

electroindustry

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FROM THE **PRESIDENT**

Foremost among NEMA values is the safe manufacture of products that integrate cutting edge technology with relentless quality control. From regulation to legislation and from public relations to public education, NEMA members demonstrate that safety is a daily priority for the industry. That's no accident.

Safety is a state of mind. When applied systematically, it protects the factory worker, electrician, consumer, and environment. It begins with the design and continues through end-of-service activities such as recycling.

The most direct and longest-running safety-related practice at NEMA is the publication and maintenance of more than 500 technical performance and interoperability standards for electrical equipment. NEMA also collaborates with other standards developing organizations to draft and update safety standards that are incorporated in installation and building codes.

The electroindustry is also active in shaping policy through promoting state and local adoption of the *National Electrical Code*® (NEC). This national model sets the minimum standards for the proper installation of electrical systems and equipment. NEMA advocates for a three-year NEC adoption cycle to coincide with the code's revision cycle. Delaying adoption leaves the consumer behind the documented, technically sound, minimum requirements for safe electrical installations.

Individual NEMA sections also directly shape safety policy. For example, over the last 20 years, the Dry Battery Section has worked with the U.S. Consumer Product Safety Commission and other stakeholders to mitigate the risk of ingestion of small "button cell" batteries by educating consumers, the medical community, and battery-powered equipment manufacturers on safe use. Additionally, NEMA provides essential funding to the National Capitol Poison Center to collect and analyze data on ingestion.

Our Member-derived commitment to environmentally conscious design spans the last decade. We leveraged the industry's wide-ranging perspectives and technical expertise to create a baseline from which to advocate for sensible regulatory solutions, all the while promoting compliance with environmental rules with direct human safety implications.

As a founding member of the Electrical Safety Foundation International (ESFI), we encourage its mission to promote the safe use of electrical products across the entire spectrum of electrical use. Highly regarded by government, industry, media, and other safety stakeholders, ESFI often shapes policy through public opinion. It advances its goals through education, awareness, and advocacy campaigns. If you are not participating in ESFI, I strongly encourage you to do so.

While the NEMA staff plays an important role in safety, Member companies do the heavy lifting. They tirelessly develop and build safe and reliable electrical equipment.

Hats off to the NEMA companies for putting safety first all day, every day. 📌

Electrical Fatalities Go Down, Nonfatal Injuries Go Up

According to a new report released by the Electrical Safety Foundation International (ESFI), the annual incidence of workplace electrical fatalities continues to decline, while nonfatal electrical injuries sharply increased in 2015. Compiled by ESFI, the “Workplace Electrical Injuries and Fatalities Report” examines data from the U.S. Bureau of Labor Statistics Census of Fatal Occupational Injuries (CFOI) from 2003 to 2015.

The 134 electrical fatalities that occurred in 2015 resumed the long-term trend of annual reduced electrical fatalities after 2014’s increase over 2013. Electrocutions made up the vast majority of electrical fatalities, while electrical burns were responsible for four fatalities. In 2015, 60 percent of all fatal electrical injuries occurred in the construction industry.

Construction remained the leading source of fatal electrical injuries with 81, more than four times the contribution of the second-highest source, professional and business services. From 2011 to 2015, workers in the 25-to-34 age group experienced electrical fatalities at one and a half to two times the average for all age groups.

Meanwhile, the incidence of nonfatal electrical injuries did not see the same downward trend. Nonfatal electrical injuries resulting in days away from work rose by one third in 2015 over 2014 to 2,480, the highest level since 2009.



The median number of days away from work for nonfatal electrical injuries was five.

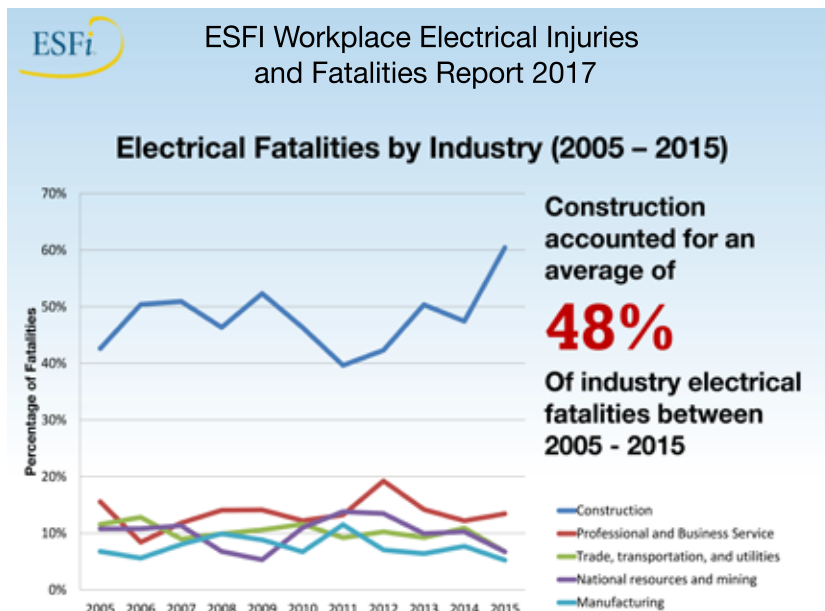
Although more electrical burn injuries than electric shock injuries occurred in the construction industry from 2003 to 2015, that gap is beginning to narrow. Construction saw more electric shock injuries than electrical burn injuries in 2010, 2013, and 2015. In fact, three times more electric shock injuries than electrical burn injuries occurred in 2015.

The utility industry continues to see more electrical burn injuries than electrical shock injuries each year, except for 2015 when their numbers were approximately equal.

While the downward trend of electrical fatalities shows heightened awareness of electrical safety practices, even one preventable electrical fatality is too many. These fatalities, along with the recent increase of nonfatal electrical injuries, emphasize the importance of adherence to the NFPA 70E *Standard for Electrical Safety in the Workplace*® requirements for safe work practices.

May is National Electrical Safety Month. Make sure safety is the top priority in your workplace and that your employees have the proper training and resources to maintain a zero-tolerance policy regarding electrical injuries and fatalities.

Visit www.esfi.org to learn more about electrical safety in the workplace. ®





Save the Date

NEMA's 91st Annual Membership Meeting

November 8 & 9, 2017
Hyatt Regency Coconut Point
Bonita Springs, Florida

Registration opens June 1
www.nema.org/annual-meeting

Conveying the Importance of Minerals Accessibility

NEMA President and CEO Kevin J. Cosgriff addressed the U.S. Senate Committee on Energy and Natural Resources on March 28 to voice the electroindustry perspective on minerals availability and the importance of minerals access for U.S. electrical and medical imaging manufacturers. In his testimony, Mr. Cosgriff emphasized the importance of policies that provide assurance to industry of stable and continuous supply and affordability.

“Electrical manufacturers support the federal role in critical minerals policy, including research and development, as well as minerals information and analysis,” he said. “A balanced minerals policy is important to domestic manufacturing and employment.”


Mr. Cosgriff expressed industry concern over the increasing dependence of the United States on foreign sources of critical minerals, including rare earths and other raw materials. He advocated for access to more secure and price-competitive supplies closer to home, such as countries in the North American Free Trade Agreement (NAFTA).



NEMA President and CEO Kevin J. Cosgriff spoke with Senator Lisa Murkowski (R-AK), chairwoman of the Senate Energy and Natural Resources Committee, following his testimony on the importance of minerals to the electroindustry. Photo by Craig Updyke

“Reliance on foreign sourcing of raw and processed rare earth materials remains a point of significant risk depending on the location of that source—for example, China. As our nation accelerates steps to renew the power grid, including deploying grid-scale energy storage, having access to minerals and metals is a fundamental issue.”


Medical imaging patients are also affected by this issue, he added. “NEMA encourages Congress to apply oversight authority to monitor implementation of the American Medical Isotopes Production Act (AMIPA) of 2011, so that patients can get the right scan at the right time.”

“The issue is whether U.S. electroindustry and medical imaging companies will be able to manufacture their valuable products and where they will be able to manufacture them,” Mr. Cosgriff concluded. “Our companies are working to meet the nation’s future needs in energy, healthcare, and transportation. NEMA supports initiatives to improve the prospects that U.S. industry and workers will have access to the minerals, related information, and regulatory environment they need to be globally competitive.” 

