

# Carbon Monoxide Messaging & the Ecosystem

National Carbon Monoxide Awareness Association Conference

July 30, 2024 | Kelly Ransdell | Director, Public Education



IT'S A BIG WORLD. LET'S PROTECT IT TOGETHER.™

# WHAT IS THE FIRE & LIFE SAFETY ECOSYSTEM?

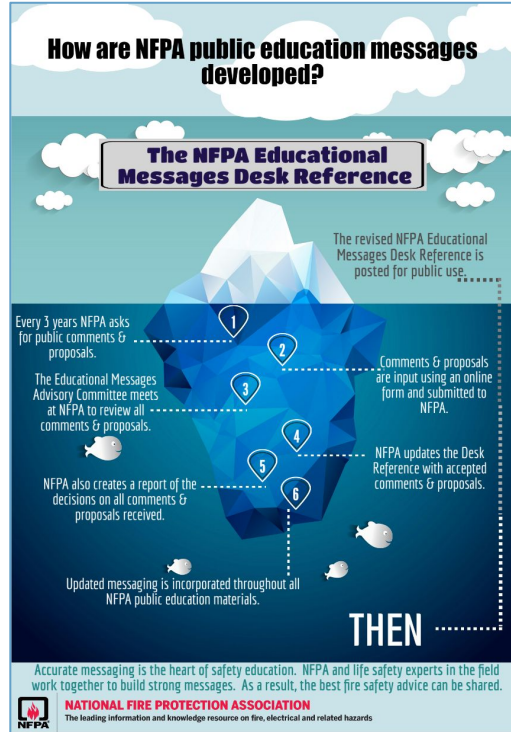
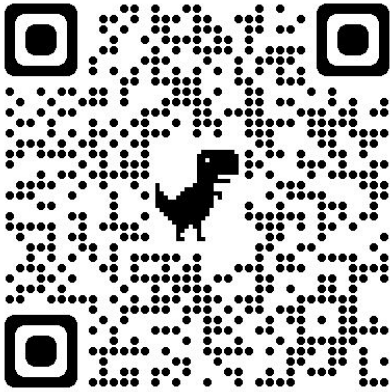


The Fire & Life Safety Ecosystem has **8 components**; each plays a critical role in protecting people and property.

# YOUR ROLE IN THE FIRE & LIFE SAFETY ECOSYSTEM

- Safety is everyone's responsibility. Your role can and will impact safety.
- Do you know your role?
- What part do you play in the Fire & Life Safety Ecosystem?

# Educational Messaging



**NFPA EDUCATIONAL MESSAGES**  
2020 EDITION  
**DESK REFERENCE** FOR THE FIRE SERVICE  
AND FIRE AND LIFE SAFETY EDUCATORS

**MATCHES & LIGHTERS**  
**HOME SMOKE ALARMS**  
**COOKING SPRINKLERS**  
**MEDICAL OXYGEN**  
**CANDLES**  
**ELECTRICAL**  
**FIRE EXTINGUISHERS**  
**BURNS**  
**SMOKING**  
**CARBON MONOXIDE**

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The cover of the 'NFPA Educational Messages 2020 Edition' desk reference. It features a collage of fire safety-related terms and images, including a person using a fire extinguisher, a hand holding a candle, and a person smoking. The background is a mix of light and dark tones.



# GOVERNMENT RESPONSIBILITY


## What is it?

Maintaining an effective policy and regulatory environment supporting fire, electrical, building and life safety.

## Why is it important?

Recent polling shows people feel the government should be held accountable for ensuring safety requirements are up-to-date for their constituents. They assume it is currently happening, but in many cases, we know it doesn't take place.

# Social Media Cards



**Install and test carbon monoxide (CO) alarms at least once a month.**

CO is called the “invisible killer” because it’s a colorless, odorless, poisonous gas. Breathing in CO at high levels can be fatal.

FEMA | U.S. Fire Administration | Fire Department's First Responders



**Generators should always be used outside the home.**

Carbon monoxide poisoning can occur when a generator is not working or vented properly.

U.S. Fire Administration | FEMA | Fire Department's First Responders

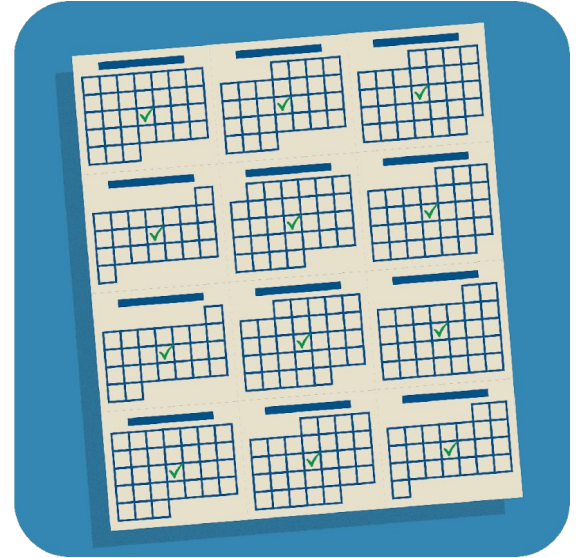
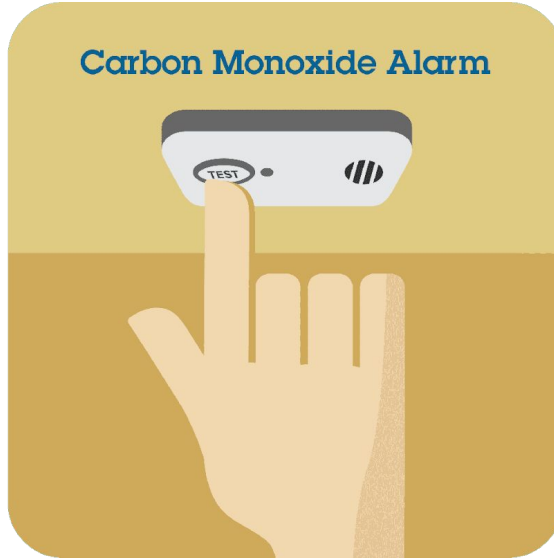


