
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NEMA LSD 55-2017
Outdoor Lighting and Human/Animal Factors An Industry Opinion
Outlines industry concerns and opinions regarding the subject of light at night and outdoor electric lighting as related to humans, animals, energy conservation and the environment.
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NEMA LSD 57-2018
Polyurethane Foam Application: Lighting Equipment
Provides information regarding practical aspects of applying spray foam insulation that may come into contact with luminaires in various building applications.
No charge
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NEMA LSD 58-2021
Air Infiltration Ratings for Recessed Luminaires
Addresses the standard test procedure, installation requirements, and labeling applicable to luminaires to demonstrate limited airflow..
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NEMA LSD 60-2012
The Effects of Dimming on Color and Efficacy of LED Lamps
Describes and demonstrates the effects of dimming on color and efficacy of LED-based lamps.
No charge
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NEMA LSD 61-2012 (R2020)
Fluorescent Dimming Standards Development Report
Summarizes TFDS work and presents final results in a report for more detailed cited publications.
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NEMA LSD 62-2020
Systems Approach for Lighting
Maximizes energy savings by shifting the regulatory focus from appliance standards to lighting systems standards as incorporated into building energy code.
No charge
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NEMA LSD 63-2020
Measurement Methods and Performance Variation for Verification Testing of General Purpose Lamps and Systems
Establishes variations that can be expected when independent verification testing. Generally this is based on small samples of lamps or ballasts performed to estimate product performance characteristics and for comparison to manufacturer's ratings.
No charge
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NEMA LSD 64-2019
Lighting Controls Terminology
Defines terminology related to controls for lighting systems for non-residential and residential applications.
No charge
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NEMA LSD 65-2019
NEMA Guide to Emergency Lighting
Provides information on emergency lighting systems, related codes, and regulations. This is not a "how to" manual for emergency lighting and exit signs. It is designed to provide a basic understanding of emergency lighting unit and exit sign equipment and how it functions.
No charge
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NEMA LSD 67-2013 (R2018)
Low Mercury Controllable Fluorescent Systems
Discusses technical tradeoffs associated with reduced mercury dosing in fluorescent lighting systems and their environmental impacts. NEMA Members are committed to providing fluorescent lighting systems that allow lamps to be controlled to save energy, while reducing the mercury content in the lamps to the extent that it is technically possible without sacrificing functionality.
No charge
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NEMA LSD 71-2020
Best Practices for Metal Halide Lighting Systems Relative to Lamp Rupture Risks
The objective of this paper is to provide updated educational information for the selection, operation, and maintenance of metal halide lighting systems, with specific emphasis on those items pertinent to the risks associated with lamp rupture.
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American National Standard for Electric Meters—Code for Electricity Metering

This Code establishes acceptable performance criteria for new types of AC watthour meters, demand meters, demand registers, pulse devices, and auxiliary devices. It describes acceptable in-service performance levels for meters and devices used in revenue metering. It also includes information on related subjects, such as recommended measurement standards, installation requirements, test methods, and test schedules. This Code for Electricity Metering is designed as a reference for those concerned with the art of electricity metering, such as utilities, manufacturers, and regulatory bodies.

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Defines a Table structure for utility application data to be passed between an End Device and any other device. It neither defines device design criteria nor specifies the language or protocol used to transport that data. The Tables defined in this standard represent a data structure that shall be used to transport the data, not necessarily the data storage format used inside the End Device.

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American National Standard for Electricity Meters for the Measurement of DC Energy

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Electrical Submeter—General Requirements

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Electrical Submeter—Active Energy Accuracy

Covers metrological requirements and associated testing for AC meters and meter systems rated not more than 1000 V that measure active energy used in electrical energy submetering applications. This is the second part of a larger document related to electrical submeters (NEMA SM 31000 series). This standard was previously designated as NEMA ESM1-2.