I Am the Electroindustry



Rodger Reiswig, SET, Director of Industry Relations
Tyco Fire Protection Products

At Tyco, we support NEMA because of its significant presence within the codes, standards, listings, and governmental affairs sectors. I volunteer on several committees within the Fire, Life Safety, Security, and Emergency Communication Section because of our accomplishments promoting life safety on behalf of the industry. NEMA is not about manufacturers getting together to figure out how to sell more products, but rather a collective way the industry can come together to advocate for safety. 

MITA Urges Congress to Reauthorize User Fee Program

Diane Wurzburger, executive of regulatory affairs at GE Healthcare, testified on behalf of the Medical Imaging & Technology Alliance (MITA) on March 28 at the Medical Device User Fee Act (MDUFA IV) negotiations hearing before the U.S. House of Representatives Committee on Energy and Commerce Subcommittee on Health. She called for swift reauthorization of the user fee program.


“The tentative MDUFA IV agreement advances our shared goals of protecting access to safe and effective medical devices,” she said.

If enacted, the agreement will improve Food and Drug Administration (FDA) review of medical devices, ensuring that American patients have timely access to these technologies.

“MITA supports the FDA in proposing this agreement to Congress and will continue to partner with FDA and other stakeholders in asking Congress to reauthorize this critical program,” Ms. Wurzburger said.

MDUFA IV, negotiated between the FDA and the medical device industry in 2016, builds on the progress from the 2012 user fee agreement to improve the agency’s device review process while maintaining robust standards for patient safety. The latest agreement includes several process improvements that will enhance the predictability, consistency, transparency, and timeliness of the premarket review process, as well as pre-submission meeting metrics, inclusion of the basis for deficiencies in all deficiency letters and appropriate supervisory review, FDA quality management program and audits, independent assessment, and additional reporting metrics.

Reauthorization will also establish a conformity assessment program for accredited testing laboratories that evaluate medical devices according to FDA-recognized standards.

The medical imaging community has long advocated for enhanced predictability, consistency, transparency, and timeliness of the agency’s pre-market approval and clearance process for medical imaging technologies and other devices. MITA and its members believe that all MDUFA commitments should be backed by appropriate, measureable, and predictable performance goals that support these principles. 

MITA-Led Bill to Facilitate Approvals of Contrast Agents

Congressmen Ryan Costello (R-PA) and Scott Peters (D-CA) introduced MITA-backed HR 2009, Fostering Innovation in Medical Imaging Act of 2017, a bipartisan bill that provides medical imaging device and contrast drug manufacturers a clear regulatory pathway to ensure patients have access to innovative advanced medical imaging technologies.

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Putting Safety First: A Moral Imperative

**Jonathan Stewart,
Manager,
Government
Relations, NEMA**

**Mark Kohorst,
Senior Manager,
Environment,
Health & Safety,
NEMA**

The safe and effective use of electrical and medical imaging products touches the life of every American in a significant way, every day. NEMA's guiding principles are based on this premise; they encompass standards development, counterfeiting, energy efficiency, and transparency.

May, as National Electrical Safety Month, is a good time to remember that safety is not a PR campaign or a business strategy, although its principles certainly underpin both. It is a moral imperative—one that begins with product design and continues through installation and decommissioning to protect the

consumer and the environment. NEMA does not simply follow this moral compass; we set it, inasmuch as it applies to products within the scope of our membership.

Through the promotion of devices such as carbon monoxide and smoke detectors and strategies for encouraging the adoption of life safety codes, NEMA takes a three-pronged approach to setting our compass: design, installation and use, and decommissioning.

Design

NEMA's most direct and longest-running safety-related practice is the maintenance and publication of more than 500 product standards for electrical equipment. They ensure that installers, users, and occupants of buildings where such equipment is installed are safe from unnecessary electrical risk. While each of these standards begins as a voluntary industry standard, many are often incorporated into installation and building codes, which are then adopted into law through state building codes.

Government policies aimed at safeguarding the environment and public health can profoundly affect how some electrical products are designed, marketed, and managed at the end of their usefulness. Certain rules and regulations apply broadly across the NEMA membership and thereby create the need for a forum that allows companies all along the generation, transmission, distribution, and end-use spectrum to share information and collaborate on response strategies. The Environmentally Conscious Design (ECD) program was conceived for this purpose.

For instance, the ECD forum has been a useful conduit for members to analyze the impact of a variety of state regulations, such as California's "right-to-know" program (Proposition 65). International companies use the forum to stay abreast of design restrictions stemming from the European Union's Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive. Although enacted with the aim of reducing exposure to hazardous materials and protecting the environment, these rules are not immune to unintended consequences. It is therefore important for NEMA—and other industries—to be engaged in these kinds of environmental regulatory processes and advise against measures that might jeopardize the safety of electrical products.

Installation and Use

Nowhere is NEMA's role in shaping policy more apparent than through its work to promote state adoption of the *National Electrical Code*® (NEC), which sets the minimum standards for the proper installation of electrical systems and equipment to protect people and property from hazards that may arise from the use of electricity.

NEMA's code adoption initiative began as a strategic initiative in 2010 and has been renewed and funded annually by NEMA's Board of Governors; it is now a core advocacy function. NEMA employs four full-time field representatives and one government relations manager who work almost exclusively to ensure that state building code councils remain on the three-year cycle.

Within the framework of the code adoption process, NEMA plays another important role, that of educator. Each state maintains a prerogative to amend the edition of the NEC that it adopts. While not opposed to this autonomy, NEMA engages throughout this process to ensure these amendments do not put building occupants at risk by removing fundamental safety requirements. This often entails public and stakeholder education on the function of electrical safety devices.

In addition, NEMA is a founding member of Electrical Safety Foundation International (ESFI), whose sole mission is to promote the safe use of electrical products. ESFI accomplishes its mission through education, awareness, and advocacy campaigns.

For example, in 2014, ESFI created an awareness program for the safety benefits of tamper-resistant receptacles (TRRs). Although these devices had been required by the NEC since 2008, they were misunderstood. By the end of 2016, ESFI held a dominate position on all TRR-related materials. Media monitoring reports an improved public perception and likely reception to use.

Individual NEMA sections also work directly to shape policy for the safe use of their products. The Dry Battery Section, for example, is a leading voice in the national policy discussion on the ingestion risk for button (coin) cell batteries. NEMA also funds the National Capitol Poison Center to collect and analyze data on button cell ingestions. Thanks to this data, the industry has approximate but reliable statistics on key risk factors related to victims, battery chemistries, and morbidity. Battery manufacturers use this data to inform internal product and marketing decisions, as well as external policy discussions surrounding regulations and standards development.

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Decommissioning


The way certain electrical products are managed and disposed of at the end of their useful life may also have safety implications. Some energy-efficient lighting products, for example, contain small amounts of mercury, a potent neurotoxin that is strictly regulated in the United States and most foreign markets. Recycling mercury lamps is the appropriate management option to ensure against mercury releases to the environment and is, in fact, required by U.S. law for commercial, industrial, and institutional facilities that generate large quantities of waste lamps.

Lamp manufacturers have long advocated that all mercury-added lamps be recycled. Thus, they label their products and packaging to note the presence of mercury and direct consumers to websites that provide recycling information.

Similarly, mercury-switch thermostats, which are largely legacy products that are no longer manufactured or sold, also require special handling procedures and should not be discarded as waste. NEMA members addressed this problem proactively in 1998 by creating the Thermostat Recycling Corporation (TRC), an industry-funded, non-profit stewardship organization that collects and recycles mercury-switch thermostats nationwide. Since its inception, the TRC has prevented more than 10 tons of mercury from entering the nation's solid waste stream.

Our Vision

NEMA has not been and never will be alone in these efforts. Our member company representatives work tirelessly to generate and disseminate safety information through NEMA. We continue to be leaders in building and joining coalitions of like-minded trade groups and safety organizations, capitalizing on their strengths and relationships, to make sure that policymakers hear our collective voice.

We continue to put safety first. 



**We continue
to put
safety first.**



Use & Installation

Webinar to Focus on Flame Retardants

The NEMA government relations team is working with experts from the American Chemistry Council's North American Flame Retardant Alliance to develop a web-based presentation on the use of flame retardants in the electrical product sector.