**Solo use los generadores fuera de la casa.**

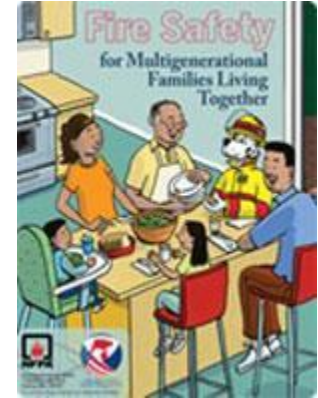
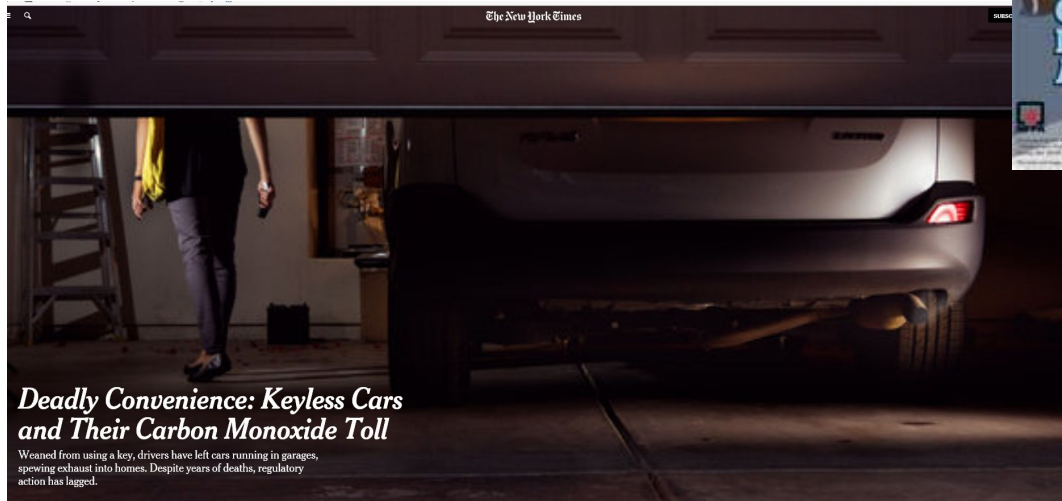
Cuando un generador no funciona bien o no tiene la ventilación adecuada podría causar envenenamiento con monóxido de carbono.

U.S. Fire Administration | FEMA | Fire Department's First Responders

# Pictographs

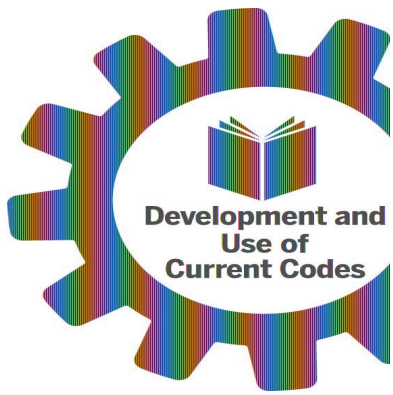


# Partnerships & Outreach



U.S. Fire Administration  
Celebrating 50 years of working for a fire-safe America  
**50 YEARS** 1974-2024





# DEVELOPMENT AND USE OF CURRENT CODES

## What is it?

Using the latest codes and standards developed by experts from across the world to establish minimum levels of safety to protect people and property.

## Why is it important?

As technology changes, safety advocates are constantly assessing the risks we face in our homes, workplaces, and other buildings, as well as behaviors and actions that can create new hazards. Codes and standards are updated to reflect this changing world.

# Codes & Standards



## NFPA 720

### Standard for the Installation of Carbon Monoxide(CO) Detection and Warning Equipment

Status: Withdrawn ⓘ [Notify Me About Document Updates](#) >

**NFPA 720 was withdrawn at the Annual 2018 revision cycle. NFPA 720 requirements have been incorporated into NFPA 72. The Council voted to approve the withdrawal of NFPA 720 on August 14, 2018.**

NFPA 720 contains requirements for carbon monoxide (CO) detection and warning equipment intended to protect lives by warning occupants of the presence of CO in sufficient time to allow occupants to escape or take other appropriate action.

Current Edition: 2015

[Purchase Options](#)

[Ask a Technical Question](#)



## NFPA 72

### National Fire Alarm and Signaling Code®

Status: Active ⓘ [Notify Me About Document Updates](#) >

NFPA 72 provides the latest safety provisions to meet society's changing fire detection, signaling, and emergency communications demands. In addition to the core focus on fire alarm systems, the Code includes requirements for mass notification systems used for weather emergencies; terrorist events; biological, chemical, and nuclear emergencies; and other threats.

Current Edition: 2022

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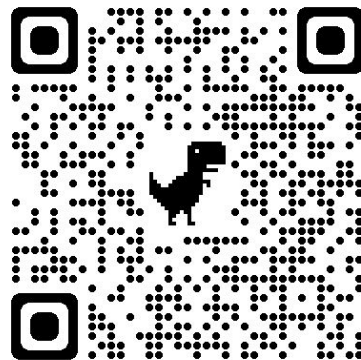
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# REFERENCED STANDARDS

## What is it?

Applying all standards that are referenced within the primary fire, life safety, building, and electrical codes and standards.

## Why is it important?

Referenced standards provide critical guidance to designers, installers, facility operators, and enforcers. They are part of the code and must be used to ensure a minimum level of safety for all.



# INVESTMENT IN SAFETY

## What is it?

Investing in safety should always be everyone's high priority. We all must work together if we want to diminish losses from fire and related hazards.

## Why is it important?

If we don't take a vested interest in the safety of the public, and if we make decisions based solely on financial gains, tragedies will ultimately occur.