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A NEMA White Paper: ASHRAE 90.1-2016 Building Submetering Requirements
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NEMA Analysis of the Energy Policy Act of 1992: The Scope of Electric Motors Subject to Efficiency Standards on October 24, 1997
Presents information on the U.S. Department of Energy's interpretation of the 1992 Energy Policy Act of 1992 (EPAct) and DOE's position on the scope of products covered and non-covered (exempt) by the legislation. Motor users and OEMs can refer to the information to determine whether the motors they purchase will be covered by EPAct and therefore must meet the standard energy-efficiency levels.
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NEMA Seismic Guideline 1—General Requirements for Seismic Qualification of Electrical Equipment for Commercial Building Codes
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Avantages du chauffage par résistance électrique
L'un des principaux objectifs du présent Livre blanc de la National Electrical Manufacturers Association (NEMA) est de donner un aperçu des récents développements dans le monde du chauffage par résistance électrique (CRÉ). Nous commencerons par explorer de façon approfondie différents types de chauffage électrique. Nous passerons ensuite en revue les attributs du CRÉ, y compris son confort, son efficacité et sa flexibilité d'utilisation. Pour terminer, nous parlerons d'une étude de cas portant sur le chauffage électrique utilisé dans les maisons « vertes ».
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The Importance of Licensing, Permitting, and Inspection to NEMA Member Companies
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NEMA GFP P2-2021
A NEMA Ground Fault Personnel Protection Section White Paper—Ground-Fault Circuit Interrupter (GFCI) Fact Sheet
Highlights how GFCIs work by sensing ground faults (which are detected when normally operating electrical currents leave their intended path) and then disconnect the circuit before an electrocution can occur.
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NEMA Position Paper: Use of Supplier's Declaration of Conformity (SDoC) in the U.S. Workplace
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American National Standard for Electrical Metallic Tubing—Steel (EMT-S)
This standard covers the requirements for steel electrical metallic tubing, for use as a raceway for wires or cables of an electrical system. Finished tubing is typically furnished in nominal 10-ft (3.05-m) lengths. It is protected on the exterior surface with a metallic zinc coating or alternate corrosion protection coating (see UL 797 for alternate corrosion protection coating requirements) and on the interior surface with a zinc or organic coating.
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American National Standard for Electrical Rigid Metal Conduit—Aluminum (ERMC-A)
This standard covers the requirements for porthole-extruded aluminum-alloy conduit for use as a raceway for the wires or cables of an electrical system. The finished conduit is produced in nominal 10-ft. (3.05-m) lengths, threaded on each end with one coupling attached.
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Covers the requirements for steel EIMC for use as a raceway for wires or cables of an electrical system.
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Guidelines for Conduit-in-Casing Construction
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Installation Guidelines for Surface Nonmetallic Raceway
Provides information on the proper application and installation of surface nonmetallic raceway permitted for use in dry locations, non-hazardous locations, and areas not subject to physical abuse, in accordance with the *National Electrical Code*® (NEC) and the Canadian Electrical Code (CE Code), Part I.
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Aboveground Reinforced Thermosetting Resin Conduit and Fittings
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Residential Controls—Temperature Limit Controls for Electric Baseboard Heaters
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ANSI/NEMA Z535 Set
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American National Standard for Safety Colors
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American National Standard for Environmental and Facility Safety Signs
Regulates requirements for the design, application, and use of safety signs in facilities and in the environment through consistent visual layout. Reorganized to best describe the five types of safety signs used in facilities, the 2011 edition of this standard is revised to better harmonize with ANSI Z535.4, ANSI Z535.5, and ANSI Z535.6.
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ANSI Z535.3-2011 (R2017)
American National Standard for Criteria for Safety Symbols
Provides general criteria for the design, evaluation, and use of safety symbols to identify and warn against specific hazards and information to avoid personal injury.
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ANSI Z535.4-2011 (R2017)
American National Standard for Product Safety Signs and Labels
Delivers specifications for design, application, use, and placement of safety signs and labels on a wide variety of products. A new type of product safety sign, the "safety instruction sign," was added to join the existing types of signs, hazard alerting signs, and safety notice signs, which were also more clearly defined and named in this edition. The definitions for "accident," "harm," and "incident" were refined to more clearly delineate a separation between physical injury and other safety-related issues (e.g., property damage). It was revised to correspond with ANSI Z535.2, ANSI Z535.5, ANSI Z535.6.
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ANSI Z535.5-2011 (R2017)
American National Standard for Safety Tags and Barricade Tapes (for Temporary Hazards)
Discusses tag and tapes, which are used only until the identified hazard is eliminated or the hazardous operation is completed. The Z535.5-2011 edition was revised to link with ANSI Z535.2, ANSI Z545.4, and ANSI Z535.6. The Safety Instructions Tag was added in addition to the existing types of signs, hazard alerting tags, and barricade tapes, as well as safety notice tags and barricade tapes, which were more clearly defined and named in this edition. Industries (typically manufacturing and construction) that employ lockout/tagout procedures or have a need to mark an area affected by a temporary hazard will find this standard beneficial.
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ANSI Z535.6-2011 (R2017)
American National Standard for Product Safety Information in Product Manuals, Instructions and Other Collateral Materials
Sets forth requirements for the design and location of product safety messages in collateral materials for a variety of products.
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NEMA CS 100-2020
NEMA Technical Position on Reconditioned Equipment
Provides the NEMA perspective on how to best recondition electrical equipment, how to determine whether a component or assembly is suitable for reconditioning, and the importance of taking necessary precautions when reconditioning equipment.
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NEMA BMS P1-2019
Building Management Systems—Optimizing Building Energy Performance and Occupant Comfort, Productivity, Safety, and Security
A marketing brochure on the rationale, characteristics and action plan for the NEMA Building Management Systems section.
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NEMA BMS P2-2020
Specifying Building Management Systems and Data-Integrated Building Systems
This document helps avoid integration issues for building management system (BMS) and with other data-integrated building systems, assuring the end-user gets the building performance and user experience they expect.
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NEMA GD 1-2019
Evaluating Water-Damaged Electrical Equipment
Provides advice on the safe handling of electrical equipment that has been exposed to water. Outlines items that will require complete replacement or that can be reconditioned by a trained professional. Equipment covered includes electrical distribution equipment, motor circuits, power equipment, transformers, wire, cable and flexible cords, wiring devices, GFCIs and surge protectors, lighting fixtures and ballasts, motors and electronic products.
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NEMA GDSP 1-2016 (en Espanol)
Evaluación de equipos eléctricos dañado por el agua
Esta publicación sirve como una guía que representa el consenso de las compañías miembros de NEMA y no pretende sustituir las recomendaciones del fabricante del equipo específico. Estas guías proporcionan información sobre cómo evaluar equipos eléctricos que se han expuesto al agua a través de inundaciones, actividades de lucha contra el fuego, huracanes y otros eventos que implican grandes cantidades de agua. Está diseñada para su uso por los proveedores, instaladores, inspectores y usuarios de productos eléctricos. Cuando se requiere información adicional, se recomienda que se consulte con los fabricantes de equipos eléctricos específicos. La evaluación de equipos eléctricos debe realizarse por personal calificado.
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NEMA GD 2-2021
Evaluating Fire- and Heat-Damaged Electrical Equipment
Provides information on how to evaluate electrical equipment that has been exposed to heat and fire residue through fire, firefighting activities, or close proximity to a fire. It is designed for use by suppliers, installers, inspectors, and users of electrical products. *Also available in Spanish. www.nemawiringdevices.org.
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NEMA GDSP 2-2021 (en Espanol)
Evaluación de equipo eléctrico dañado por fuego y calor
Estas guías proporcionan información sobre cómo evaluar equipos eléctricos que se han expuesto al agua a través de inundaciones, actividades de lucha contra el fuego, huracanes y otros eventos que implican grandes cantidades de agua. Está diseñada para su uso por los proveedores, instaladores, inspectores y usuarios de productos eléctricos.
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NEMA GD 4-2020
COVID-19 Cleaning and Disinfecting Guidance for Electrical Equipment
As we continue to learn more about the SARS-CoV-2 (COVID-19) virus, Members of the National Electrical Manufacturers Association (NEMA) are receiving questions regarding the cleaning and disinfecting of electrical equipment. This guidance document reflects the responses of electrical manufacturers to some common questions related to cleaning and disinfecting electrical equipment. *Also available in Spanish.
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NEMA GD 4-2020 (Spanish)
COVID-19 Guía de Limpieza y Desinfección para Equipos EléctricosVersión 1, 13 de mayo de 2020
A medida que continuamos aprendiendo más sobre el virus SARS-CoV-2 (COVID-19), los miembros de la Asociación Nacional de Fabricantes Eléctricos (NEMA) reciben preguntas sobre la limpieza y desinfección de equipos eléctricos. Este documento de orientación, refleja las respuestas de los fabricantes de equipo eléctrico a algunas preguntas comunes relacionadas con la limpieza y desinfección de equipos eléctricos.
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Wireless Communications Technology for Fire and Life Safety Systems
Provides a brief overview of wireless technology currently available and how it impacts the life safety industry today.
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Supply Chain Best Practices
Identifies a recommended set of supply chain best practices and guidelines that electrical equipment and medical imaging manufacturers can implement during product development to minimize the possibility that bugs, malware, viruses, or other exploits can be used to negatively impact product operation. As opposed to being an all-inclusive document, it is a representation of identified best practices that vendors can implement as they develop, manufacture, and deliver products as part of the supply chain.
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Cyber Hygiene Best Practices
Identifies a set of industry best practices and guidelines for electrical equipment and medical imaging manufacturers to help raise their level of cybersecurity sophistication in their manufacturing facilities and engineering processes.
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Cyber Hygiene Best Practices
Identifies industry best practices and guidelines that electrical equipment and medical imaging manufacturers may consider when providing cybersecurity information to their customers.
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NEMA IOTP 1-2018
Cyber Hygiene Best Practices Part 2
Explores the conflict between limitations on what is commonly referred to as standby power and the potential services and benefits of connected devices in the Internet of Things (IoT) and Industrial Internet of Things (IIoT).
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Transformers

NEMA 260-1996 (R2004, R2019)
Safety Labels for Pad-Mounted Switchgear and Transformers Sited in Public Areas
Details the labeling used on pad-mounted switchgear and transformers sited in public areas adjacent to residential properties, shopping centers and schools. May be used for equipment sited in utility or industrial properties that are not normally accessible to the general public. Contains Mr. Ouch labels.
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NEMA ST 20-2014
Dry Type Transformers for General Applications
Applies to single-phase and polyphase dry type transformers (including both autotransformers and noncurrent limiting reactors) for supplying energy to power, heating, and lighting circuits.
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NEMA TR 1-2013 (R2019)
Transformers, Regulators and Reactors
Includes certain NEMA standard test methods, test codes and properties of liquid-immersed transformers, regulators and reactors that are not ANSI standards. Provides a list of all ANSI C57 standards that have been approved by NEMA.
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Transportation Management

