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Recommended Policies

State and Local Legislation *for* Carbon Monoxide Life Safety Devices

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RECOMMENDED POLICIES
for
STATE CARBON MONOXIDE DEVICE
LEGISLATION and LOCAL ORDINANCE DRAFTING

SMOKE & CARBON MONOXIDE DETECTOR GROUP
of the
NEMA SIGNALING, PROTECTION AND COMMUNICATION SECTION

EXECUTIVE SUMMARY:

Proper use of carbon monoxide (CO) detection and warning devices can enhance life safety. NEMA recommends that state and local legislatures enact laws requiring:

- Carbon monoxide devices in buildings and structures, both new and existing, including one- and two-family homes, multifamily dwellings, public lodging (hotels, motels, boarding houses, etc.), nursing homes, assisted living facilities, group homes, other residential occupancies, and schools. Such requirements are especially important where such buildings/dwellings contain a CO-emitting source or hazard;
- Equipment should meet the requirements of, and be installed according to, the applicable nationally recognized codes and standards, specifically:
 - American National Standards Institute (ANSI)/Underwriters Laboratories (UL) product safety standards ANSI/UL 2034, *Single and Multiple Station Carbon Monoxide Alarms*, or ANSI/UL 2075, *Gas and Vapor Detectors and Sensors*
 - National Fire Protection Association installation standard NFPA 720, *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*.

NEMA is the association of electrical and medical imaging equipment manufacturers. Founded in 1926 and headquartered in Arlington, 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. These products are used in utility, industrial, commercial, institutional, and residential applications and include fire, smoke, and carbon monoxide detection and warning equipment.

WHAT IS CARBON MONOXIDE POISONING?

Carbon monoxide is a preventable cause of death and injury for many in our nation. It is an invisible, tasteless and odorless, colorless gas that is emitted as a result of incomplete combustion.

Flu-like symptoms identify carbon monoxide poisoning; however, its effects are easy to overlook. At high concentrations in the blood carbon monoxide can cause cognitive impairment, loss of consciousness, coma and even death. This dangerous gas can accumulate in homes

and buildings to dangerous levels if appliances or equipment that use gasoline, natural gas, oil, kerosene, propane, charcoal, or wood are not installed, maintained, or used properly.

Detrimental health effects are related to concentration levels, and they depend on the length of exposure, blood concentration levels, and personal health condition. Breathing carbon monoxide can cause headaches, dizziness, sleepiness, nausea, confusion, and disorientation. Carbon monoxide reduces the blood's capability to carry oxygen to a human's vital organs and tissues, such as the heart and brain. At high levels, it can cause loss of consciousness and death.

The Centers for Disease Control estimates there are nearly 400 deaths and more than 20,000 injuries each year from carbon monoxide poisoning. Because symptoms are similar to the flu, CO deaths and injuries have been "grossly underreported" and according to estimates, actual deaths may exceed 2,000.

While the majority of CO deaths occur in dwelling units, more than 21% of CO incidents occur in public facilities and areas outside the home. Such incidents are likely to affect significantly more people than those in dwelling units. Even when there are not deaths, long term effects on the nervous system and the heart can occur in as many as 40% of the cases. The U.S. Consumer Product Safety Commission (CPSC) estimates that societal costs from CO poisonings exceed \$630 million annually.

EXISTING LAWS & PENDING LEGISLATION

Enacted State Wide Carbon Monoxide Laws, Codes & Regulations:

- Alabama
- Alaska
- California
- Colorado
- Connecticut¹
- Florida
- Georgia
- Idaho
- Illinois
- Iowa
- Kentucky
- Louisiana
- Maine
- Maryland²
- Massachusetts
- Michigan
- Minnesota
- Montana
- New Hampshire
- New Jersey
- New Mexico
- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- Tennessee
- Texas³
- Utah
- Vermont
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming

¹ *In addition to requiring CO detection in homes and other residential dwellings, the State of Connecticut requires the installation of CO detectors in all public and nonpublic schools in the state.*

² *In addition to requiring CO detection in single- and multi-family dwellings, hotels, motels, and dormitories, the State of Maryland requires the installation of CO detectors in public schools in the state when newly constructed or upon substantial remodeling.*

³ *Texas currently only requires the installation of CO detection devices in child care facilities and certain family/group homes.*

For a map of state CO detection requirements, please visit www.lifesafetysolutionsonline.com.

Enacted Municipality Carbon Monoxide Provisions:

More than two dozen local jurisdictions currently require the installation of carbon monoxide life safety devices.

WHAT ARE THE STANDARDS FOR CARBON MONOXIDE DEVICES?