Flame retardants are chemical substances used in manufactured products to inhibit or suppress the combustion process by reducing heat release and slowing the spread of flames. Essential to electronics, flame retardants enhance the electrical properties of components and the product's ability to withstand the manufacturing process.

In recent years, regulatory authorities have characterized certain widely used categories of flame retardants as hazardous and enacted an array of measures to restrict their application, including reporting requirements and phase-outs. Discussions have been contentious at times as stakeholders argue over possible toxic effects of exposure to flame retardants versus their crucial role in preventing fires and ensuring safety.

The NEMA webinar will provide an overview of the use of flame retardants, how they work, their function in electrical and electronic equipment, the status of regulatory restrictions, and the implications for manufacturers.

Contact Mark Kohorst at mark.kohorst@nema.org or 202-412-3326 to learn more. 



Running through Emergency Lighting

If you think about it, one of the most dangerous places to be in is a confined space in an unfamiliar public building.

Theatres, arenas, casinos, and other venues for entertainment encourage relaxation, yet the public is least familiar with paths of egress should an emergency occur. Unfortunately, these settings often have poor emergency lighting and dimly lit exit signs. As a result of globalization and the ease of travel, a person moving from one location to another—especially if only temporarily—is in the dark, so to speak, during a situation where there is a loss of power and normal lighting.

Anecdotal evidence indicates that panic is a primary contributor to injury and loss of life during an emergency. Having a consistent emergency lighting response from building to building, city to city, and country to country would greatly reduce the panic induced during an emergency. Thus, there is an effort, albeit a slow one, to harmonize emergency lighting standards around the world.

NEMA consistently works with standards organizations from Canada, Mexico, and other countries to harmonize emergency lighting standards. Most of the world is standardizing the “running man” exit sign. It incorporates an internationally recognized symbol and is easily understood no matter what native language is spoken. However, there is still work to be done on standardization what qualifies as sufficient illumination of exit sign faces, the acceptance of their corresponding testing methodology, and minimum required emergency lighting levels in the path of egress.

Smaller Footprints, Smarter Results

Recent advancements in battery technology and supercapacitors are also having a profound effect on emergency lighting. Batteries using nickel metal hydride or lithium ion chemistries are finding their way into the emergency lighting market. The newer battery chemistries have greater energy densities, meaning the same size battery can power a greater load and run for a longer period of time, or can be redesigned with fewer batteries.

Newer battery chemistries are typically more environmentally friendly, with fewer toxic materials used in production. Coupling this with smaller, more

energy efficient light-emitting diode (LED) lamp sources, manufacturers can redesign emergency lighting fixtures with smaller footprints and more appealing aesthetics.

Emergency luminaires and systems with embedded intelligence and enhanced communications capabilities are on the cutting edge of market acceptance. Solid-state technology gives users the ability to monitor, control, record, and communicate the status of several parameters within an emergency lighting system that is incorporated into a significantly reduced footprint.

Many systems now use visual cues (e.g., a blinking LED) to convey a lamp fault, circuit failure, or discharged battery. This type of communication, however, requires human intervention, thereby opening it to mistakes. Individuals must walk an entire facility to check and record the system status of each emergency luminaire. Although the life safety code requires this inspection every month, relatively few facilities comply.

With advanced communications capabilities, status recording of emergency lighting systems can be accomplished with web-based monitoring, bypassing the need for a monthly maintenance. The code allows centralized testing and monitoring as long as results are recorded. Using digital addressing, mesh networks, and other technologies, end users can identify specific emergency fixtures that need attention as well as the exact steps for correction.

On the horizon is self-healing, self-learning, and self-commissioning networks that are integrated with emergency lighting systems in building management systems. NEMA has a critical role to play in convening the proper stakeholders to ensure that this evolution continues. Advancing standards and incorporating these technologies will save lives, time, and money while establishing a more compliant environment. ☎

Tony Campbell,
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Mr. Campbell
chairs the NEMA
Emergency
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Codes, Standards and Certifications: *Three Legs of Safety*



Rob Neale,
Vice President,
National
Fire Service
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International
Code Council

Mr. Neale
implements
programs
related to fire
safety and the
fire service.

As a former municipal fire official, I've been asked a hundred times, "What is the better type of smoke alarm that I should buy for my home: ionization or photoelectric?"

My answer is always the same: "What type of fire do you expect to have?"

Both technologies have inherent strengths: ionization smoke alarms are better at detecting rapidly growing, flaming fires; photoelectric detectors excel at sensing slow-growing smoldering fires that emit dense smoke.

Regardless of technology, the devices must adhere to rigorous testing and performance standards before they are released to the market. Equally important is that the devices are installed and maintained in accordance with the codes, standards, and certifications that manufacturers, testing laboratories, and code officials promulgate to achieve high degrees of reliability.

Codes, standards, and certifications play complementary roles: codes are adopted into laws that require something be done, standards describe how

to do it, and certifications confirm that the items are installed and maintained as intended.

States, local jurisdictions, and regulatory agencies adopt codes that prescribe the minimum level of risk they are willing to accept. In municipal and state governments, they have the force of law. Once adopted, it is incumbent on legally designated code officials to enforce them. However, codes alone cannot anticipate the variety of conditions that may occur during the design, construction, and occupancy of new and existing buildings. Standards play a substantial role filling in the blanks that codes may not address.

In a perfect world, there would be a clear demarcation between the two, but in the real world of prescriptive codes and standards, the boundaries are sometimes blurred. Codes occasionally describe detailed compliance solutions while standards' mandatory language may be misinterpreted by less experienced code officials as compulsory, even though they may not have the force of law.

Third-party product certifications provide an additional level of reliability by verifying that materials and products conform to product testing standards, and are suitable for installation and use in accordance with applicable installation standards.

The International Code Council's integrated building, fire, mechanical, plumbing, and other codes are the predominant construction codes in the United States. Called the I-Codes, they are used in all 50 states, the District of Columbia, and many federal agencies. When referenced in codes, standards become mandatory parts of the documents. The I-Codes reference more than 1,300 installation and product testing standards. They rely heavily on consensus documents developed by business and industry, including NFPA 70 *National Electrical Code*® and NFPA 72 *National Fire Alarm and Signaling Code*®. NEMA 250 *Enclosures for Electrical Equipment (1,000 Volt Maximum)* is adopted by reference into the *International Fire Code*® to regulate ozone gas generator construction.

Codes, standards, and certifications depend on each other, like three legs of a stool. If one falters, there may be problems.

Avoiding Complications

Codes and standards provide minimum levels of protection for people to feel safe where they live, work, and play. It is important that requirements be practical and reasonable; otherwise, people won't comply with them.

Typical product certification standards establish minimum construction and performance criteria to address normal and abnormal conditions. Functionality and reliability are critical for fire and life safety equipment, such as arc-fault or ground-fault circuit interrupters (AFCIs or GFCIs). A contemporary issue emphasizes that point: legislation proposed in several states would allow builders and homeowners to remove AFCIs after repeated unwanted tripping. Unfortunately, there is no data to quantify what constitutes "repeated unwanted" tripping, leaving code officials to interpret the alleged inconvenience on personal experience.

Product testing standards are an important economic driver because they reflect the consensus of industry professionals and interested persons. Standard

developing organizations may use an American National Standards Institute–approved process to ensure that all interests are well represented.

Standards take much of the guesswork out of local code enforcement. Generally, they are based on empirical study and experience. If a code official requires the installation of a fire detection system to fulfill a requirement of the fire code, he or she can refer the designer to a model consensus standard rather than try to provide a detailed description of what is required. When the plans for that system are submitted for review and approval, the code official can use that same standard to confirm compliance.

Standards also are the basis for product evaluation and certification. Product certifiers can perform tests that local code officials likely cannot: destructive or non-destructive examinations, field tests, and small or full-scale fire tests. Certifications include instructions and markings to identify the manufacturer, how the product is to be used and installed, caution warnings, and maintenance. Test laboratories that provide product certification should be accredited in order to demonstrate competence, ability, and independence.

Creating a Level Playing Field

Individual certifications from organizations such as the National Institute for Certification of Engineering Technologies and the International Code Council's Certification and Testing department verify an individual's competence in the understanding and application of installation codes and standards.