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EV Charging Network Interoperability Standard—A Contactless RFID Credential for Authentication (UR Interface)
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The Value of Rail Electrification
A discussion paper that objectively provides the challenges associated with rail electrification, its potential benefits, and a path forward to achieve them. Also introduces the Rail Electrification Council.
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NEMA TS 1-1989 (R1994, R2000, R2005, R2020)
Traffic Control Systems (Not Recommended for New Designs)
Defines traffic-signaling equipment used to facilitate and expedite the safe movement of vehicular and pedestrian traffic. This standard has been reaffirmed to make it available for support of legacy traffic-control equipment. For new equipment installations, use TS 2.
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NEMA TS 2-2003, Amendment 3
Contactor Amendment
Modifies Figure 5-4, and Section 5.4.2.3, and adds a new Section 5.4.3.2.1.
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NEMA TS 2-2003, Amendment 4
Flashing Yellow Arrow (FYA) Amendment
Revises NEMA TS 2-2003 (R2008) in four places to address Flashing Yellow Arrow (FYA), specifically by assigning a bit as "FYA Flash Rate Failure; including language addressing FYA operation; and including language addressing FYA and MMUs.
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NEMA TS 2-2021
Traffic Controller Assemblies with NTCIP Requirements—Version 03.08
Covers traffic signaling equipment used to facilitate and expedite the safe movement of pedestrians and vehicular traffic. Incorporates the "Flashing Yellow Arrow" feature, as well as associated configuration, pin assignment, and other related information. A list of revisions from NEMA TS 2-2016 is included.
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NEMA TS 4-2016
Hardware Standards for Dynamic Message Signs (DMS) with NTCIP Requirements
Provides the user with safe, dependable, functional and easily maintained DMS equipment. The requirements of this standard were developed by industry consensus, taking into account current user needs, available commercial technologies, engineering research, traffic engineering applications, human factors engineering and engineering judgment. The revisable Clause 11.5, Conformance Table Excerpt, is available to assist with developing procurement documents based on this standard.
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NEMA TS 5-2021
Portable Traffic Signal Systems (PTSS) Standard
Covers traffic signaling equipment used to enable and expedite the safe movement of vehicle traffic and the work that goes on in a work zone.
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NEMA TS 8-2018
Cyber and Physical Security for Intelligent Transportation Systems (ITS)
Allows agencies and other transportation infrastructure owner/operators to implement cyber- and physical-security for the intelligent transportation system (ITS) portion of for surface transportation systems.
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NEMA TS 10-2020
Connected Vehicle Infrastructure—Roadside Equipment
Designed for agencies and other transportation infrastructure owner/operators to procure and deploy connected vehicle (CV) roadside units (RSU) to: Reduce crashes and roadway fatalities as the highest priority Reduce traffic congestion, fuel consumption and emissions Provide automated vehicles with situational awareness to supplement onboard sensors
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NEMA WC 26/EEMAC 201-2008
Binational Wire and Cable Packaging Standard
Covers uniform requirements for packaging electrical wire and cable for the North American wire and cable industry.
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NTCIP 1102:2004
Octet Encoding Rules (OER) Base Protocol
Defines the presentation layer data encoding rules used in conjunction with application layer protocols defined in other standards. Serves as a replacement for part of NTCIP 1101, but defines additional features.
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NTCIP 1103 v03
Transportation Management Protocols (TMP)
Defines a composite application layer protocol for ITS devices, consisting of three component protocols SNMP, SFMP and STMP.
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NTCIP 1104 v01
Center-to-Center Naming Convention Specification
Defines the naming service for common object request broker architecture (CORBA) for use in center-to-center communications in the transportation domain, and lists the requirements for establishing names for management systems and for the objects managed by those systems. May also be referenced by non-CORBA standards to define how certain items should be named.
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NTCIP 1201 v03
Global Object (GO) Definitions
Identifies and defines object definitions that may be supported by multiple device types (e.g., actuated signal controllers and variable message signs). The grouping of objects for a given device type is performed in the device type–specific object definition standard.
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NTCIP 1202 v03
Object Definitions for Actuated Signal Controllers (ASC) Interface
Identifies and defines object definitions that may be supported by an ASC.
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NTCIP 1202:2005
Object Definitions for Actuated Traffic Signal Controller (ASC) Units—Version 02
Identifies and defines object definitions that may be supported by an ASC.
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NTCIP 1203 v03
Object Definitions for Dynamic Message Signs (DMS)
Defines requirements, data elements and conformance requirements applicable to all NTCIP DMS. Data elements are defined using the Simple Network Management Protocol (SNMP) object-type format as defined in RFC1212 and would typically be exchanged using one of the NTCIP-recognized application layers (e.g., SNMP). Formerly TS 3.6. NTCIP 1203 v03 now includes Test Procedures (Annex C). This is a revision of NTCIP 12032011.
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NTCIP 1204 v03
Environmental Sensor Station (ESS) Interface Protocol
Provides definitions of data elements for use with ESS. NTCIP 1204 v03 now includes Test Procedures in Annex C.
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NTCIP 1205:2001
Object Definitions for Closed-Circuit Television (CCTV) Camera Control
Defines objects that are specific to CCTV and standardized object groups that can be used for conformance statements. Limited to the functionality related to CCTV camera control within a transportation environment.
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NTCIP 1206:2005
Object Definitions for Data Collection and Monitoring (DCM) Devices
Defines data elements used for the configuration control and status monitoring of transportation data collection devices. The scope of this document is limited to the functionality related to DCMs used within a transportation environment.
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NTCIP 1207 v02
Object Definitions for Ramp Meter Control (RMC) Units
Defines communication protocol for ramp metering control (RMC) units. Communicating together, RMC units detect both traffic on the main roadway and queued traffic preparing to enter the main roadway, optimizing traffic flow for both. RMC units include a field controller, its suite of sensors, and its warning signs and signals, as well as main roadway and queue detection stations.
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NTCIP 1208:2005
Object Definitions for Closed-Circuit Television (CCTV) Switching
Defines data elements specific to CCTV switches and standardized data element groups that can be used for conformance statements. Limited to the functionality related to CCTV switches within a transportation environment.
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NTCIP 1209 v02
Object Definitions for Transportation Sensor Systems (TSS)
Defines data elements used to monitor and control TSS devices for detecting and communicating certain traffic parameters. Describes a zone, virtual zone and sensor, and how zones can be grouped.
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NTCIP 1210 v01
Field Management Stations (FMS)—Part 1: Object Definitions for Signal System Masters (SSM)
Defines communication requirements among some elements of a traffic management system, specifically the green, yellow, and red indications at a local intersection; a signal system master (also called a "field master," managing traffic indications at about two to ten nearby, local intersections); and a Traffic Management Center, responsible for traffic management in a wider geographic area.
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NTCIP 1211 v02
Object Definitions for Signal Control and Prioritization (SCP)
Includes requirements for communication and management of multiple requests for priority or preferential treatment of different classes of vehicles, such as transit or emergency service, among others. NTCIP 1211 v02 defines a method of granting priority to one signal while maintaining coordination with adjacent intersections. NTCIP 1211 v02 includes User Needs, Functional Requirements, and a Protocol Requirements List (PRL). NTCIP 1211 v02 also addresses "absolute time" as a request parameter.
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NTCIP 1213 v02
Object Definitions for Electrical and Lighting Management Systems (ELMS)
Provides object definitions for communication between a Traffic Management Center (TMC) and ELMS devices (a roadside luminaire and its sensors, for example), to control or monitor various functions, including dimming; light-activated, scheduled or manual operation; or power meter measurement.
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Point to Multi-Point Protocol Using RS-232 Subnetwork Profile
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Ethernet Subnetwork Profile
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Analyzes National Transportation Communications for ITS (Intelligent Transportation Systems) Protocol (NTCIP) standards affected by updating the communication protocol from SNMPv1 to SNMPv3, identifies SNMPv3 references to be included into NTCIP standards, and provides guidance and work plan for updating the NTCIP standards to incorporate SNMPv3.
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Electrical and Electronic Silicone and Silicone-Braided Insulated Hook-Up Wire Types S (600 V), ZHS (600 V), SS (1,000 V), ZHSS (1,000 V) and SSB Braided (1,000 V)
Covers requirements for silicone rubber-insulated stranded wire used in the internal wiring of high-reliability electrical and electronic equipment. The standard permits continuous conductor temperature ratings of -55°C to +150°C (tin-copper) or +200°C (silver-copper) with either tin-coated or silver-coated conductors. Replaces MIL-W-16878 silicone rubber-insulated wire slash sheets (/7, /8, /29 through /32).
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ANSI/NEMA HP 8-2021

Electrical and Electronic Cross-Linked, Modified Low-Smoke Polyolefin (XLPO) Insulated Hook-Up Wire, Types LS (rated 105°C; 600 V), ZHDM (rated 90°C; 600 V), ZHDH (rated 90°C; 600 V), ZH (rated 125°C; 600 V), and ZHX (rated 125°C; 1,000 V)

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Electrical and Electronic Ethylene-Propylene Diene Elastomer (EPDM) Insulated Hook-Up Wire, Types EP (Rated 125°C; 600 V) and EPD (Rated 125°C; 5000 V)

Covers specific requirements for Ethylene-Propylene Diene Elastomer insulated solid and stranded wire, designed to the internal wiring of high-reliability electrical and electronic equipment.

