



## Issue: NEMA Position Statement on 10-year Mandates

Smoke alarms save lives, and according to the National Fire Protection Association (NFPA), civilian home fire deaths have decreased 59 percent nationally from 5,865 in 1977 to 2,380 in 2012,<sup>1</sup> despite a 43 percent increase in the U.S. population.<sup>2</sup> Over roughly the same period of time, NFPA estimates that the percentage of U.S. homes with at least one smoke alarm has risen by 74 percent.<sup>3</sup> This is why the installation and use of smoke alarms are promoted by fire and life safety experts around the world.

Although the data indicates an overall reduction of fire deaths over the past 35 years, more recent data indicates that the rate of decline appears to be leveling off.<sup>4</sup> One reason for this recent trend may be that one- and two-family dwellings are often left without smoke detection protection due to occupants not maintaining their smoke alarms in an operable condition. A Consumer Product Safety Commission (CPSC) study<sup>5</sup> showed that disabled smoke alarms counted for roughly 20 percent of the smoke alarms installed in U.S. homes, and that intentional disabling due to frequent unwanted alarm activations and failure to replace dead batteries are the two leading causes of inoperable smoke alarms.

Members of the National Electrical Manufacturers Association (NEMA) are committed to supporting technological advancements and changes to national consensus codes/standards that will increase the number of operational smoke alarms in U.S. homes. Over the past two revision cycles, NFPA 72 *National Fire Alarm and Signaling Code*®, the *International Residential Code* (IRC), and the *International Fire Code* (IFC) have been updated to include measures designed to reduce the incidence of unwanted alarm activations and subsequent disabling of smoke alarms by consumers. Another effort to address these issues has been the introduction of a non-removable, or “sealed,” smoke alarm battery that is capable of powering the device for 10 years (i.e., “10-year battery”).

Recent years have seen the introduction and/or passage of legislation in various states and cities aimed at requiring *all* smoke alarms relying on batteries as a primary power source to be powered by sealed 10-year batteries (i.e., “10-year mandate”).<sup>6</sup> NEMA recognizes that there are various stakeholder groups in favor of these laws because they believe that this technology enhances life safety by providing longer battery life while preventing consumers from removing the batteries. While NEMA supports the advancement of technologies that improve life safety, NEMA does not support legislation that attempts to mandate one type of life safety technology in a given market at the exclusion of other important technologies.

### Did You Know?

- NEMA Members include industry leaders and innovative small businesses that manufacture products used in the generation, transmission and distribution, control, and end-use of electricity.
- NEMA promotes safety, innovation, interoperability, environment, and market enhancement through advocacy, business information, and standards for products, systems, and technologies.
- NEMA publishes over 600 standards, application guides, white papers, and technical papers.
- NEMA responds to codes and standards proposals of other organizations in the U.S. and around the world, facilitating the development of international and North American harmonized standards.
- NEMA was named in the Energy Independence and Security Act of 2007 to work with federal agencies on efforts to enhance the efficiency, sustainability, and security of the electricity grid. As part of this, NEMA has been instrumental in the Smart Grid Interoperability Panel (SGIP) and the National Institute of Standards and Technology (NIST) Smart Grid Federal Advisory Committee.

*The National Electrical Manufacturers Association (NEMA) is the association of electrical equipment, medical imaging, and radiation therapy manufacturers. Founded in 1926 and headquartered in Rosslyn, Virginia, NEMA's 400-plus member companies include a diverse collection of large, medium, and small businesses in over 50 market segments. Total U.S. shipments for NEMA member products exceeds \$100 billion.*



## Position: Consumers Should Be Free to Choose Smoke Alarm Features Present in Their Homes

NEMA's position is that consumers should be free to choose which smoke alarms are present in their homes provided those devices comply with consensus codes and standards. Consumers, not state legislatures, should decide whether alarms powered by 10-year batteries ultimately address consumer needs. Further, it is clear that the imposition of 10-year mandates not only precludes some *current* technologies, but could also preempt the introduction of future technologies in a given state. Life safety is among the most innovative and dynamic of U.S. manufacturing industries; NEMA members are constantly working to develop new smoke detection and communication technologies to enhance consumer protection. The result of these efforts is an evolving marketplace which will continue to benefit the consumer for years to come. NEMA does not want to see this evolution stifled by preclusive legislation.

## Importance: Life Safety Features Not Supported by a 10-year Battery

There are currently several important life safety features that are not supported by a 10-year battery. They include wireless interconnection, connection to a control unit, multiple sensing technologies, and enhanced waking effectiveness for susceptible sub-populations. Under the imposition of a 10-year mandate, consumers would be precluded from purchasing and installing battery-operated smoke alarms with these features in their homes.