Codes provide the minimum requirements, standards tell us how to get there, and certifications help ensure that all are integrated into a system that operates correctly. Together, they create a level playing field for the design, installation, construction, and maintenance of systems and products. The diversity and mobility of the modern economy dictate that codes and standards for products and systems must move seamlessly from state to state, or even country to country. ❸

NEMA 250 Enclosures for Electrical Equipment (1,000 Volt Maximum) is available for purchase in the NEMA Standards Store.
www.nema.org/standards-store

Use & Installation



Carbon Monoxide Detection: Past, Present, and Future

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Carbon monoxide (CO) is a colorless, odorless, tasteless, and toxic gas that leaks into the air from malfunctioning furnaces, hot water heaters, stoves, fireplaces, and other fuel-burning appliances. Because it is undetectable by human senses, it is known as the silent killer.

People may not realize they are being exposed to it when they feel flu-like symptoms such as headaches, light-headedness, or nausea. In extreme cases, victims can suffer long-term mental impairment and even death. These detrimental health effects depend on the length of exposure to CO, blood concentration levels of CO, and an individual's underlying health.

In 1992, the Consumer Product Safety Commission (CPSC) identified CO poisoning deaths as a priority. Working with Underwriters Laboratories, the commission helped develop specifications for a device that could sense the gas and protect consumers in their homes. UL Standard 2034 was published in April 1992, and the first battery-operated CO alarm was on the market in the fall of 1993.

While the spread of this life-saving device parallels that of smoke detection, which came to homes about 25 years earlier, CO protection still lags, partly as a result of slower adoption of requirements for installation.

Killer Statistics

In 2009, the International Residential Code first required CO alarms for new detached one- and two-family dwellings and townhomes (not more than three stories).

Current penetration of smoke alarms in homes is estimated

at 96 percent, according to National Fire Protection Association (NFPA). The CPSC estimates the rate for CO alarms at less than 50 percent, even though more than 40 states have some sort of requirements for residential installation.

According to the Centers for Disease Control, 430 persons each year die from unintentional CO poisoning. Because it deprives the body of much-needed oxygen, those who survive an exposure may exhibit long-term cognitive, physical, and psychological effects.

Like fire deaths, CO deaths and injuries extend beyond the home. By 2012, the International Building Code and the International Fire Code required CO protection in new hotels, apartment buildings, dormitories, hospitals, nursing homes, and assisted living facilities. In 2015, protection for new K-12 schools was added. Similar requirements are now in NFPA 1, 101, and 5000. While these requirements are important, they also leave many existing properties unprotected.

Stating the Obvious

Elected officials and other policymakers are becoming increasingly aware of the need to protect the public from CO poisoning. This has led to the passage of laws ranging in scope from homes and K-12 schools to hotels and commercial buildings. Connecticut, Illinois, Maine, and Maryland have laws requiring CO detectors in schools; California requires them only in new schools. Twelve states have CO detection requirements for hotels and motels.

New York has the most comprehensive requirements in the nation, covering commercial buildings, restaurants, schools, hotels, and motels.

In nearby New Jersey, A4073 was signed into law in November 2015. The law expanded that state's CO requirements beyond hotels, one- and two-family dwellings, and apartment buildings to include all new and existing commercial occupancies having a fuel-burning appliance or attached garage. Later this year, the New Jersey Division of Codes and Standards will codify the 2015 law.

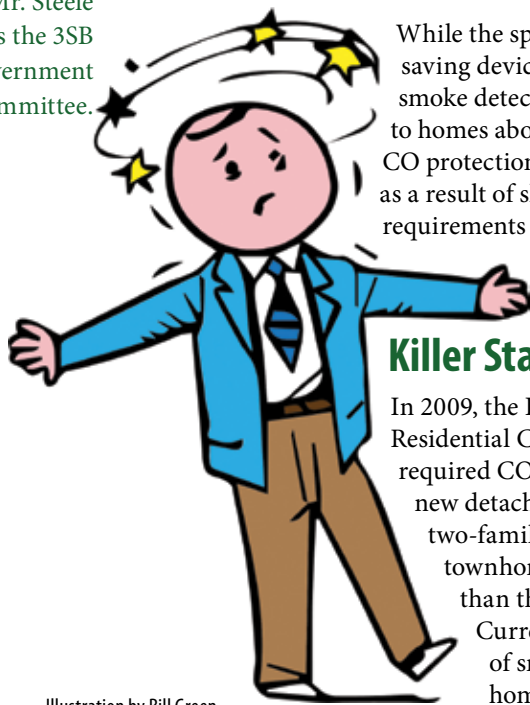


Illustration by Bill Green

In both New York and New Jersey, the laws are in response to CO-caused deaths, in a restaurant and a recording studio, respectively.

Safety legislation, however, should not be a response to loss of life. NEMA's Fire, Life Safety, Security and Emergency Communications Section is committed to persuading state legislatures and code-making bodies to prevent—not react to—such tragedies. Policymakers may have differing views from state to state, and even within a state, about government's role in mandating safety. Limited state budgets may also dictate other priorities.

The above challenges notwithstanding, attaining additional state detection requirements is a priority for NEMA. The work includes

- expanding CO protection within the International Code Council (ICC) building codes and the NFPA installation codes;

- supporting state adoption of up-to-date ICC codes by enabling legislation and working within the state level regulatory process; and
- advocating for legislation to support CO protection in areas not addressed by current codes, such as existing homes, schools, and places of assembly.

NEMA staff and member companies are actively engaged in a process that includes tracking proposed legislation; meeting with state legislators, agency officials, and their staffs; recruiting life-safety allies; and hiring lobbyists when necessary.

NEMA stands prepared to respond with information and support when headline-making CO events trigger legislative interest. Beyond that, we will continue efforts to raise awareness of the legislative and code requirements that might prevent such tragedies.

It should not take another 25 years to fully protect citizens from the dangers of CO poisoning at home, work, or leisure. 🏠

Advocating for Carbon Monoxide Detection in Oregon

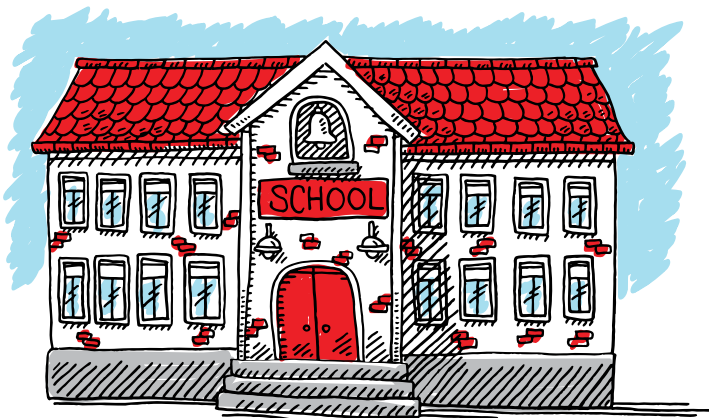


Illustration by Bill Green

NEMA's Fire, Life Safety, Security, and Emergency Communications Section engages in state-level advocacy each year to promote the adoption of life and fire safety requirements. A current example is underway in Oregon, where the section has retained a lobbyist to advocate for two legislative priorities: carbon monoxide (CO) detection in K-12 schools and CO detection in commercial buildings and restaurants.

Almost every state has laws requiring CO detection in one- and two-family detached homes. But children spend six to eight hours a day at school, where they should be protected from the risk of CO poisoning as well.

Schools often have more than one source of CO (e.g., gas furnace, water heater, or gas stove). Even Bunsen burners in science labs emit CO. Requiring CO detection in schools is a common sense approach to life safety. The 2015 edition of the International Building Code requires CO detection in new schools, but adoption still leaves a major gap with existing schools.

Adults, meanwhile, spend most of their time outside the home in commercial buildings and restaurants. Like schools, they frequently contain CO-emitting devices. But unlike schools, there are no code requirements for CO detection in these occupancies—not even in new construction.

The need for detection devices made national news in early 2014 when a restaurant manager was found dead due to prolonged exposure. If NEMA is successful, our efforts will go a long way toward preventing any such tragedy from occurring in an Oregon restaurant. 🏠

Jonathan Stewart, Manager, Government Relations, NEMA

See the video "Carbon Monoxide Detection: What It Is and Why We Need It" at www.lifefiresafety.org/protectorkids.