# Chapter 5



## 5.2 Peer-to-peer Hospitality

- Smoke alarms
- Carbon Monoxide
- Cooking
- Extinguishers
- Floor plan
- Address
- Two ways out
- Meeting place
- Smoking
- Pathways
- Stovetop



### Fire Safety at Your Home Away from Home

Peer-to-peer hospitality services, such as Airbnb, Vacation Rentals by Owner and other types of vacation rentals are not regulated in the same way as hotels. Requirements vary widely across jurisdictions. Act as your own safety advocate and know before you go. Be sure the following safety measures are addressed.

#### SAFETY TIPS

- ✓ Working smoke alarms are in every sleeping room. They are outside each separate sleeping area. They are on every level of the home.
- ✓ Working smoke alarms are interconnected, if possible. When one alarm sounds, they all sound.
- ✓ Portable fire extinguishers are in the home and are easy to reach.
- ✓ Working carbon monoxide alarms are outside each separate sleeping area. They are on every level of the home and in other locations as required by laws, codes, or standards.
- ✓ The owner has posted a floor plan. It notes all escape routes and exits and provides emergency contact information.
- ✓ Everyone knows the address of the home.
- ✓ Everyone staying in the home has identified two ways out of every room and how to escape in an emergency.
- ✓ All doors and windows that lead outside are able to be opened.
- ✓ An outside meeting place has been chosen. It is a safe distance away from the home.
- ✓ Everyone knows how to call 9-1-1 or the local emergency number from a cell phone from outside.
- ✓ If smoking is allowed, a smoking area has been designated and is well away from the structure. Deep, sturdy ashtrays have been provided.
- ✓ All pathways are free and clear of tripping hazards.
- ✓ Electrical outlets are free from multiple cords and adaptors.
- ✓ The stovetop is clear. Anything that can catch fire is not near the stovetop, such as curtains and towels.

#### WINDOW AND DOOR ALERT!

Be on the lookout for rooms with tiny windows. These are too small to serve as a means of escape.

Security bars on doors and windows can trap people in a fire. Make sure any security bars have quick release devices. Tools, keys, or special efforts should not be needed to open them.

#### KNOW BEFORE YOU GO

Peer-to-peer hospitality services are not regulated in the same way as hotels. Requirements vary widely across jurisdictions. Do your homework before making a reservation. Check online to see your travel destination's regulations for rental properties. Ask your host if the property meets the regulations. Discuss other safety concerns you may have.

Check the forecast in case of storms that could cause power outages; assure the property has equipment (batteries, lanterns, etc.) in the event of a power outage.

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# SKILLED WORKFORCE

## What is it?

Providing opportunities for professionals to apply the skills they have, offer training when they need it, and reward those who recommit to fire prevention, protection, and education.

## Why is it important?

Promoting the development of and utilizing skilled professionals ensures we are applying correctly the most current codes and standards to our work and in return, we reduce risk of injuries, loss, and death for workers and the public.

# Chapter 10 Heating



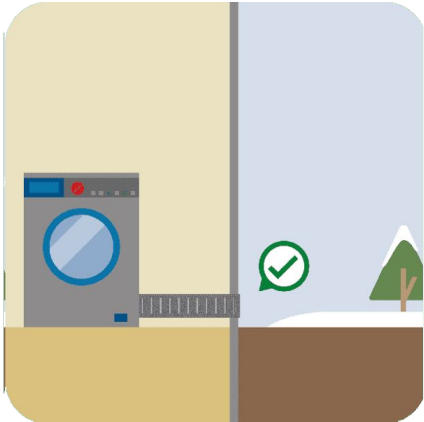
## 10.3 Fuel-burning space heaters

**NEW!** **10.3.5** Newer models of unvented gas-fired space heaters have an oxygen depletion sensor that detects a reduced level of oxygen in the area where the heater is operating. They still produce carbon monoxide, carbon dioxide, and nitrogen dioxide. It is recommended to only use this type of heater for emergency heat and to choose a vented gas heater, vented wood stove, or electric heater for prolonged amounts of time.





# Pictographs





# CODE COMPLIANCE

## What is it?

Supporting effective code enforcement. Whether a house or a new office building, the places people live and work are only as safe as the code compliance in place before, during, and after construction.

## Why is it important?

It's a fact that enacting and enforcing fire, electrical, building and life safety codes and standards, and ensuring on-going inspection, testing, and maintenance of facilities and safety systems, reduce deaths, injuries, and losses resulting from building fires.

# Chapter 5



## 5.1 Hotels and Motels

- Smoke / CO alarms
- Sprinklers
- Fire alarm sounds
- Escape plan
- Count the doors
- Room key handy
- Use the stairs
- Go low under smoke
- Bring a flashlight
- Leave if alarm sounds
- Return to room if escape routes are blocked



### Hotel & Motel Safety

Vacations and business travel make hotels and motels our home away from home. It is just as important to be prepared and know what you would do in a hotel/motel emergency as it is in your own home.

**BE SAFE WHEN TRAVELING!**

- Choose a hotel/motel that is protected by both smoke alarms and a fire sprinkler system.
- When you check in, ask the front desk what the fire alarm sounds like.
- When you enter your room, review the escape plan posted in your room.
- Take the time to find the exits and count the number of doors between your room and the exit. Make sure the exits are unlocked. If they are locked, report it to management right away.
- Keep your room key by your bed and take it with you if there is a fire.
- If the alarm sounds, leave right away, closing all doors behind you. Use the stairs — never use elevators during a fire.
- If you must escape through smoke, get low and go under the smoke to your exit.

**If You Can't Escape...**

**SHUT** off fans and air conditioners.

**STUFF** wet towels in the crack around the doors.

**CALL** the fire department and let them know your location.

**WAIT** at the window and signal with a flashlight or light colored cloth.

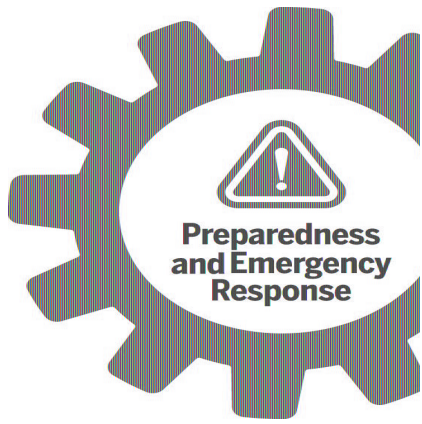
**FACTS**

- 1 On average, one of every 14 hotels or motels reported a structure fire each year.
- 1 The majority of hotel fire deaths result from fires that started in the **bedroom**.
- 1 **Cooking** is the leading cause of hotel/motel fires.