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ANSI/NEMA MW 1000-2015 Supplement

Supplement to ANSI/NEMA MW 1000 Reference Requirements for Round Film-insulated Magnet Wire

Provides users of MW 1000 with a convenient and concise reference to common performance requirements for film-insulated magnet wire constructions according to conductor material and insulation build. In the case of any discrepancies between this supplement and MW 1000, the requirements in MW 1000 prevail.

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Magnet Wire

Contains specifications for round, rectangular, and square film-insulated and/or fibrous-covered copper and aluminum magnet wire for use in electrical apparatus. Included are the definitions, type designations, dimensions, constructions, performance, and test methods for magnet wire generally used in the winding of coils for electrical apparatus. Visit www.MW1000.com for additional information about ANSI/NEMA MW 1000 and a summary of amendments to the standard.

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Ampacities of Cables Installed in Cable Trays

This standards publication covers the ampacity ratings for 600-15,000 volt solid dielectric cables installed in cable trays. Ampacity ratings are tabulated for single conductor cables, triplexed assemblies of single conductor cables, and three-conductor cables incorporating an overall jacket. Ampacities have been tabulated for the cable constructions and the operating conditions normally encountered for tray applications. Correction factors to adjust the tabulated values to better reflect specific conditions are provided. These include adjustments to account for ambient and operating temperatures, cable construction, tray covers, and diversification of the cable loading.

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Standard for Military Internal Electrical Cable

Covers specific requirements for finished cables. The cables are intended for internal wiring of electrical equipment for use in the hook-up of various electronic assemblies. The component wires are covered by other reference standards. Cables constructed with PVC insulated wires or jackets are not to be used for aerospace applications.

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Performance Standard for Coaxial Premise Data Communications Cables

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Standard for Category 6 and 6A, 100 Ohm, Individually Unshielded Twisted Pairs, Indoor Cables (With or Without An Overall Shield) For Use In LAN Communication Wiring Systems

Defines minimum electrical performance and allowable conductor sizes, stranding and shielding for premise wiring cables for voice and data applications for 100 ohm shielded and unshielded twisted pair cables.

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American National Standard for Uninsulated Conductors—Used in Electrical and Electronic Applications

Covers single-end (solid) and stranded, coated and uncoated copper, coated copper alloy, coated copper-clad steel, aluminum and thermocouple extension uninsulated conductors used primarily in insulated wires for aerospace, electrical, electronic and other high-performance applications.

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Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy

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Standard for Non-Shielded Cables Rated 2,001-5,000 V for Use in the Distribution of Electric Energy

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ANSI/NEMA WC 75-2015

Standard for Controlled Impedance in Internal Electrical Cable

Developed to cover specific requirements for finished cables with controlled impedance twisted pairs. It enables a user to specify various numbers of pairs (1– 61) with a required impedance requirement, and tailor the materials to meet a specific end application.

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ANSI/NEMA WC 76-2018
Standard for Controlled Impedance Shielded Twisted Pairs in Internal Electrical Cable

Covers specific requirements for finished cables with controlled impedance shielded twisted pair(s). This standard enables users to specify various numbers of shielded pairs (1–61) with a required impedance requirement, and tailor the materials to meet a specific end application.

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American National Standard for Aerospace and Industrial Electrical Cable

Contains requirements for finished aerospace and industrial electrical cables. The component wires are covered by other referenced standards. These cables are intended for signal and low-voltage power applications with defined environment or temperature conditions found in commercial aircraft, military aircraft, and high performance vehicles.

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ANSI/NEMA WC 55021-2013
Standard for Military Internal Electrical Cable

Covers specific requirements for finished cables. The cables are intended for internal wiring of electrical equipment for use in the hook-up of various electronic assemblies. The component wires are covered by other reference standards. Cables constructed with PVC insulated wires or jackets are not to be used for aerospace applications.

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The Evolution of Aluminum Conductors Used for Building Wire and Cable

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Electrical and Electronic PVC, PVC/Nylon, and PE/Nylon 105°C Hook-Up Wire, Types B, C, D, BN, CN, and DN (600, 1000, and 3000 V), and Types J and JN 75°C (600V)

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High-Temperature Instrumentation and Control Cables

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Magnet Wire Insulation Removal Methods

Describes known methods for removing insulation from finished magnet wire products including how insulation removal is achieved, the typical applications for each method, and the safety precautions magnet wire users should consider when conducting magnet insulation removal operations.

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Dynamic Coefficient of Friction of Film-Insulated Magnet Wire

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NEMA MW 780-2005 (R2011, 2016)
Returnable Packaging for 24x6 Magnet Wire Reels
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Simulated Insertion Force Test for Film-Insulated Round Magnet Wire
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Conductor Softness Testing Methods
Presents wire testing methodologies used by magnet wire manufacturers and users to characterize the "softness of the conductor" in order to predict how well the magnet wire will wind and be formed into its final desired shape and position.
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Cable Standards Set
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High-Temperature and Electronic Insulated Wire, Impulse Dielectric Testing
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NEMA WC 56-1986 (R2018)
3.0 kHz Insulation Continuity Proof Testing of Wire and Cable
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Repeated Spark/Impulse Dielectric Testing
Discusses the validity of repeat continuity proof testing of insulated wire.
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Performance Standard for Twisted Pair Premise Voice and Data Communications Cables
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A Reasoned Approach to Solving Solderability Problems with Tin-Coated and Nickel-Coated Stranded Conductors in High-Performance Wire and Cable Applications
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Continuity of Coating Testing for Electrical Conductors
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Wire Selection Guidelines for Wires Rated at 200° to 450°C
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Extruded Insulated Magnet Wire
Presents all existing NEMA standards for round, rectangular, and square extruded insulated copper and aluminum magnet wire for use in electrical apparatus. Included are the definitions, type designations, dimensions, constructions, performance, and test methods for extruded insulated magnet wire used in the winding of coils for electrical apparatus.
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5G Best Practices Technical Guid As part of a 2020 strategic initiative, NEMA worked with consultants at ABI Research and explored how the future of wireless communication, 5G, impacts manufacturing. This report is the result of this research.
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Automatic Receptacle Control—Manufacturer Best Practice Checklist Technical Bulletin
Guides manufacturers of automatic receptacle control wiring devices and systems (commonly called plug load control) to achieve successful installation, good end user experience and maximized energy efficiency with the technology deployment. It shares applicable code requirements and sample tools for manufacturers to support their controlled receptacle products.
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Application Guide for Isolated Ground Wiring Devices
Covers wiring devices and accessories intended to help protect sensitive equipment from malfunction due to noise on the equipment grounding path and covers safety installation requirements for compliance with the *National Electrical Code*® (NEC), applications for isolated ground circuits, and troubleshooting and maintenance of such installations.
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Application Guide for Isolated Ground Wiring Devices
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ANSI/NEMA WD 6-2016
Wiring Devices—Dimensional Specifications
Covers the plugs, receptacles, and wall plates used in most electrical installations in residential, commercial, and industrial buildings. Two new configurations were added to offer increased safety for IT and datacenter applications and one configuration was modified. Included in the online version is a new navigation tool that allows one to go from the Table of Contents to the selection chart for each of the three main wiring devices configuration categories.
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Performance Testing for Lighting Controls and Switching Devices with Electronic Drivers and Discharge Ballasts
Provides guidance for the design and testing of lighting controls and switching devices to be used with electronic drivers, discharge ballasts and self-ballasted lamps to assist in establishing and verifying compatibility between products.
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General Color Requirements for Wiring Devices
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Occupancy Motion Sensors Standard
Covers the definition and measurement of field of view and coverage characteristics relevant to the use and application of vacancy and occupancy sensors using individual or any combination of passive infrared, ultrasonic, or microwave technology.
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Guidelines for Electrical Wiring Device Replacement
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Dimmers, Photoelectric Controls, Presence Sensors, and Multi-outlet Bars Energy Consumption Testing and Labeling
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NEMA WD 50000-2020
High Ambient Temperature Test Procedure for Wiring Devices
Defines a process to evaluate wiring devices at high-ambient temperatures for use in high-temperature environments. This standard describes the test procedures related to the highest-ambient temperature rating of a product.
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Automatic Receptacle Control to Meet ASHRAE 90.1-2010 and California (CA) Title 24
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Medical