Three leading standards, American National Standards Institute (ANSI)/Underwriters Laboratories (UL) 2034 and ANSI/UL 2075, and National Fire Protection Association (NFPA) 720 apply to carbon monoxide devices.

The efficacy of voluntary national consensus standards, and subsequent code provisions, are the leading edge of verification and durability of many different products. Life safety codes and standards ensure that products meet crucial performance requirements that recognize proven technologies.

It is important to note that any additional requirements or performance standards above and beyond those required may actually endorse an unproven performance feature, or exclude proven and tested life safety technologies that meet recognized standards. This may include devices that require voice annunciation, a long-life battery, or other scenarios.

Codes and standards drafting and acceptance follow regular schedules of review that incorporate the best thinking and state of the art developments. When a state law or local ordinance includes an additional feature or limitation not recognized in a code or standard, it may exclude future advances that make better sense or force constant revisions. To accommodate this issue, a simple reference to the applicable standard allows timely peer-reviewed updating without constant legislative involvement.

The U.S. Consumer Product Safety Commission and the National Fire Protection Association urge consumers to purchase and install CO detectors and alarms. The 2012 edition of NFPA 720 covers the selection, design, application, installation, location, performance, inspection, testing, and maintenance of carbon monoxide detection and warning equipment in buildings and structures. The requirements of this NFPA standard apply to the installation of carbon monoxide detection and warning equipment, including single- and multiple-station carbon monoxide alarms and carbon monoxide detectors and their related systems and components.

Installation in the immediate vicinity of the bedrooms. The CPSC recommends purchase of CO detectors that meet the requirements of UL 2034, the *Standard for Single and Multiple Station Carbon Monoxide Alarms*. The most recent update of this standard requires:

- **Marking and Instruction:** CO devices and manufacturer's instruction booklets must advise consumers what to do in case of an alarm signal.

- Alarm Standard: CO devices must sound alarm signal before most people experience adverse effects but not at long-term, low-level or short-term CO exposures that are not a health threat.
- Reset Button: CO devices must have a manually operated reset button that allows residents to silence the alarm. If elevated CO levels continue to exist, the detector will sound an alarm again. This will help confirm troublesome CO levels.

The *NEMA Applications Guide for Carbon Monoxide Alarms and Detectors* reviews CO detection devices, including single- and multiple-station CO alarms and system-connected CO detectors and sensors, and is available for free download at: <http://www.nema.org/stds/sb7.cfm>. A series of podcasts on CO dangers and applicable CO detection codes and standards is available at: <http://www.lifesafetysolutionsonline.com/Media.php>.

WHAT SHOULD BE CONSIDERED IN STATE AND LOCAL JURISDICTION DRAFTING?

There are several key elements concerning the mandatory use of a CO sensor, detector or alarm involving the product listing standards and installation standards of the device:

- **Required Use of Carbon Monoxide Detection Devices:** In any legislation or ordinance, it should be required that every building and structure and every dwelling unit within a single or multi-family building be equipped with CO devices.
 - Because of the prevalence of incidents caused by improper use of portable generators during power outages, legislation should cover all dwelling units, even those without fuel burning appliances. Also, battery backup should be required.
 - Legislation should spell out enforcement of the requirements. Typically this will rest with the building code/building inspectors for new construction and with an annual fire marshal inspection or change of ownership inspection for existing buildings.
 - It is wise to include a provision for funding consumer education as part of the bill.
 - Compliance can be spread across several years, with more immediate deadlines for new construction and one to two year compliance times for existing buildings.
- **Other Occupancies:** In addition to requiring CO detection in single- and multi-family dwellings, states should consider expanding CO detection requirements to include other places where people live and sleep, especially when a CO hazard is present. Such occupancies would include—but not be limited to—hotels, motels, dormitories, sorority and fraternity houses, rooming houses, nursing homes, assisted living facilities, prisons, and other residential institutional facilities or group homes. In addition, requiring the installation of CO detection systems in school buildings is recommended to protect children and school personnel while they are away from their homes.

- **Type of Device:** Enacted laws should require a detector meet ANSI/UL 2075 and alarm meet and conform to ANSI/UL 2034, and be installed in accordance with NFPA 720 and manufacturer's instructions.

CONTACT & FURTHER INFORMATION:

If you have questions about these recommendations, please contact Sarah Owen at NEMA at (703) 841-3245 or via email at sarah.owen@nema.org. Information is also available on the Internet at both <http://www.lifesafetysolutionsonline.com>, as well as from Underwriters Laboratories, the U.S. Consumer Product Safety Commission, and the National Fire Protection Association.