Use & Installation

Life Safety Relies on Code Adoption

Richard Roberts,
Industry Affairs
Manager,
Honeywell
Security and Fire

Mr. Roberts
chairs the NEMA
Building Codes
Committee.

The public is safer as a result of the 2015 editions of the International Fire Code (IFC), International Building Code (IBC), and International Building Code (IRC). Collectively known as the I-Codes, they protect the public by incorporating the latest advancements in technology and techniques. They are updated every three years to align with new technologies and techniques.

One significant change helps first responders quickly identify the exact location of an activated initiating device during an emergency and reduce unwanted alarm activations by pinpointing the problematic device. The change replaces the traditional fire alarm system zone requirement with a point identification requirement.

Previously, the IFC and IBC required each floor of a building to constitute one fire alarm zone, and additional fire alarm zones were required if the floor area exceeded 22,500 square feet. The 2015 code now requires all new fire alarm systems to identify the specific type of initiating device, its address, location, and floor level, as well as indicating whether the initiating device is in alarm, trouble, or supervisory condition.

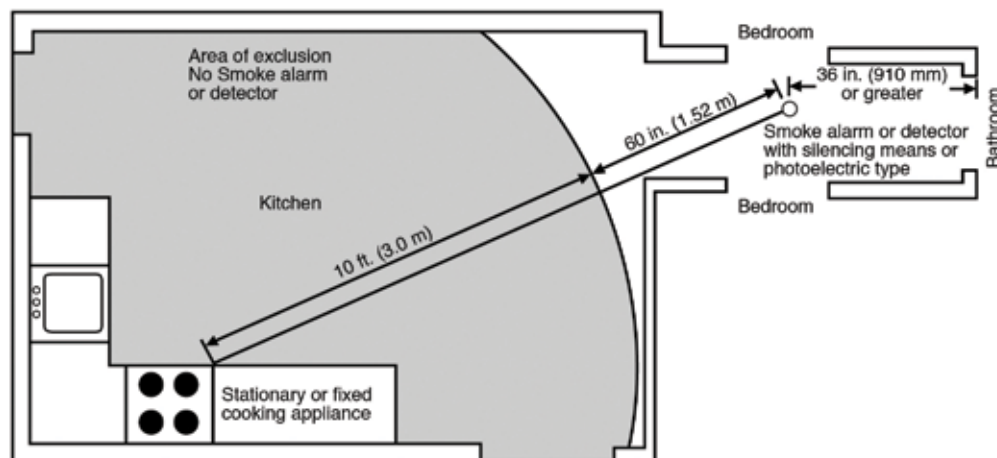
Smaller fire alarm systems are exempted from the point identification requirement, provided that the building is less than 22,500 square feet, the system has only manual pull stations, the system has only water flow switches, special initiating devices do not support individual device identification, or fire alarm systems or devices are replacing existing equipment.

This new requirement should result in more addressable fire alarm systems being installed.

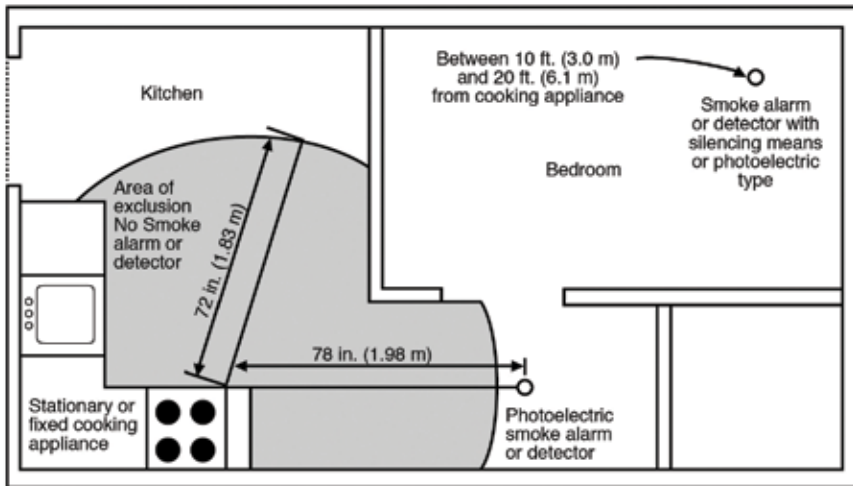
Minimizing Unwanted Alarms

Several changes were made in an effort to reduce unwanted smoke detection activations from normal cooking activities and steam from bathrooms. There are new requirements for the specific placement of smoke alarms or smoke detectors in close proximity to fixed cooking appliances and in close proximity to bathrooms containing a bathtub or shower.

Smoke alarms or detectors are prohibited from being installed less than 10 feet from a fixed cooking appliance. This 10-foot area of exclusion is shaded in gray in the figure below. For smoke detection that is installed between 10 feet and 20 feet from a fixed cooking appliance, the IFC, IBC, and IRC require the device to be equipped with an alarm-silencing means or use photoelectric technology.



New requirements for the placement of smoke alarms or smoke detectors specify distances to cooking appliances and bathrooms containing a bathtub or shower. Illustrations courtesy of Honeywell Security and Fire



Photoelectric devices may be installed up to six feet from a fixed cooking appliance.

The smoke alarm or detector is represented by the red dot in the figure above. Even though the requirement does not specifically call out ionization technology, ionization alarms or detectors are only permitted to be installed between 10 and 20 feet of a cooking appliance if they have an alarm silencing means, more commonly referred to as a hush button. Photoelectric detectors are not required to have a hush button. The new requirement also prohibits smoke alarms and detectors from being installed less than three feet from the door to a bathroom with a shower or bath tub.

There is an exception to the 10-foot area of exclusion. In many small living spaces, it may not be possible to place a smoke alarm or detector greater than 10 feet from a fixed cooking appliance. For example, the code requires smoke detection to be installed outside each bedroom. However, if the door to the bedroom is less than 10 feet from a fixed cooking appliance, it is not possible to maintain the 10-foot area of exclusion. For these applications, the code permits a photoelectric alarm to be installed up to six feet from a fixed cooking appliance.

Unwanted alarms are the leading cause of occupants disabling their smoke alarms and roughly 20 percent of all smoke alarms installed in United States homes have been disabled. That percentage may be greater in high-risk areas, such as inner cities and rural communities. Cooking activities such as pan frying, baking, and sautéing are the leading cause of nuisance alarms. While both ionization and photoelectric devices are subject to nuisance alarms from normal cooking activities, ionization technology is more likely to generate nuisance alarms when installed too close to a cooking appliance. That's why proper installation is critical.

Carbon Monoxide Protection

According to the U.S. Centers for Disease Control and Prevention,¹ each year more than 400 persons die and more than 20,000 are injured every year in the U.S. from accidental carbon monoxide (CO) poisoning.

There have been at least 19 incidents of high levels of CO at schools since 2007,² and perhaps as many as 60, according to an informal NEMA survey based

on publicly available media reports. Only California, Connecticut, Illinois, Maryland, New Jersey, and New York have laws requiring CO detection in K-12 schools.

One of the most effective ways to reduce the incidence of CO poisoning is to ensure that detection devices are installed in places where people live, work, sleep, and study.

To protect students and faculty from serious injury or possibly death from unintentional non-fire-related CO exposure, the I-Codes require all new K-12 schools to install CO detection. This new requirement is consistent with the CO requirements that were added to the 2012 edition of the IFC/IBC for new hotels, apartment buildings, dormitories, nursing homes, and hospitals.

Protecting the Public

Another change protects people in restaurants, bars, banquet halls, night clubs, and cafeterias from asphyxiation from carbon dioxide (CO₂) dispensing equipment. A CO₂ leak will displace oxygen and has caused death from asphyxiation. Chapter 5307 of the IFC requires either a mechanical ventilation system or an emergency alarm system to be installed in rooms containing beverage dispensing equipment with more than 100 pounds of CO₂.