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Manufacturer Disclosure Statement for Medical Device Security
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American National Standard for Supplier Credentialing in Healthcare
For healthcare providers and their suppliers to identify the credentials of supplier representatives that visit healthcare facilities.
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Medical Imaging Device Lifecycles
Explores the differences between hardware and software lifecycles for medical imaging devices, the implications of those lifecycles on the cybersecurity of the devices, and best practices for manufacturers and healthcare delivery organizations in planning for and communicating different phases of a device's lifecycle.
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Outlines industry best practices to support the secure, safe use of medical imaging devices throughout their lifecycle.
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Clarifies with CT users and hospital administrative staff how to determine whether their CT equipment conforms to the Smart Dose Standard and outlines important considerations for assessing system modifications marketed to obtain Smart Dose Standard conformance.
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Determination of Signal-to-Noise Ratio (SNR) in Diagnostic Magnetic Resonance Imaging
Defines methods for measuring the signal-to-noise ratio of magnetic resonance images obtained under a specific set of conditions, and using single-channel volume receiver coils. This document does not address the use of special purpose coils (see MS 6) or coils that employ multiple receiver channels for operation (see MS 9).
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Determination of Two-Dimensional Geometric Distortion in Diagnostic Magnetic Resonance Images
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Determination of Image Uniformity in Diagnostic Magnetic Resonance Images
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NEMA MS 4-2010
Acoustic Noise Measurement Procedure for Diagnostic Magnetic Resonance Imaging (MRI) Devices
Provides methods for determining the acoustic noise level of an MRI system.
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NEMA MS 5-2018
Determination of Slice Thickness in Diagnostic Magnetic Resonance Imaging
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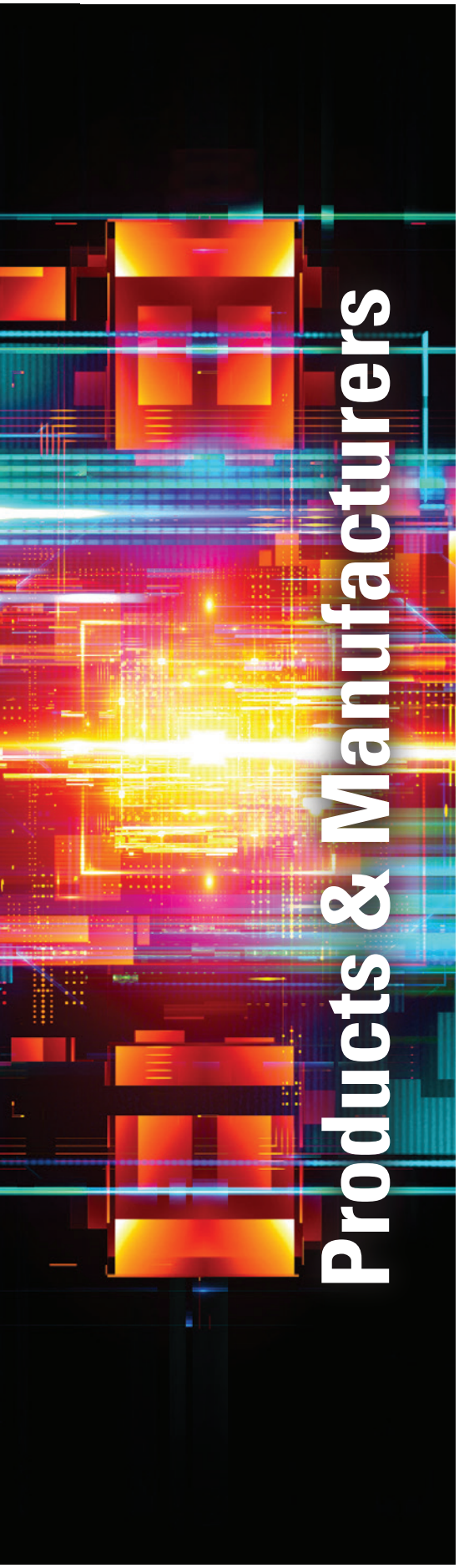

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www.junolightinggroup.com

KIM Lighting
www.kimlighting.com

Lithonia Lighting, an Acuity Brands Company
www.lithonia.com

Premise Inc.
www.premiseco.com

Prescolite
www.prescolite.com

Progress Lighting
progresslighting.com

RAB Lighting
www.rabweb.com

Satco Products, Inc.
www.satco.com

Signify
www.signify.com

Ballast and Driver

Acuity Brands, Inc.
www.acuitybrandslighting.com

Fanlight Corp, Inc.
www.mynaturaled.com

GE Current, a Daintree company
www.gecurrent.com

GE Lighting, a Savant company
www.gelighting.com

Halco Lighting Technologies
www.halcolighting.com

Holophane Company an Acuity Brands Company
www.holophane.com

Hubbell Lighting, Inc.
www.hubbelllighting.com

Leviton Manufacturing Company, Inc.
www.leviton.com

Lutron Electronics Company, Inc.
www.lutron.com

Signify
www.signify.com

TCP International Holdings Ltd.
www.tcpi.com

Emergency Lighting

ABB Installation Products, Inc.
electrification.us.abb.com

Acuity Brands, Inc.
www.acuitybrandslighting.com

Atlas Lighting Products, Inc.
www.atlaslightingproducts.com

Cree Lighting
www.creelighting.com

Dual-Lite
www.dual-lite.com

Gilbert Industries, Inc.
www.gilbertinc.com

Holophane Company an Acuity Brands Company
www.holophane.com

Hubbell Lighting, Inc.
www.hubbelllighting.com

Juno Lighting Group an Acuity Brands Company
www.junolightinggroup.com

Lithonia Lighting, an Acuity Brands Company
www.lithonia.com

Signify
www.signify.com

TCP International Holdings Ltd.
www.tcpi.com

Floodlighting

ABB Installation Products, Inc.
electrification.us.abb.com

Acuity Brands, Inc.
www.acuitybrandslighting.com

Architectural Area Lighting
www.aal.net

Atlas Lighting Products, Inc.
www.atlaslightingproducts.com

Cooper Lighting Solutions
www.cooperlighting.com

Cree Lighting
www.creelighting.com

Emerson Automation Solutions
www.egseg.com

Holophane an Acuity Brands Company
holophane.acuitybrands.com

Hubbell Lighting, Inc.
www.hubbelllighting.com

Intense Lighting A Leviton Company
www.intenselighting.com

Juno Lighting Group an Acuity Brands Company
www.junolightinggroup.com

KIM Lighting
www.kimlighting.com

Lithonia Lighting, an Acuity Brands Company
www.lithonia.com

Prescolite
www.prescolite.com

RAB Lighting
www.rabweb.com

Satco Products, Inc.
www.satco.com

Signify
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Indoor Lighting

ABB Installation Products, Inc.
electrification.us.abb.com

Acuity Brands, Inc.
www.acuitybrandslighting.com

Architectural Area Lighting
www.aal.net

Atlas Lighting Products, Inc.
www.atlaslightingproducts.com

Columbia Lighting
www.columbia-ltg.com

Cree Lighting
www.creelighting.com

Emerson Automation Solutions
www.egseg.com

GE Lighting, a Savant company
www.gelighting.com

Holophane an Acuity Brands Company
holophane.acuitybrands.com

Hubbell Lighting, Inc.
www.hubbelllighting.com

Intense Lighting A Leviton Company
www.intenselighting.com

Juno Lighting Group an Acuity Brands Company
www.junolightinggroup.com

KIM Lighting
www.kimlighting.com

LEDVANCE LLC
www.sylvania.com

Lithonia Lighting, an Acuity Brands Company
www.lithonia.com

MaxLite
www.maxlite.com

Prescolite
www.prescolite.com

Progress Lighting
progresslighting.com

RAB Lighting
www.rabweb.com

Satco Products, Inc.
www.satco.com

Signify
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TCP International Holdings Ltd.
www.tcpi.com