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# PREPAREDNESS AND EMERGENCY RESPONSE

## What is it?

Investing in, prioritizing, and investing money in effective preparedness and response capabilities and resources for before, during, and after an emergency.

## Why is it important?

When they put their lives on the line, first responders should feel secure knowing they are prepared to protect their communities, and that their communities are working to help prevent and prepare for emergency situations.

# Chapter 3 Carbon Monoxide

## 3.7 Portable Generators

### 3.7 Portable Generators

**NEW!** **3.7.1** Use portable generators outdoors in well-ventilated areas at least 20 feet (7 metres) from all doors, windows, and vent openings. Measure the 20-foot (7-metre) distance from the generator to the building.

**NEW!** **3.7.5** If you are buying or renting a portable generator, choose one that is listed by a qualified testing laboratory.

**NEW!** **3.7.6** Do not stand or sit downwind of generator exhaust. If you can smell exhaust, you are inhaling it. Exhaust is toxic and deadly.

**NEW!**



Downed utility lines, power company blackouts, heavy snow falls or summer storms can all lead to power outages. Many people turn to a portable generator for a temporary solution without knowing the risks.

- Generators should be used in well ventilated locations outside at least 5 feet (1.5 metres) away from all doors, windows, and vent openings. Measure the 5-foot (1.5 metres) distance from the generator exhaust system to the building.
- Never use a generator in an attached garage, even with the door open.
- Place generators so that exhaust fumes can't enter the home through windows, doors or other openings in the building. The exhaust must be directed away from the building.
- Make sure to install carbon monoxide (CO) alarms in your home. Follow manufacturer's instructions for correct placement and mounting height.
- Turn off generators and let them cool down before refueling. Never refuel a generator while it is hot.

- Store fuel for the generator in a container that is intended for the purpose and is correctly labeled as such. Store the containers outside of living areas.

### Just Remember...

When plugging in appliances, make sure they are plugged directly into the generator or a heavy duty outdoor-rated extension cord. The cords should be checked for cuts, tears and that the plug has all three prongs, especially a grounding pin.

If you must connect the generator to the house wiring to power appliances, have a qualified electrician install a properly rated transfer switch in accordance with the National Electrical Code® (NEC) and all applicable state and local electrical codes.

### FACT

! A person can be poisoned by a small amount of CO over a longer period of time or by a large amount of CO over a shorter amount of time.

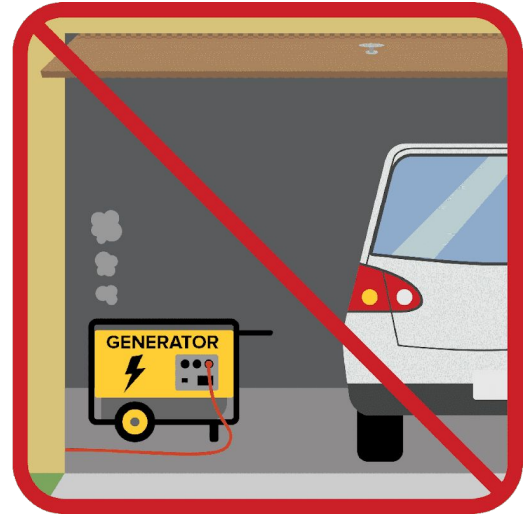
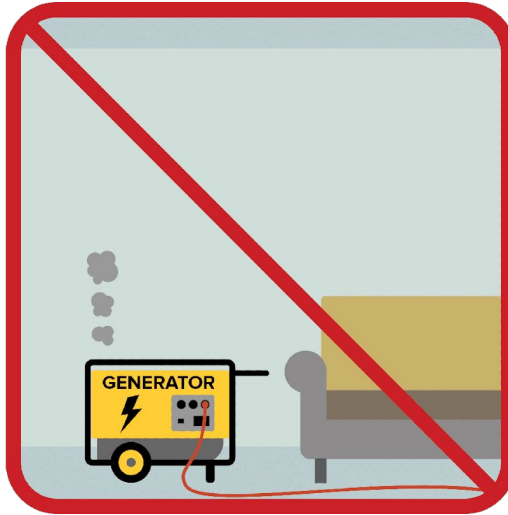
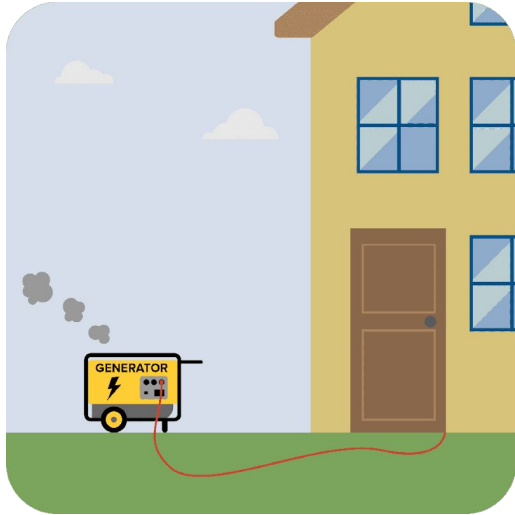


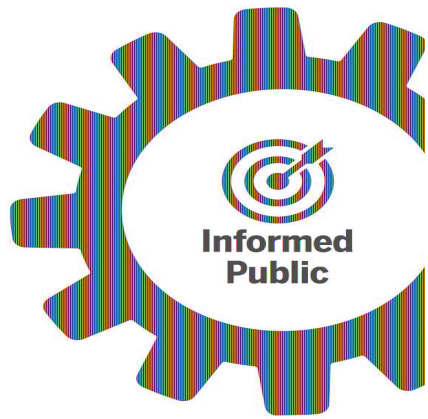
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# Pictographs





# INFORMED PUBLIC

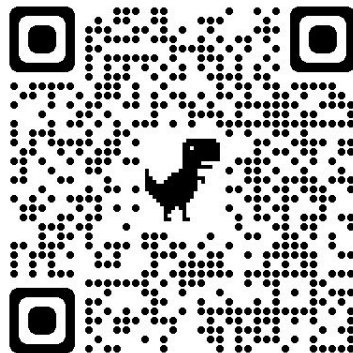
## What is it?