It is essential that jurisdictions adopt the 2015 model fire and building codes, as the consequential changes will enhance public life safety. ☼

¹ *Unintentional Non-Fire-Related Carbon Monoxide Exposures—United States, 2001–2003*. CDC. January 21, 2005 / 54(02);36–39

² "Schools lack alarms to warn of deadly carbon monoxide," *USA TODAY*, Dec. 5, 2012



Decommissioning



Lamp Recycling Heads in New Direction

Mark Kohorst,
Senior Manager,
Environment,
Health & Safety,
NEMA

When it comes to safety, recycling spent lamps is far preferable to disposing them.

In 2014, Washington became the third state, after Maine and Vermont, to enact a mandate for lamp manufacturers to develop and implement a recycling program for mercury-containing lights. In its first six months, the program collected and recycled more than 420,000 mercury-containing lights from 315 collection sites across the state.

Endorsed by NEMA, the Washington law established LightRecycle Washington, a ground-breaking stewardship program for the safe disposal of mercury-

added lamps. It represents a new direction for sustainable recycling of mercury, a potent neurotoxin.

Energy-efficient, mercury-added light sources such as linear and compact fluorescent and high-intensity discharge lamps have greatly enhanced energy conservation in all sectors of the economy. Although the mercury content in a single lamp is minimal—usually 10 milligrams or less—the amassed amount from all fluorescent lamps has the potential to harm humans and the environment if not properly recycled.

What's distinctive about Washington's law is the requirement that the program be financed through an environmental handling charge of 25 cents per lamp that is applied at retail when each new mercury-containing lamp is sold in the state. Proceeds support a network of collection sites, transportation of spent lamps, processing at recycling facilities, education and outreach, and other program expenses.

Learn more at lightrecyclewa.org. ©



NATIONAL ELECTRICAL CODE:

Your Guideline to Safety

First published in 1897, the **National Electrical Code** has been adopted in **all 50 states** as the standard for safe electrical installation, inspection, and use to protect people and property from **avoidable electrical hazards**.

There have been **15 code revisions** since **1974**, the year the average American home was built.



The National Electrical Code (NEC) is updated **every 3 years** to include the latest in proven safety technology.



The NEC creates a **universal electrical safety standard**. Allowing all new and renovated construction built to code to be safe from electrical hazards.



The NEC applies to **new construction and renovations**. The code is only in effect after it is adopted by the state or local jurisdiction.



Is your home up to code? Contact a **qualified electrician** to ensure your home is **safe and up to code**.



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MAY IS NATIONAL ELECTRICAL SAFETY MONTH

Closing the Gaps in Medical Imaging Maintenance

If all service providers applied appropriate service and maintenance programs, potential gaps in the quality of medical imaging equipment performance would be greatly reduced or eliminated at provider facilities.

Currently, the U.S. Food and Drug Administration (FDA) only regulates service activities performed by original equipment manufacturers (OEMs). Third-party and in-house servicing operations are not held to the same minimum quality, safety, and regulatory requirements as OEMs. Although many third-party service organizations regularly perform quality work, the lack of oversight, regulation, or consensus standards presents serious concerns for patient safety and device performance.



Since at least the mid-1990s, MITA has been working with the FDA and other stakeholders to address these concerns regarding medical imaging devices. Beginning in 2015, MITA renewed its push to get the FDA to finally take action to better protect patient safety.

Last year brought a flurry of activity as the FDA opened a public docket and held a workshop on this issue. Both the docket and the workshop

were excellent opportunities for the multitude of stakeholders to present their views and discuss the challenges and opportunities facing the medical device servicing industry.

Although the discussions were often emotional and there are still wide gaps in agreement, the FDA collected a large amount of constructive information, and stakeholders gained a better understanding of each other's concerns. Despite all of this activity, it is still unclear whether or when the FDA will implement a solution to this problem.

Given the uncertainty on the regulatory front and the lingering lack of consensus, MITA believes there is now an opportunity to develop a standard on servicing medical imaging devices. Through NEMA, its parent organization, MITA is an American National Standards Institute (ANSI)-accredited standards development organization.

In order to establish a common understanding and improve servicing quality, MITA has launched an initiative to develop a standard for medical imaging device service providers. This standard will establish minimum requirements for an appropriate quality system and provide guidance to stakeholders, including, but not limited to, accreditors, manufacturers, servicers, and provider facilities.

Recognizing the importance of a balance of interest groups in this standards development process, MITA has formed a canvass group of OEMs and stakeholders representing third-party servicing organizations, in-house clinical engineers, hospital systems, the FDA, the Joint Commission on Hospital Accreditation, and others. In addition to input from the canvass group, there will also be an opportunity for public comment on the standard. Feedback from this varied group will represent the consensus view of the medical imaging device servicing industry in the final standard.

It is our hope that this standards development process will produce a document that will form the foundation of best practices in the industry. ☺

NEMA Weighs In on RoHS LED Exemption

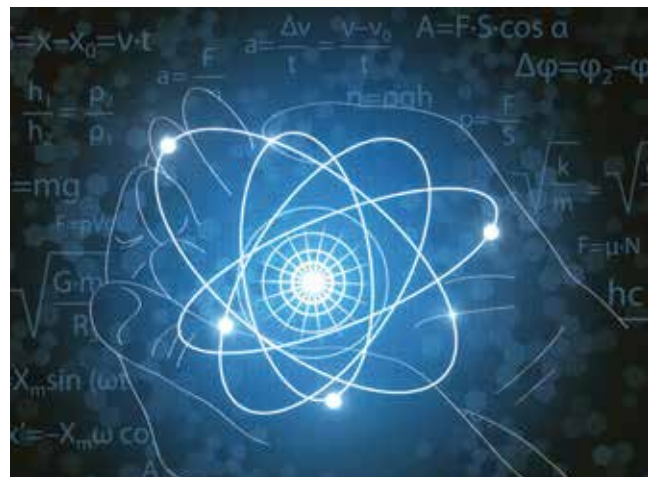
Solid-state lighting (SSL) products, especially light-emitting diode (LED) lamps, are at the core of energy efficiency gains across all sectors of the economy. Manufacturers are at the threshold of another promising advance: quantum dot (QD) LEDs for use in retrofit lamps, LED modules, and various luminaires.

QDs provide very high efficiency, a narrow emission spectrum, and emission frequency that can be accurately tuned across the entire visible spectrum. Their high color rendering and quality of light performance suggest a wide range of potential applications in the residential, commercial, and institutional sectors. Given that lighting consumes between 15 and 19 percent of global electricity and leads to five percent of worldwide CO₂ emissions, the potential environmental benefits of this technology are enormous.

Unfortunately, the market availability of QD-LED lighting products is threatened in the European Union because cadmium-based QDs offer the greatest performance improvement, and the use of cadmium is restricted under the EU's RoHS Recast Directive of 2011. When enacted, the directive

exempted cadmium in solid-state illumination or display systems, which would encompass QDs. The exemption has since expired and a recent draft decision by the European Commission (EC) proposes to renew it only for display systems. Unless the exemption is renewed, the products will be effectively barred.

LightingEurope, NEMA's lighting industry counterpart in the EU, enlisted NEMA's help in reversing this decision. NEMA responded with a strong statement of opposition, echoing LightingEurope's arguments concerning the value of the technology. NEMA staff will work with U.S. trade officials to file a complaint under the World Trade Organization's Technical Barriers to Trade Agreement, while encouraging other national lighting associations to weigh in as well. ☎



Shedding Light on R&D Funding

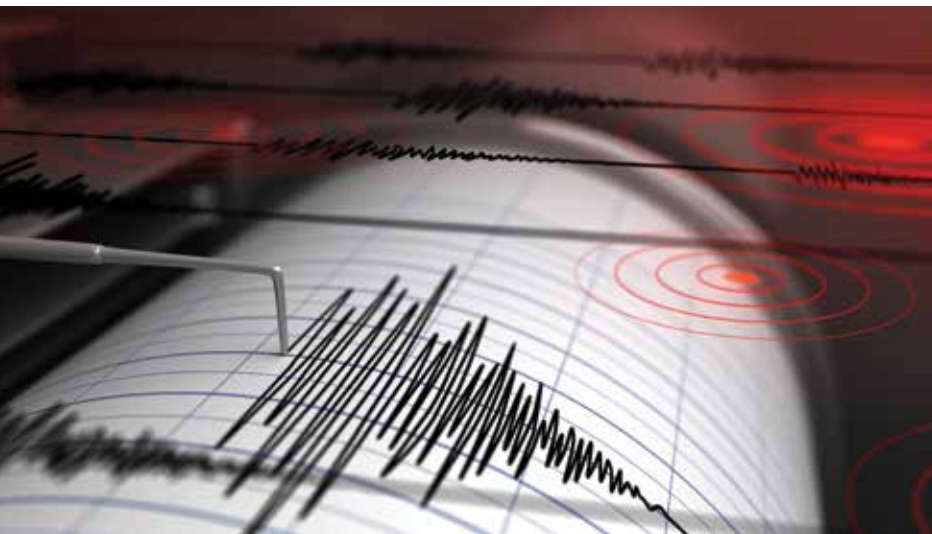
NEMA members, as part of the Next Generation Lighting Industry Alliance and the OLED Coalition, recently spent the day on Capitol Hill speaking with congressional staffers about funding for the Next Generation Lighting Initiative. Established by the Energy Policy Act of 2005, the program's goal is to support the research and development of solid-state lighting technologies. It has been recognized as a model of technology advancement programs.