Lampholders

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Hubbell Incorporated Wiring Device-Kellems
www.hubbell-wiring.com

Leviton Manufacturing Company, Inc.
www.leviton.com

Pass & Seymour by Legrand
www.passandseymour.com

TE Connectivity
www.te.com

Light Source

Cree Lighting
www.creelighting.com

EiKO Global, LLC
www.eiko.com

EYE Lighting International of North America, Inc.
www.eyelighting.com

Fanlight Corp, Inc.
www.mynaturaled.com

Feit Electric Company, Inc.
www.feit.com

GE Current, a Daintree company
www.gecurrent.com

GE Lighting, a Savant company
www.gelighting.com

Halco Lighting Technologies
www.halcolighting.com

LEDVANCE LLC
www.ledvance.com

Lutron Electronics Company, Inc.
www.lutron.com

MaxLite
www.maxlite.com

Signify
www.signify.com

Satco Products, Inc.
www.satco.com

Southwire Company
www.southwire.com

TCP International Holdings Ltd.
www.tcpi.com

Westinghouse Lighting
www.westinghouselighting.com

Lighting Control Devices

Eaton
www.eaton.com

Enerlites Inc.
www.enerlites.com

Leviton Manufacturing Company, Inc.
www.leviton.com

Lutron Electronics Company, Inc.
www.lutron.com

Pass & Seymour by Legrand
www.passandseymour.com

Schneider Electric
www.schneider-electric.us

WattStopper
www.wattstopper.com

Lighting Controls

Acuity Brands, Inc.
www.acuitybrandslighting.com

GE Current, a Daintree company
www.gecurrent.com

Holophane an Acuity Brands Company
holophane.acuitybrands.com

Hubbell Control Solutions
www.hubbell-automation.com

Hubbell Incorporated
www.hubbell.com

Hubbell Lighting, Inc.
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Juno Lighting Group an Acuity Brands Company
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Leviton Manufacturing Company, Inc.
www.leviton.com

Lithonia Lighting, an Acuity Brands Company
www.lithonia.com

Lutron Electronics Company, Inc.
www.lutron.com

Pass & Seymour by Legrand
www.passandseymour.com

RAB Lighting
www.rabweb.com

Schneider Electric
www.schneider-electric.us

Sensor Switch, an Acuity Brands Company
www.sensorswitch.com

Signify
www.signify.com

WattStopper
www.wattstopper.com

Outdoor Lighting

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Architectural Area Lighting
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Cooper Lighting Solutions
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Dialight
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Emerson Automation Solutions
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EYE Lighting International of North America, Inc.
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Roadway Lighting

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Specialty Lighting

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electrification.us.abb.com

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Low Voltage Distribution Equipment

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Boltswitch, Socomec Group
www.boltswitch.com

Construction Innovations, LLC
www.constructioninnovations.com

Durham Company
www.durhamcompany.com

Eaton
www.eaton.com/electricalusa

Eaton's Bussmann Division
www.cooperbussmann.com

Hubbell Incorporated
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Hubbell Power Systems
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Hubbell Wiring Device-Kellems
www.hubbell-wiring.com

Leviton Manufacturing Co., Inc.
www.leviton.com

Mersen USA Newburyport-MA, LLC
ep-us.mersen.com

Milbank Manufacturing Company
www.milbankworks.com

Post Glover Resistors, Inc.
www.postglover.com

Reliance Controls Corporation
www.reliancecontrols.com

Rockwell Automation, Inc.
www.rockwellautomation.com

Schneider Electric
www.schneider-electric.us

Siemens Industry, Inc.
www.usa.siemens.com/industry

Starline Holdings, LLC, a company of Legrand, North America
www.starlinepower.com

Low Voltage Surge Protective Devices

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electrification.us.abb.com

ASCO Power Technologies
www.ascopower.com

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www.citel.us

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Emerson Automation Solutions
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Hubbell Power Systems
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Hubbell Wiring Device-Kellems
www.hubbell-wiring.com

Legrand, North America
www.legrand.us

Leviton Manufacturing Company, Inc.
www.leviton.com

Littelfuse, Inc.
www.littelfuse.com

Mersen Electrical Power
ep-us.mersen.com

MVC-Maxivolt
www.maxivolt.com

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nVent ERICO
www.erico.com

Phoenix Contact
www.phoenixcontact.com/usa_home

Raycap, Inc.
www.rayvoss.com

Schneider Electric
www.schneider-electric.us

Space Age Electronics, Inc.
www.1sae.com

Southwire Company
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Wiremold Cable Management Products by Legrand
www.wiremold.com

Medical Imaging & Technology

Acertara Acoustic Laboratories
www.acertaralabs.com

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www.agfahealthcare.com

Agfa US Corp
global.agfahealthcare.com

AIQ Solutions, Inc.
www.aiq-solutions.com

Bayer HealthCare, LLC.
www.radiologysolutions.bayer.com

Biogen
www. biogen.com

Blue Earth Diagnostics
www.blueearthdiagnostics.com

Bracco Diagnostics, Inc.
www.bracco.com

Butterfly Network, Inc.
www.butterflynetwork.com

Canon Medical Systems USA, Inc.
us.medical.canon

Caption Health, Inc.
captionhealth.com

Cardinal Health
www.cardinalhealth.com

Cerveau Technologies Inc.
cerveautechnologies.com

Curium
www.curiumpharma.com

Dicom Systems, Inc.
dcmsys.com

Digirad
www.digirad.com

EIZO, Inc.
www.eizo.com/global/solutions/medical

Eli Lilly & Company
www.lilly.com

Esaote North America
www.esaoteusa.com

eV Products, Inc., dba Kromek
www.kromek.com

FUJIFILM Medical Systems U.S.A., Inc.
www.fujifilm.com/products/medical/

FUJIFILM Sonosite, Inc.
www.sonosite.com

FUJIFILM Healthcare Americas Corporation
hca.fujifilm.com/fujifilm-healthcare

GE Healthcare
www3.gehealthcare.com

HeartFlow, Inc.
www.heartflow.com

Hologic, Inc.
www.hologic.com

Ionetix Corporation
www.ionetix.com

Jubilant DraxImage, Inc.
www.draximage.com

Kheiron Medical Technologies Limited
www.kheironmed.com

Konica Minolta Medical Imaging USA Inc.
www.konicaminolta.com/medicalusa

Laitek Inc.
www.laitek.com

Lantheus Medical Imaging, Inc.
www.lantheus.com

Liebel-Flarsheim a wholly owned subsidiary of Guerbet Group
www.guerbet.com/en

Life Molecular Imaging
piramal.com/imaging/

maiData Corporation
www.maidata.io

MedTrace Pharma, Inc.
medtrace.dk

Medtronic, Inc.
www.medtronic.com

NeuroLogica, a subsidiary of Samsung Electronics
www.neurologica.com

Numa, Inc.
www.numa-inc.com

PACSHealth, LLC
www.pacshealth.com

PharmaLogic
radiopharmacy.com

Philips
www.usa.philips.com/healthcare

Seno Medical Instruments Inc.
senomedical.com

Shimadzu Medical Systems USA, a part of Shimadzu Corporation
www.shimadzu.com/med