Raising awareness, providing resources, and educating the public about the dangers posed by fire, electrical, and related hazards.

## Why is it important?

When given tips and action steps to help address hazards, the public will likely make better, more informed decisions and take action to protect their home and personal safety.

# Safety Tip Sheets



Boats can be a great source of summer fun and leisure. But, boaters, swimmers, and marina staff must be aware of dangers in and around the water. Electrical hazards and carbon monoxide (CO) bring unique risks to the boating world. Learn to protect people and pets from these dangers.

## ELECTRICAL SAFETY

- 10 Never allow swimming near the boat, marina, or launching ramp. Residual current could flow into the water from the boat or the marina's wiring. This can put anyone at risk of electrical shock/drownings (ESD).
- 10 Be sure your boat is well maintained. Have it inspected each year. Ask a qualified marine electrician to do this job.
- 10 Ground fault circuit interrupters (GFCIs) and equipment leakage circuit interrupters (ELCIs) should be installed and tested monthly. Run tests to find out if electrical current is leaking from the boat.
- 10 Only use cords intended for marine use. Never use household cords near water.
- 10 Know where your main breakers are on both the boat and the shore power source. This will help you respond quickly in an emergency.

## CARBON MONOXIDE SAFETY

- 10 Poorly tuned engines produce more CO. Keep your engine properly maintained. Follow manufacturer's instructions for service.
- 10 Proper ventilation for engine and generator exhaust vents must be clear and pipes should be inspected for leaks.
- 10 Get into fresh air right away and get help if you feel symptoms of CO poisoning. These include headache, fatigue, confusion, dizziness, nausea, or seizures. The symptoms can be similar to seasickness. Assume it's a CO exposure until you are sure the boat is safe.
- 10 Do not swim near the boat's exhaust vents. CO accumulates there.
- 10 Install CO alarms inside your boat. Test CO alarms before each trip.
- 10 Choose a CO alarm that is listed by a qualified testing laboratory.
- 10 If the CO alarm sounds, move to a fresh air location right away.



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## KNOW THE RISKS!

Electrical shock/drownings can occur when marina electrical systems leak electrical current into the water. Boats can also serve as the source of an electrical leakage. Leakage can cause a shock that can injure, disable, or kill a person.

Carbon monoxide is a gas you cannot see, taste, or smell. It is often called the "invisible killer." CO is created when fuels such as gasoline, diesel, or propane do not burn fully. CO is also produced when wood or charcoal is burned.

Sources of CO on your boat may include engines, gas generators, and cooling ranges.

Space heaters, heaters, and stoves are also sources of CO. CO can reduce awareness in or around a boat. The gas is harmful to both people and pets.

## FACT

CO can remain in or around your boat at unsafe levels even if the engine has been turned off.

Name of Organization Here  
Contact Information Here



There is nothing like sitting by an open fire on a cold night. Indoor and outdoor portable ethanol burning fireplaces have become more popular in recent years. While these products provide ambiance and a little warmth, keep in mind the fuel, device and open flame can be dangerous.

## Fireplace Safety

- 10 A portable ethanol burning fireplace, and the fuel, should only be used by adults.
- 10 Clean up any fuel spillage and be sure all liquid has evaporated before lighting the fireplace.
- 10 Light the fireplace using a utility lighter or long match.
- 10 An adult should always be present when a portable fireplace is burning.
- 10 Place the fireplace on a sturdy surface away from table edges.
- 10 It's a good idea to crack a window open for a fresh supply of air.
- 10 Never try to move a lit fireplace or one that is still hot.
- 10 Don't pour ethanol fuel in a device that is lit or not completely cool. It may result in a fire or injury.
- 10 Allow the device to cool down for at least 15 minutes before refueling.
- 10 Extinguish the flame when you leave the room, home or go to sleep.

**General Fire Safety**

- \* Keep anything that can burn, children and pets at least 3 feet from the fireplace.
- \* Store lighters and matches out of the reach of children, in a locked cabinet.



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## Ethanol Fuel Smarts

Store ethanol fuel in a closed container, away from the fireplace and out of the reach of children.

It may not be easy to see the ethanol fuel flame. Always close the lid or use a snuffer to be sure the flame is extinguished before refueling into a cooled fireplace.

Use only fuel made specifically for the fireplace.



**Ethanol** is a plant-based product that does not release new carbon monoxide into the air.

Name of Organization Goes Here  
Contact Information Goes Here



Doing laundry is most likely part of your every day routine. But did you know how important taking care of your clothes dryer is to the safety of your home? With a few simple safety tips you can help prevent a clothes dryer fire.

- 10 Have your dryer installed and serviced by a professional.
- 10 Do not use the dryer without a lint filter.
- 10 Make sure you clean the lint filter before or after each load of laundry. Remove lint that has collected around the drum.
- 10 Rigid or flexible metal venting material should be used to sustain proper air flow and drying time.
- 10 Make sure the air exhaust vent pipe is not restricted and the outdoor vent flap will open when the dryer is operating. Once a year, or more often if you notice that it is taking longer than normal for your clothes to dry, clean lint out of the vent pipe or have a dryer lint removal service do it for you.
- 10 Keep dryers in good working order. Gas dryers should be inspected by a professional to make sure that the gas line and connection are intact and free of leaks.
- 10 Make sure the right plug and outlet are used and that the machine is connected properly.
- 10 Follow the manufacturer's operating instructions and don't overload your dryer.
- 10 Turn the dryer off if you leave home or when you go to bed.