Pictured outside the Longworth House Office Building are (from the left) David Woodard of Philips, Guido Zucconi of OSRAM, Mike Hack of Universal Display, Michael Boroson of OLED Works, Tanya Hernandez of Acuity Brands, Mark Taylor of Corning, and Alex Baker of Lumileds. Photo provided by Mark Taylor ☎

Coming Soon: Guide on Evaluating Earthquake-Damaged Equipment

Long a leader in helping communities recover from the effects of natural disasters such as floods and hurricanes, NEMA strives to make electrical safety a top priority during the reconstruction of flooded communities.

NEMA's *Guide to Evaluating Water-Damaged Electrical Equipment*, which was first published in the 1990s and revised most recently in 2016, has been widely distributed by NEMA field representatives during and after significant flood events such as Hurricane Katrina and Super Storm Sandy. This document is used in flood and storm recovery efforts nationwide.



A companion document, *Guide to Evaluating Fire- and Heat-Damaged Electrical Equipment*, published in 2013, offers guidance to equipment damaged in structural and wildland fires. In keeping with efforts to help communities be as resilient as possible after natural disasters, NEMA is developing the third document in the series: *Guide to Evaluating Earthquake-Damaged Electrical Equipment*.

While most of us think of earthquakes as only happening on the West Coast or in Alaska and Hawaii, many areas of the country are vulnerable to seismic damage.

Take, for example, the 2011 East Coast 5.8 magnitude earthquake that did as much as \$300 million worth of damage, according to one estimate, including \$34 million for the Washington National Cathedral alone. In Missouri, the New Madrid Fault Line ruptured in 1811 with an estimated 7.4 magnitude quake. Seismologists estimate a 25 to 40 percent chance, in a 50-year span, of another 6.0 magnitude or greater earthquake in the same area.

Inspectors, engineers, and others will need clear guidance on appraising damage to electrical equipment after a major earthquake. The reliability and usability of electrical systems is vital to the resilience of communities and their ability to function after a disaster. While most inspectors are trained to recognize structural damage, electrical equipment damage may not be as apparent to personnel who do not have electrical experience.

The goal of this new guide is to give those doing damage assessment a valuable tool to use when evaluating damage and determining whether an electrical system can be safely energized.

A committee of subject matter experts from NEMA member companies, which I coordinated, began working on this document in late 2016. A rough draft has been completed and is undergoing edits by the committee. The resulting draft will be reviewed and ultimately approved by the NEMA Codes and Standards Committee, with likely publication in the fall of 2017.

NEMA members interested in commenting on the document should contact Mike Stone at mike.stone@nema.org or 707-878-0042. ☎

Learn More

Download

Guide to Evaluating Water-Damaged Electrical Equipment
and
*Guide to Evaluating Fire- and Heat-Damaged
Electrical Equipment*
at www.nema.org

Bringing Energy Storage Systems Up to Code

For the past three years, I have been discussing energy storage system (ESS) matters with electricians and Authorities Having Jurisdiction (AHJs) up and down the Northeast corridor because of the growing interest in new battery technologies and their energy storage applications.

Beyond the electric utility applications for ESSs, new technologies are creating a growing market within buildings in areas such as New York City. Electric power demand, utility demand charges, and optional standby power systems in residences are just a few ESS applications that the electrical community is seeing installed. The electrical safety rules that apply to these systems need to be understood and enforced.

With the creation of Article 706, Energy Storage Systems, members of the *National Electrical Code*® (NEC) code-making panels added requirements that address safety considerations. Previous editions addressed ESSs in Article 480, which dealt with batteries and did not sufficiently address newer storage technologies.

BEHIND THE METER, BEHIND THE TIMES

The issue for electricians and inspectors is that the installations of these systems are behind the meter (i.e., building owners rather than utilities). Therefore, the installation falls under the auspices of the local AHJ. The NEC does not regulate installations under direct control of the utilities, unlike installations in front of the meter. The NEC, in effect, creates a demarcation point between the premises' wiring systems and wiring under the control of the electrical utility. This point, often referred to as a service point, is generally considered to be on the utility side of an electric meter.

The NYC Department of Buildings and Fire Department have cooperated to create guidelines for ESSs. Caught without adequate installation requirements in their current codes, the city had no clear guidelines for complete packaging of ESSs in the electrical code, nor were there clear guidelines on fire hazards and responses to some of the new technologies.

These city departments have addressed the safety issues for these new systems. Since many jurisdictions use the same model codes as NYC, potential conflicts are resolved in advance if individual jurisdictions follow the same model codes. Otherwise, specific local rules could create hardships for manufacturers when compliance is not standardized.

The problem in NYC was that the building, electrical, and fire codes were not updated. The city is still using the 2008 NEC and, until recently, used the 2009 International Building Code. Proposed changes for the fire codes are now being implemented to address ESSs. The city has worked with model code developing organizations (e.g., the National Fire Protection Association and the International Code Council) to ensure that their current guidelines mirror proposed code requirements.

BEYOND NEW YORK

The 2017 NEC has been adopted by Massachusetts and is being reviewed for adoption in other New England states. Most, however, use the 2014 NEC, with one still using the 2008 NEC.

While we wait for states to adopt the 2017 NEC, ESSs continue to be installed. AHJs want to know what to look for when conducting an inspection, and contractors want information to use with the AHJs during a plan review or permitting process. I provide all parties with information that the ESS manufacturers use to ensure safe and effective systems. This helps the industry create common local guidelines on installations and product safety standard acceptance. The objective is for these states to follow some standardized guidelines until they officially accept the newest edition of the NEC.

My goal is to have the electrical industry use the information in the 2017 NEC and other codes that promote safe electrical installations as they apply to ESSs. ☺



Lithium Batteries Remain in Regulators' Crosshairs

As Congress considers legislation this year to reauthorize the Federal Aviation Administration (FAA), discussions continue on the proper approach to achieving safe transportation of lithium batteries and devices containing them.

Current law prevents the FAA and the Pipeline and Hazardous Materials Safety Administration (PHMSA)—both within the U.S. Department of Transportation—from promulgating regulations that would be more stringent than International Civil Aviation Organization (ICAO) regulations. ICAO has placed more stringent quantity and cargo stowage restrictions and created a new

handling label for packages containing lithium batteries. In March, the FAA proposed placing special conditions for airworthiness certification of aircraft that have on-board devices containing non-rechargeable lithium batteries.

The PHMSA also adopted new hazard communication requirements, including a “Class 9” label for shipments of lithium batteries, consistent with changes adopted in the 19th Revised Edition of the United Nations Model Regulations for Transportation of Dangerous Goods. A multi-year effort has begun in the UN experts group to reform how lithium batteries are classified and regulated for transportation safety.