Siemens Healthineers
usa.healthcare.siemens.com

Spectrum Dynamics Medical
www.spectrum-dynamics.com

United Imaging Healthcare
www.united-imaging.com

Varex Imaging
www.varexImaging.com

VISUS Health IT GmbH
www.visus.com

Ziehm Imaging, Inc.
www.ziehm.com

Motor and Generator

ABB Motors and Mechanical Inc.
new.abb.com/motors-generators

Adventech, LLC
adventechinc.com

Bison Gear & Engineering Corporation

ww.bisongear.com

Bluffton Motor Works WEG Group
www.blufftonmotorworks.com

Brook Crompton Americas
www.brookcromptonna.com

Cummins, Inc.
www.cummins.com

GE Industrial Motors, a Wolong Company
www.gemotorswolong.com

Infinitum Electric
www.infinitumelectric.com

Leeson Electric, a Regal brand
www.leeson.com

Marathon Electric
www.marathonelectric.com

Nidec Motor Corporation
www.nidec-motor.com

NORD Gear Corporation
www.nord.com

Regal Rexnord Corporation
www.regal-beloit.com

SEW-Eurodrive, Inc.
www.seweurodrive.com

Siemens Industry, Inc.
www.usa.siemens.com/industry

Sterling Electric, Inc.
www.sterlingelectric.com

Tatung Electric Company of America
tatungelectric.com

Techtop Industries, Inc.
www.techtopind.com

TECO-Westinghouse Motor Company
www.tecowestinghouse.com

Toshiba International Corporation
www.toshiba.com/ind

Turntide Technologies
turntide.com

WEG Electric Corp.
www.weg.net/us

Worldwide Electric Corporation
www.worldwideelectric.net

Outlet & Switch Boxes

Metallic Boxes and Covers

ABB Installation Products, Inc.
electrification.us.abb.com

Eaton's Crouse-Hinds Business
www.crouse-hinds.com

Emerson Automation Solutions
www.egseg.com

Hubbell Incorporated
www.hubbell.com

IPEX USA, LLC
www.ipexna.com/usa

Raco by Hubbell, Inc.
www.hubbell.com/raco/en

Sigma Electric Manufacturing Corporation
www.sigmaelectric.com

TayMac by Hubbell, Inc.
www.taymac.com

Wiremold Cable Management Products by Legrand
www.wiremold.com

Nonmetallic Boxes and Covers

ABB Installation Products, Inc.
electrification.us.abb.com

Allied Moulded Products, Inc.
www.alliedmoulded.com

Arlington Industries, Inc.
www.aifittings.com

Eaton
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Emerson Automation Solutions
www.egseg.com

HOTWIRE LLC
tryhotwire.com

Hubbell Incorporated
www.hubbell.com

Hubbell Wiring Device-Kellems
www.hubbell-wiring.com

IPEX USA, LLC
www.ipexna.com/usa

Pass & Seymour by Legrand
www.passandseymour.com

TayMac by Hubbell, Inc.
www.taymac.com

Wiremold Cable Management Products by Legrand
www.wiremold.com

Southwire Company
www.southwire.com

Pin & Sleeve

ABB Installation Products, Inc.
electrification.us.abb.com

Bryant Electric, a division of Hubbell, Inc.
www.bryant-electric.com

Crest Healthcare Supply
www.cresthealthcare.com

Eaton
www.eaton.com

Emerson Automation Solutions
www.egseg.com

Hubbell Wiring Device-Kellems
www.hubbell-wiring.com

Interpower Corporation
www.interpower.com

Killark, a division of Hubbell, Inc.
www.hubbell-killark.com

Leviton Manufacturing Company, Inc.
www.leviton.com

MELTRIC Corporation
www.meltric.com

Pass & Seymour by Legrand
www.passandseymour.com

Power Equipment

Electrical Connector

3M
www.3M.com/electrical

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electrification.us.abb.com

ASK Products, Inc.
www.ask-power.com

BURNDY, LLC
www.burndy.com

Connector Manufacturing Company A Hubbell Company
www.cmclugs.com

Eaton
www.eaton.com

Galvan Industries, Inc.
www.galvanelectrical.com

Hubbell Power Systems
www.hubbellpowersystems.com

ILSCO
www.ilsco.com

NSi Industries, LLC
www.nsiindustries.com

nVent ERICO
www.erico.com

Panduit Corporation
www.panduit.com

Polaris Electrical Connectors
polarisconnectors.com

South Atlantic, LLC
www.southatlanticllc.com

TE Connectivity
www.te.com

Electrical Measuring Equipment

Aclara Meters
www.aclara.com

Brooks Utility Products
www.brooksutility.com

Durham Company
www.durhamcompany.com

Eaton
www.eaton.com

Honeywell Smart Energy
www.elsterelectricity.com

Hubbell Power Systems
wwww.hubbell.com/hubbellpowersystems

Itron, Inc.
www.itron.com

Landis+Gyr
www.landisgyr.com

Milbank Manufacturing Company
www.milbankworks.com

Radian Research, Inc.
www.radianresearch.com

Phoenix Contact
www.phoenixcontact.com

Schneider Electric
www.schneider-electric.com

Sensus, A Xylem Brand
sensus.com

Siemens Industry, Inc.
www.usa.siemens.com/industry

High Voltage Insulator

Hendrix Molded Products
www.marmonutility.com/MoldedProducts.aspx

Hubbell Power Systems
www.hubbellpowersystems.com

K-Line Insulators, Inc.
www.k-line.net

Lapp Insulators, LLC
www.lappinsulator.com

Newell-PSN, LLC
www.newellporcelain.com

NGK-Locke Polymer Insulators, Inc.
www.ngk-polymer.com

Preformed Line Products
www.preformed.com

Raychem, a product group of TE Connectivity
raychem.te.com

Sediver USA, Inc.
www.sediver.com

PPC USA, Inc.
www.ppcinsulators.com

Victor Insulators, Inc.
www.victorinsulators.com

Surge Arrester

ABB Inc.
www.abb.com

Eaton
www.eaton.com

Hitachi ABB Power Grids
www.hitachiabb-powergrids.com

Hubbell Power Systems
www.hubbellpowersystems.com

Siemens Industry, Inc.
www.usa.siemens.com/Industry

TE Connectivity
www.te.com

Raceways

Polymer Guards

ABB Installation Products, Inc.
electrification.us.abb.com

Hubbell Incorporated
www.hubbell.com

IPEX USA, LLC
www.ipexamerica.com

Polymer Raceway Products

ABB Installation Products, Inc.
electrification.us.abb.com

Atkore AFC Cable Systems
www.afcweb.com

Atkore Allied Tube & Conduit
www.alliedeg.us

Anamet Electrical, Inc.
www.anacondasealtite.com

Champion Fiberglass, Inc.
www.championfiberglass.com

Electri-Flex Company
www.electriflex.com

Atkore FRE Composites
www.frecomposites.com

Hubbell Incorporated
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Phoenix Contact
www.phoenixcontact.com/usa_home

Southern Pipe, Inc.
www.southern-pipe.com

Southwire Company
www.southwire.com

Underground Devices, Inc.
www.udevices.com

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Thermoplastic Raceway (PVC, Polyethylene, Polyolefin)

ABB Installation Products, Inc.
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Atkore AFC Cable Systems
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Thermoset Raceway (Fiberglass)

Champion Fiberglass, Inc.
www.championfiberglass.com

Atkore FRE Composites
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Receptacles

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Bryant Electric
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Sky Technologies
www.safetyquicklight.com

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Residential & Commercial Controls

APCOM, Inc.
www.apcom-inc.com

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Johnson Controls
www.tycosimplexgrinnell.com

Google Nest
ww.nest.com

Resideo Technologies, Inc.
www.resideo.com

Therm-O-Disc, a brand of Emerson
www.thermodisc.com

White-Rodgers, a brand of Emerson
www.white-rodgers.com

Steel Conduit and Electrical Metallic Tubing

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Atkore Allied Tube & Conduit
www.alliedeg.us

Nucor
nucortubular.com/product/electrical-conduit/

Robroy Industries, Inc.
www.robroy.com

Western Tube Division of Zekelman
www.westerntube.com

Wheatland Tube Company
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Switches

Bryant Electric, a division of Hubbell, Inc.
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www.enerlites.com

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www.hubbell-wiegmann.com

Hubbell Wiring Device-Kellems
www.hubbell-wiring.com

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Switchgear

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Hitachi Energy USA Inc.
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Hubbell Power Systems
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Mersen Electrical Power
ep-us.mersen.com