## AND DON'T FORGET..

Dryers should be properly grounded. Check the outdoor vent flap to make sure it is not covered by snow.

Keep the area around your dryer clear of things that can burn, like boxes, cleaning supplies and clothing, etc.

Clothes that have come in contact with flammable substances, like gasoline, paint thinner, or similar solvents should be laid outside to dry, then can be washed and dried as usual.

## FACT

The leading cause of home clothes dryer fires is failure to clean them.

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## Smoke and CO Alarms for People who are Deaf or Hard of Hearing

Working smoke and carbon monoxide (CO) alarms. People who are deaf or hard of hearing may not be able to hear typical alarms to let them know there is danger.

There are special alarms and devices to ensure everyone can be alerted in case of fire or high CO levels.

- ▶ When the smoke alarm sounds, strobe lights flash to alert people who are deaf or hard of hearing of a possible fire when they are awake.
- ▶ When they are asleep, a pillow or bed shaker should be used to wake and alert them to fire conditions so they can escape. This device is activated by the sound of a standard smoke alarm. People who are deaf may find that the shaker paired with a high-intensity strobe light is helpful to wake them.
- ▶ Smoke and CO alarms can be installed that use a low-frequency sound. These will work better to wake a sleeping person who has mild to severe hearing loss.
- ▶ These special devices and alarms can also signal when the battery is low.

Research the different products and select the ones that fit the needs of the people in your home. These can be easily installed without a professional. Products can be found in home improvement stores, online, and on manufacturer websites. Pick devices that are listed by a qualified testing laboratory, which is often disclosed on the product's packaging.

### Smoke Alarms

- ▶ Install smoke alarm in sleeping area, or the basement.
- ▶ For the best protection, install smoke alarms. When or
- ▶ Test alarms at least once a month.
- ▶ Replace smoke alarm batteries as needed.

### Carbon Monoxide Alarms

- ▶ Install CO alarm in every level of the home, including the basement and attic, or fuel-burning appliances in your home.
- ▶ Replace CO alarm batteries as needed.

**Reduce Your Risk**  
Installing both a smoke and CO alarm reduces the risk of injury compared to having only one.

**Make a Plan**  
Develop a fire escape plan with everyone in your home. Practice the plan regularly.

Available in  
English and  
Spanish



## Alarmas de humo y CO para personas sordas o con dificultades auditivas

Las alarmas de humo y CO operativas salvan vidas. Las personas sordas o con dificultades auditivas pueden no ser capaces de depender de las alarmas típicas para alertarlos del peligro.

Hay alarmas y dispositivos especiales para garantizar que todos sean alertados en caso de incendio o niveles altos de CO.

- ▶ Cuando suena la alarma, luces estroboscópicas alertan a personas sordas o con dificultad auditiva de un posible incendio cuando están despiertas.
- ▶ Cuando duermen, un agitador de almohada o cama debería usarse para despertarlos y alertarlos del fuego para que escapen. El dispositivo se activa con el sonido de la alarma de humo estándar. La combinación del agitador y la alta intensidad de las luces estroboscópicas puede ayudar a despertar a personas sordas.

### Alarmas de Humo

- ▶ Instala alarmas de humo en cada dormitorio, fuera de las áreas de dormir y en cada nivel de la casa, incluyendo el sótano.
- ▶ Para mejor protección, elige alarmas de humo interconectadas. Cuando una suena, suenan todas.
- ▶ Prueba las alarmas por lo menos una vez al mes usando el botón de prueba.
- ▶ Reemplaza las alarmas de humo si tienen más de 10 años.

### Alarmas de Monóxido de Carbono (CO)

- ▶ Instala alarmas de CO afuera de cada área separada de dormir y en cada nivel de la casa, incluyendo sótano y ático. No instales alarmas cerca de chimeneas o artefactos.

Grade Level: Preschool, Kindergarten, Grade 1, Grade 2, Grade 3, Grade 4, Grade 5



# Lesson Plans



## Mastering the 10-Minute Mini-Lesson

SAMPLE LESSON PLAN

### CO ALARMS IN THE HOME

#### Educational Messages to Review:

- 3.1 Dangers of Carbon Monoxide
- 3.2 Installation
- 3.3 Testing & Replacement
- 3.8 If Your Carbon Monoxide Alarm Sounds

**Topic:** Carbon Monoxide Alarms in the Home  
**Audience:** Adult Attendees of a City Council Meeting  
**Lesson Objective:** By the end of the mini-lesson, participants will be able to describe at least 3 actions to ensure carbon monoxide alarms can serve as life-saving warning devices.

#### Step 1: Introduction (3 Minutes)

- Greet the participants and let them know you appreciate the invitation to speak for 10 minutes.
- Introduce yourself and share your connection to the community.
- **HOOK:** Play the sound clip of the singing canary.
  - Ask audience members to identify the sound.
  - Share a brief bit of history about the role canaries once held in coal mines:

Poor ventilation is a problem in coal mines. Miners once used canaries to test the air quality in the mines. Canaries are very sensitive to the dangerous gases sometimes found in the mines. The canaries would chirp and sing all day long. But, if the levels of poisonous gases got too high, the canaries would have trouble breathing, and maybe even die. When the canaries stopped singing, miners would know that the gas levels were unsafe. They would leave the mine quickly to avoid suffocation or being caught in an explosion.

- Some miners relied on canaries as early warning devices into the 1980's.
- Modern technology has provided miners with new tools to detect the poisonous gases in mines.
- Modern technology has also provided us with a tool to detect carbon monoxide that could be in our homes.