This Month in Standards

Ann Brandstadter

Manager, Standards Publications and
Marketing, NEMA

ANSI C12.18-2006 (R2016) *American National Standard for Protocol Specification for ANSI Type 2 Optical Port*: \$103

ANSI C12.21-2006 (R2016) *American National Standard for Protocol Specification for Telephone Modem Communication*: \$129

ANSI C78.41-2016 *American National Standard for Electric Lamps—Guidelines for Low-Pressure Sodium Lamps*: \$117

ANSI C78.50-2016 *American National Standard for Electric Lamps—Assigned LED Lamp Codes*: \$100

ANSI C78.901-2016 *American National Standard for Electric Lamps—Single-Based Fluorescent Lamps—Dimensional and Electrical Characteristics*: \$500

ANSI C78.1501-2016 *American National Standard for Electric Lamps—Tungsten-Halogen Lamps with G22 Bases and 63.5 mm LCL*: \$95

NEMA MS 12-2016 *Quantification and Mapping of Geometric Distortion for Special Applications*: \$72

NEMA TC 7-2016 *Smooth-Wall Coilable Electrical Polyethylene Conduit*: \$72

COMING SOON:

NEMA 77-2107 *Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria* recommends a method of quantifying the visibility of temporal light artifacts (TLA) and initial, broad application-dependent limits on TLA.

NEMA OS 4-2016 *Requirements for Air-Sealed Boxes for Electrical and Communication Applications*, a new standard, establishes a performance test and classification scheme for outlet, wall, ceiling, and floor boxes used for electrical and communication applications.

NEMA RV 2-2016 *Application and Installation Guidelines for Nonmetallic-Sheathed Cable and Underground Feeder and Branch Circuit Cable* provides comprehensive guidance on the application and installation of NM-B and UF cables and systems.

NEMA TCB 4-2016 *Guidelines for the Selection and Installation of Smooth-Wall Coilable High-Density Polyethylene (HDPE) Conduit* covers the selection, handling, and installation of underground high-density polyethylene conduit or raceway for power, lighting, signaling, and communications applications. ☺



Listen to NEMA's Mike Leibowitz interview Don Barta, manager of product/polymer engineering, Rea Magnet Wire, about NEMA MW 820-2016 *Conductor Softness Testing Methods*.

Confidence Reaches Pre-Recession Level

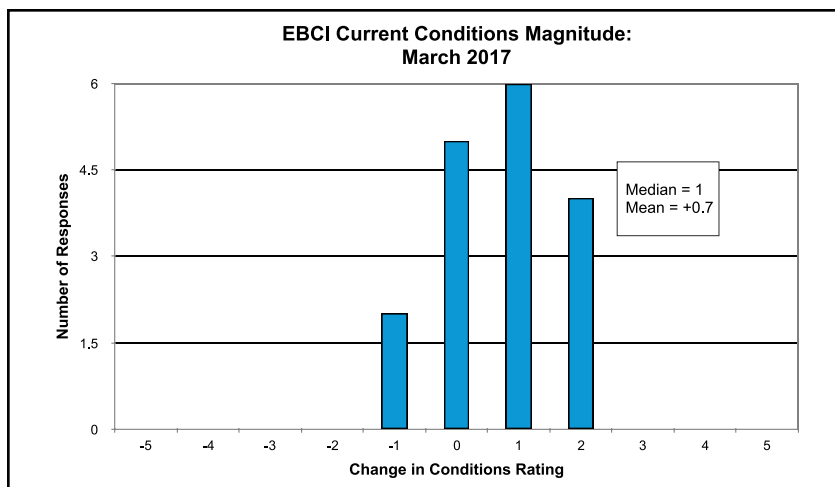
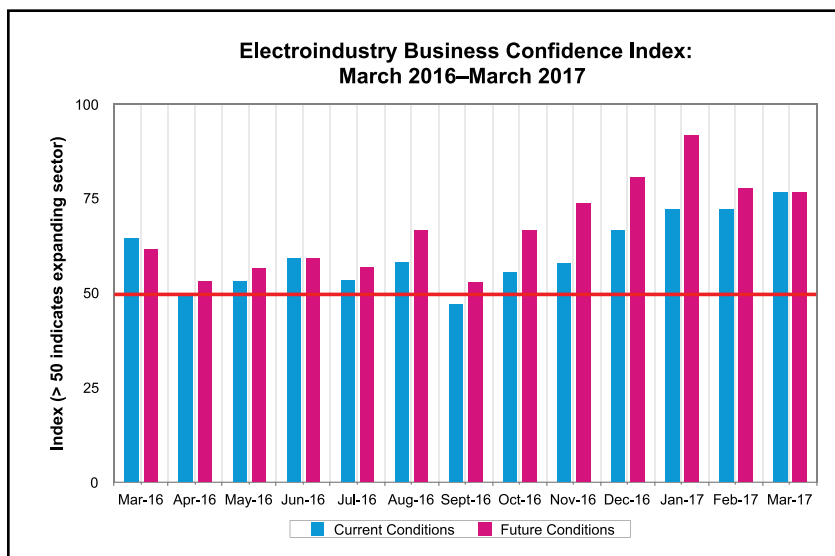
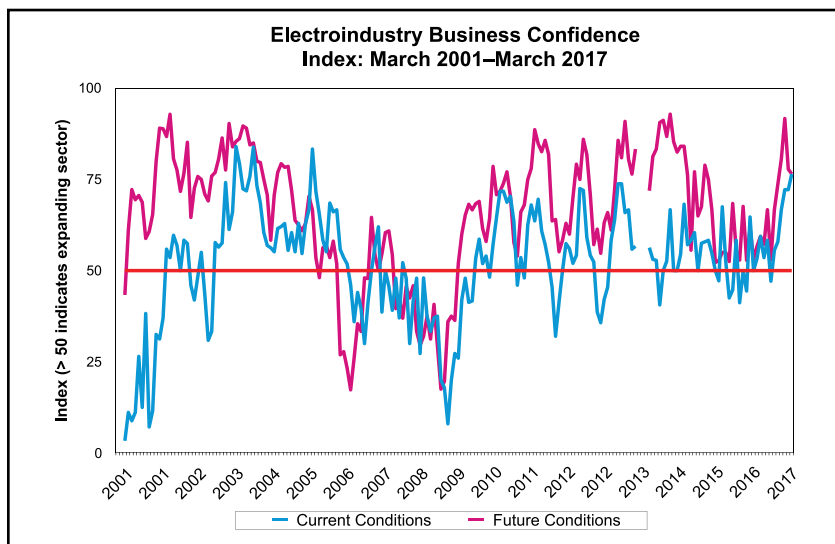
In moving from 72.2 in February to 76.5 in March, the NEMA Electroindustry Business Confidence Index (EBCI) of current conditions reached its highest level since September 2005.

Although some executives remarked on confusion in Washington and flashes of social unrest, signs of a strengthening economy were noted by many panel members. The share of those indicating better business conditions increased by nine points to 59 percent this month, and all of that increase came as a result of a nine-point drop in the “unchanged” conditions category, from 44 percent in February to 35 percent in March. As was the case the previous month, only six percent reported worse conditions.

The survey’s measure of the intensity of change in electroindustry business conditions was unchanged from last month, with the median value remaining at +1 and the mean score holding steady at +0.7 in March. Panelists are asked to report intensity of change on a scale ranging from -5 (deteriorated significantly) through 0 (unchanged) to +5 (improved significantly).

The aggregated future conditions responses were identical to the current conditions components for March. The overall index of conditions expected six months from now drifted down to 76.5 from February’s reading of 77.8. The 59 percent of respondents expecting better conditions is down from 67 percent in February, while the percentage that foresees unchanged conditions leapt by 13 points to 35 percent in March. Meanwhile, the six percent of those expecting worse conditions marks a five-percent decline from February’s results.

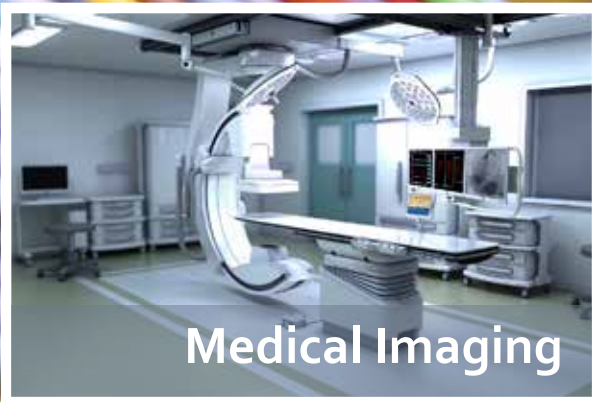
Visit www.nema.org/ebci for the complete March 2017 report. 📄



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