Mitsubishi Electric Power Products, Inc.
www.meppi.com

S&C Electric Company
www.sandc.com

Schneider Electric
www.schneider-electric.us

Siemens Energy
www.siemens-energy.com

Siemens Industry, Inc.
www.usa.siemens.com/industry

Toshiba International Corporation
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Z-Power & Distribution
zpoweranddistribution.com

Transformers

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Hammond Power Solutions, Inc.
www.hammondpowersolutions.com

Hitachi Energy USA Inc.
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Hubbell Acme
www.hubbell.com/acmeelectric/en

MGM Transformer Company
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Milbank Manufacturing Company
milbankworks.com

Mitsubishi Electric Power Products, Inc.
www.meppi.com

Power Distribution Inc (PDI) part of Eaton
www.pdicorp.com

Prolec GE
www.prolecge.com/index.php/en/

Schneider Electric
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Siemens Industry, Inc.
new.siemens.com

VanTran Industries
www.vantran.com

Transportation Management Systems & Associated Control Devices

360 Network Solutions, LLC
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Daktronics
www.daktronics.com/transportation

Eberle Design, Inc.
www.editraffic.com

Horizon Signal Technologies
www.horizonsignal.com

Intelight, a Q-Free Company
www.q-free.com

John Thomas, Inc.
www.crashcushions.com

Parsons
delcantechnologies.com

Qualcomm
www.qualcomm.com

Sunrise SESA Technologies, Inc.
www.sesamerica.com

Siemens Industry, Inc.
www.usa.siemens.com/industry

Skyline Products
www.skylineproducts.com

Temple, Inc.
temple-inc.com

Ver-Mac
www.ver-mac.com

Uninterruptible Power (UPS)

Single-Phase UPS

ABB Inc.
www.abb.com

APC by Schneider Electric
www.apc.com

Delta Products Corporation
www.delta-americas.com

Emerson Automation Solutions
www.egseg.com

Toshiba International Corporation
www.toshiba.com/ind

VERTIV Liebert
www.liebert.com

Three-Phase UPS

ABB Inc.
www.abb.com

APC by Schneider Electric
www.apc.com

Toshiba International Corporation
www.toshiba.com/ind

VERTIV Liebert
www.liebert.com

Wire & Cable

Building Wire and Cable

Atkore AFC Cable Systems
www.afcweb.com

Anamet Electrical, Inc.
www.anacondasealtite.com

Cerro Wire, LLC
www.cerrowire.com

Colonial Wire & Cable Co., Inc.
colonialwire.com

Copperweld Bi-Metallics, LLC
www.copperweld.com

Electri-Flex Company
www.electriflex.com

Encore Wire Corporation
www.encorewire.com

International Metal Hose Company
www.metalhose.com

Nexans
www.nexans.ca

Okonite Company, The
www.okonite.com

Service Wire Company
www.servicewire.com

Southwire Company
www.southwire.com

Viakable, S.A. de C.V.
www.viakable.com

Flexible Cords

Bryant Electric, a division of Hubbell, Inc.
www.bryant-electric.com

Hubbell Wiring Device-Kellems
www.hubbell-wiring.com

Interpower Corporation
www.interpower.com

Nexans
www.nexans.ca

SEA Wire and Cable, Inc.
www.sea-wire.com

Southwire Company
www.southwire.com

Advanced Technology Wire and Cable

Atkore AFC Cable Systems
www.afcweb.com

Champlain Cable Corporation
www.champcable.com

Marine Tech Wire and Cable, Inc.
www.marinetechwire.com

Marmon Aerospace & Defense, LLC
www.marmon-ad.com

Monroe Cable Company, Inc., The
www.monroecableusa.com

Nexans
www.nexans.ca

Okonite Company, The
www.okonite.com

Quirk Wire Company, Inc.
www.quirkwire.com

Radix Wire & Cable, LLC
www.radix-wire.com

RSCC Wire and Cable
www.r-scc.com

SEA Wire and Cable, Inc.
www.sea-wire.com

Southwire Company
www.southwire.com

TE Connectivity
www.te.com/usa-en/home.htm

Virginia Insulated Products, Inc.
www.vipwire.com

WireMasters, Inc.
www.wiremasters.net

W.L. Gore & Associates, Inc.
www.gore.com

Magnet Wire

CONDUMEX S.A. DE C.V.
www.condumex.com

Elektrisola, Inc.
www.elektrisola-usa.com

Magnekon S.A. de C.V., a Viakable company
www.magnekon.com

MWS Wire Industries
www.mwswire.com

Rea Magnet Wire Company, Inc.
www.reawire.com

SEA Wire and Cable, Inc.
www.sea-wire.com

Essex Furukawa Magnet Wire LLC
www.superioressex.com

Virginia Insulated Products, Inc.
www.vipwire.com

Power and Control Cable

Atkore AFC Cable Systems
www.afcweb.com

CME Wire & Cable
www.cmewire.com

Marmon Utility LLC
www.marmonutility.com

Nexans
www.nexans.ca

Okonite Company, The
www.okonite.com

Phoenix Contact
www.phoenixcontact.com/usa_home

RSCC Wire and Cable
www.r-scc.com

SEA Wire and Cable, Inc.
www.sea-wire.com

Service Wire Company
www.servicewire.com

Southwire Company
www.southwire.com

Tatung Electric Company of America
www.tatungelectric.com

Wiring Devices

Bryant Electric, a division of Hubbell, Inc.
www.bryant-electric.com

Eaton
www.eaton.com

Enerlites Inc.
www.enerlites.com

Hubbell Incorporated
www.hubbell.com

Hubbell Wiring Device-Kellems
www.hubbell-wiring.com

Interpower Corporation
www.interpower.com

Legrand, North America
www.legrand.us

Leviton Manufacturing Company, Inc.
www.leviton.com

Lutron Electronics Company, Inc.
www.lutron.com

Pass & Seymour by Legrand
www.passandseymour.com

Schneider Electric
www.schneider-electric.us

Sky Technologies
www.safetyquicklight.com

SnapPower
www.snappower.com

Southwire Company
www.southwire.com

TayMac by Hubbell, Inc.
www.taymac.com

TE Connectivity
www.te.com

Titan3 Technology LLC
www.titan3.com

WattStopper
www.wattstopper.com

Wiremold Cable Management Products by Legrand
www.wiremold.com

Industrial Suppliers

Companies that supply raw, manufactured materials, components or products

Apple Inc.
Cupertino CA
www.apple.com

Arkema Inc.
King Prussia PA
www.arkema.com

Ascend Performance Materials
Houston TX
www.ascendmaterials.com

Budde Marketing Systems, Inc.
Homer Glen IL
www.buddemarketing.com

Freeport-McMoRan
Phoenix, AZ
www.fcx.com

INTEGRATED Engineering Software
Winnipeg MB
www.integratedsoft.com

Jor-Mac Company
Lomira WI
www.jor-mac.com

Meister International, LLC
Ross OH
www.meisterintl.com

PPG Industrial Coatings
Pittsburgh PA
corporate.ppg.com

Robertson Inc.
Burlington ON
www.robertsonscrew.com

Synaptronics
Columbia MD
www.synaptronics.com

Wholesale Trade

Companies that are authorized to distribute NEMA Member products

Batteries Plus Bulbs
Hartland WI
www.batteriesplus.com

Graybar Electric Company, Inc.
Saint Louis MO
www.graybar.com

Medical Outfitters, Inc.
Miami FL
medicaloutfitter.net

Sunshine Lighting
Brooklyn, NY
www.sunlite.com

Sy Kessler Sales Inc.
Dallas TX
www.sykessler.com

WESCO International, Inc.
Pittsburgh, PA
www.wesco.com

Associations

Organizations that have an interest in NEMA-related issues

American Public Power Association
Arlington VA
www.publicpower.org

CABA
Ottawa ON
www.caba.org

EASA
Saint Louis, MO
easa.com

IMSA
Rockledge FL
www.imsasafety.org

The Vinyl Institute
Alexandria VA
www.vinylinfo.org

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