#### Step 2: Body of the Presentation (5 minutes)

- Inform the group about the topic of the mini-lesson: The importance of having working carbon monoxide (CO) alarms in the home.
- Share the following points with the participants:
  - Carbon Monoxide is not only found in coal mines. It is a gas that can come from heating and cooking devices in the home. Carbon monoxide is poisonous. It can make a person feel sick and can be deadly.
  - Carbon Monoxide is sometimes called "The Invisible Killer."
    - ASK: Why do you think CO has this morbid nickname? CO is odorless and colorless. People are usually not aware of its presence and can get sick or die from breathing the poisonous gas.
    - Since we cannot see, smell, or taste CO, we need to rely on another early warning system — like a canary in the coal mine.
  - Carbon Monoxide alarms act as canaries in the coal mine. These alarms detect this poisonous gas and provide early warning.



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#### — Mastering the 10-Minute Mini-Lesson: CO Alarms in the Home —

- Inform participants about steps to take to ensure CO alarms are protecting people in the home:
  - Have working CO alarms in the home.
  - Install CO alarms outside sleeping areas and on every level of the home.
  - Follow the instructions on the package for proper installation and maintenance.
  - Test the CO alarms monthly.
  - Know the sounds the CO alarm makes. The alarm will sound if CO is detected. If the battery is low, the alarm will chirp. Replace the battery right away. If the alarm still sounds, call the fire department.
    - Press the test button on a CO alarm to demonstrate the sound.
    - ASK: Can CO alarms substitute for smoke alarms? *NO! You need both in the home. Know the difference between the sound of the smoke alarms and the sound of CO alarms.*
- ASK: What should you do if CO is detected?
  - Immediately move to a fresh air location outdoors.
  - Make sure everyone in the home gets to fresh air.
  - Call the fire department from a fresh air location.
  - Stay there until help arrives.

#### Step 3: Conclusion (2 minutes)

- Remind participants of the importance of having working Carbon Monoxide alarms in the home
- Ask a few review questions:
  - How is a CO alarm like a canary in the coal mine? (*early warning, can reduce injury & death*)
  - What actions do you need to take to keep CO alarms working properly?
  - What actions should be taken if CO is detected in the home?
- Remind the audience that simple steps will help increase safety in the home.
- Share your contact information and encourage participants to contact you if they have questions or concerns about other home safety issues.
- Thank everyone for their time and for inviting you to speak.

The **NFPA Tip Sheet on Carbon Monoxide Safety** is a great take-away for participants to review at home.



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# Preventing CO Poisoning Lesson Plan



## Mastering the 10-Minute Mini-Lesson

SAMPLE LESSON PLAN

### Educational Messages to Review:

- 3.4 Inside the Home
- 3.5 The Garage
- 3.6 Appliances
- 3.7 Portable Generators

**Topic:** Preventing CO (Carbon Monoxide) Poisoning  
**Audience:** Parent PTO meeting  
**Lesson Objective:** By the end of the mini-lesson, audience members will be able to identify at least 3 actions to take to help prevent CO poisoning.

### Step 1: Introduction (2 Minutes)

- Greet the audience. Let them know you appreciate the invitation to speak for 10 minutes.
- Introduce yourself. Share your connection to the community.
- **HOOX** — ASK: Which of these kills more people in the U.S. each year?
  - a) Shark attacks
  - b) Lightning strikes
  - c) CO poisoning
 The answer is: C) CO poisoning

a) shark attacks  
 (about 1 each year in the US)  
 Source: Oceana

b) lightning strikes  
 (about 32 each year in the US)  
 Source: National Weather Service, NOAA

The Centers for Disease Control and Prevention (CDC) reports that more than 400 people die each year, in the US, from unintentional CO poisoning from different products and motor vehicles. CO is poisonous gas known as the invisible killer. You can't see it or smell it, but it can hurt people who breathe it. CO poisoning can happen fast or over a long period of time. It can lead to death.

### Step 2: Body of the Presentation (7 minutes)

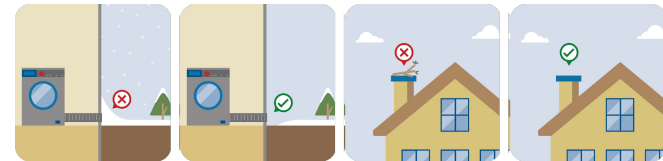
- Inform the group the topic of the mini-lesson: Ways to prevent CO poisoning in and around the home. CO can come from many things in and around your home.
  - ASK:** What are some things around your home that could produce CO?
    - Faulty fuel-burning appliances such as furnaces, ranges, water heaters and room heaters
    - Cars
    - Engine-powered tools like generators
    - Burning charcoal in fireplaces or in barbecue grills inside
- Inform the group about steps they can take to help prevent CO poisoning:
  - Have heating equipment and chimneys checked by a professional each year before cold weather starts. Make sure the system is working properly. The inspector should check for proper exhaust ventilation through chimneys and flues.
  - Open the damper when using a fireplace for proper ventilation.
  - Never use your oven or stove to heat your home.
- ASK:** What are some things that could block your dryer, stove, furnace or fireplace vents? Lint, snow, leaves...
  - Clear all things from dryer, furnace, stove, and fireplace vents.
- ASK:** Who has warmed your vehicle up in the garage? Who has lost track of time after turning it on?
  - When warming a vehicle, move it out of the garage. Do not run a fueled engine inside, even if garage doors are open. Make sure the exhaust pipe of a running vehicle is not blocked.

### — Mastering the 10-Minute Mini-Lesson: Preventing CO Poisoning —

- ASK:** Why might someone use a grill inside a garage? Raining, snowing...  
 – Always use barbecue grills outside and away from doors and windows. Never use grills inside the home or garage, even if the doors are open.  
 – A generator should be used outside only! NEVER use inside a home or garage.  
 – Keep generators at least 20 feet away from your house. Make sure they are far from windows, doors, and vent openings.

### Step 3: Conclusion (1 minute)

- Review: Ask for volunteers to share something they can do to prevent CO poisoning at home. Ask for a variety of responses.
- Remind participants that simple steps will help increase safety.
- Share your contact information and encourage the attendees to contact you if they have any questions or concerns about other home safety issues.
- Thank everyone for their time and for inviting you to speak.