### Interconnection

Wireless technology now makes it possible to interconnect battery-operated alarms. These advances have made it much easier to retrofit existing homes (those without hard-wired alarms) with interconnection features. One recent study suggests that the presence of interconnected smoke alarms can reduce death rates by half compared to having only a single alarm in the hallway<sup>7</sup>. However, at present, no smoke alarm solely powered by a 10-year battery is capable of wireless interconnection.

### Control Unit

Smoke alarms or detectors that communicate with a fire alarm control unit via a wired or wireless signal can also enhance life safety. These smoke detection devices are integrally connected to a professionally-installed and tested system that is fully monitored to ensure all components are operating properly. Some consumers prefer this feature because the system is capable of notifying the homeowner (and a remote supervising station, when provided) of a low battery condition via an alphanumeric display. No battery currently on the market is capable of providing the power necessary to send the required<sup>8</sup> supervision signal to the control unit every 200 seconds over a 10-year period.

### Multiple Sensing Technology Alarms

The CPSC, U.S. Fire Administration, NFPA, International Association of Fire Chiefs, National Association of State Fire Marshals, and 2011 California Smoke Alarm Report have acknowledged that both ionization and photoelectric technologies provide enough available safe egress time in most fire scenarios. These organizations recommend the use of both technologies to maximize protection. For reasons of convenience and cost-effectiveness, some consumers find it beneficial to purchase alarms that combine both technologies. In addition, multi-sensor or multi-criteria technologies (defined in NFPA 72<sup>9</sup>) may utilize sensors with lifetimes shorter than 10 years. Requiring smoke alarms to be powered by 10-year batteries may preclude this option.

### Low Frequency Audible Alarms (Enhanced Waking Effectiveness)

Section 29.3.8.1 of the 2010 and 2013 editions of NFPA 72 requires a 520 Hz low-frequency audible alarm signal for those who identify themselves as having hearing loss. This audible alarm signal has been proven to have enhanced waking effectiveness for this and certain other high-risk groups such as the elderly, school-age children, and people who are alcohol-impaired. These low frequency sounders consume significantly more power than the conventional 3KHz sounder. As a result, smoke alarms that utilize these are not able to provide 10-year service life at this time.



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Because NEMA believes that consumers should be free to decide which life safety technologies will be present in their homes, we do not support legislative mandates that restrict consumer choice. However, we understand that some state legislatures may believe that smoke alarms with sealed 10-year batteries are effective keeping operational smoke alarms in consumers' homes and, therefore, will pass a 10-year mandate in spite of the preclusion of other important life safety technologies. In these instances, NEMA recommends that the legislative language contain exemptions for key life safety technologies, such as those listed above. In addition, such a mandate should incorporate a realistic effective date for the law. The industry requires sufficient time to design, manufacture, test, and obtain third-party certification/listing for new products. This process, while lengthy, incorporates the best practices from the life safety industry.

NEMA hopes that consumers will continue to be vigilant in testing their own smoke alarms regardless of the detection or battery technology that those alarms employ. While a long-life, sealed-in battery may eliminate the need to replace batteries, it does not eliminate the need to test an alarm—the only way to ensure a smoke alarm is still operating is to test it. National codes and standards require that consumers test all battery-powered smoke alarms at least once per month.<sup>10</sup> This requirement can be found on manufacturers' websites, in user manuals, and in other consumer information.

NEMA is the association of electrical equipment manufacturers, founded in 1926 and headquartered in Rosslyn, Virginia. Its member companies manufacture a diverse set of products including power transmission and distribution equipment, lighting systems, factory automation and control systems, and medical diagnostic imaging systems. Total U.S. shipments for electroindustry products exceed \$100 billion annually. We serve as a resource, working with the state and local jurisdictions in the interest of life safety.

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1. [www.nfpa.org/research/reports-and-statistics/fires-by-property-type/residential/home-fires](http://www.nfpa.org/research/reports-and-statistics/fires-by-property-type/residential/home-fires)
2. U.S. Census Bureau
3. NFPA, "Smoke Alarms in U.S Home Fires" (2012), Figure 1, p. 1.
4. [www.usfa.fema.gov/downloads/pdf/statistics/Residential\\_Structure\\_and\\_Building\\_Fires.pdf](http://www.usfa.fema.gov/downloads/pdf/statistics/Residential_Structure_and_Building_Fires.pdf), 15.
5. Smoke Detector Operability Survey (1992), Summary, p. ii, and Figure 2, p. 2.
6. Including but not limited to: OR, CA, MD, OH, Phoenix, Indianapolis and New York City.
7. Thomas, Ian and Dorothy Bruck, "Smoke Alarms in Dwellings: Occupant Safety Through Timely Activation Effective Notification," (2011).
8. NFPA 72, Ch. 10, Section 10.5.1 and Ch. 23, Section 23.16.4.2
9. NFPA 72, Ch.3, Sections 3.3.66.12 and 3.3.66.13.
10. NFPA 72, Ch. 14, Section 14.4.5