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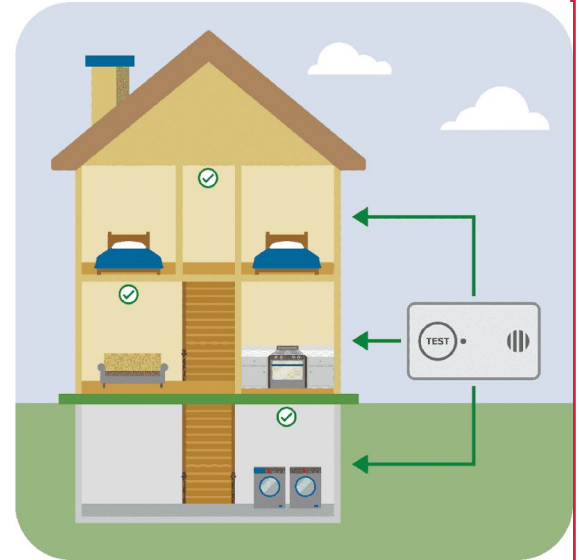
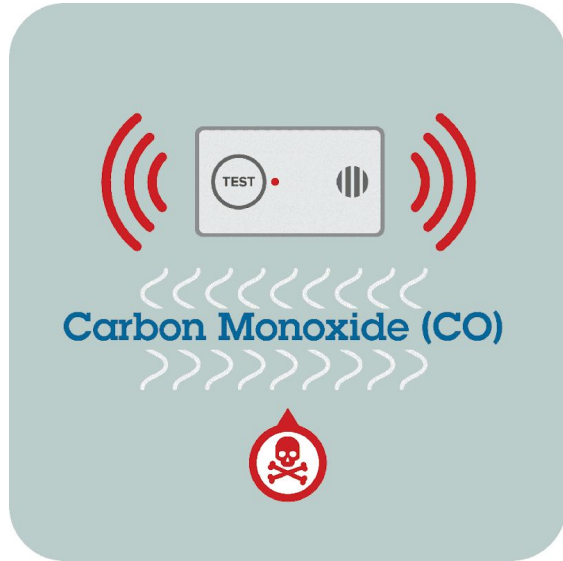
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# Pictographs



# Chapter 3 Carbon Monoxide

## 3.8 Boating and Marinas

### 3.9 If your CO alarm sounds



#### **NEW!** 3.8 Boating and Marinas

**3.8.1** Poorly tuned engines produce more carbon monoxide (CO). Keep your engine properly maintained. Follow the manufacturer's instructions for service.

**3.8.2** Proper ventilation for engine and generator exhaust vents must be clear and pipes should be inspected for leaks.

**3.8.3** Get into fresh air right away and get help if you feel symptoms of carbon monoxide (CO) poisoning. These include headache, fatigue, confusion, dizziness, nausea, or seizures. The symptoms can be similar to seasickness. Assume it is CO exposure until you are sure the boat is safe.

**3.8.4** Do not swim near the boat's exhaust vents. Carbon monoxide (CO) accumulates there.

**3.8.5** Install carbon monoxide (CO) alarms inside your boat. Test CO alarms before each trip.

**3.8.6** Choose a carbon monoxide (CO) alarm that is listed by a qualified testing laboratory.

**3.8.7** If the carbon monoxide (CO) alarm sounds, move to a fresh air location.



Boats can be a great source of summer fun and leisure. But, boaters, swimmers, and marina staff must be aware of dangers in and around the water. Electrical hazards and carbon monoxide (CO) bring unique risks to the boating world. Learn to protect people and pets from these dangers.

#### **ELECTRICAL SAFETY**

- ❗ Never allow swimming near the boat, marina, or launching ramp. Residual current could flow into the water from the boat or the marina's wiring. This can put anyone at risk of electrical shock drownings (ESD).
- ❗ Be sure your boat is well maintained. Have it inspected each year. Ask a qualified marine electrician to do this job.
- ❗ Ground fault circuit interrupters (GFCIs) and equipment leakage circuit interrupters (ELCIs) should be installed and tested monthly. Run tests to find out if electrical current is leaking from the boat.
- ❗ Only use cords intended for marine use. Never use household cords near water.
- ❗ Know where your main breakers are on both the boat and the shore power source. This will help you respond quickly in an emergency.



#### **KNOW THE RISKS!**

Electrical shock drownings can occur when marina electrical systems leak electrical current into the water. Boats can also serve as the source of an electrical leakage. Leakage can cause a shock that can injure, disable, or kill a person.

Carbon Monoxide is a gas you cannot see, taste, or smell. It is often called the "invisible killer." CO is created when fuels such as gasoline, diesel, or propane do not burn fully. CO is also produced when wood or charcoal is burned.

Sources of CO on your boat may include engines, gas generators, and cooking ranges. Space and water heaters can also be sources of CO. CO can collect anywhere in or around a boat. The gas is harmful to both people and to pets.

#### **FACT**

CO can remain in or around your boat at unsafe levels even if the engine has been turned off.

Name of Organization Here

Contact Information Here



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# Chapter 5



## 5.3 Motor Home, Camper and Recreational Vehicle Safety

- Smoke alarms
- Carbon Monoxide
- Cooking
- Appliances
- Propane
- Heaters, lanterns, campfires
- Appliance inspection
- Escape plan
- Fire extinguishers
- Vehicle service

**Motor home, camper, and recreational vehicle Safety**

Motor homes, campers, and recreational vehicles are used for living and traveling. Each year, fires in them cause deaths, injuries, and millions of dollars in damages. Fires can start in the kitchen. They can start in the engine area. Sometimes the fires are electrical. With a few simple safety tips you can help prevent these fires from happening.

**SAFETY TIPS**

- Install smoke alarms. Make sure they work.
- Stay in the kitchen while you cook. Keep anything that can catch fire away from the stovetop.
- Only use one heat-producing appliance plugged into a receptacle outlet at a time. Major appliances should be plugged directly into a wall receptacle outlet.
- Refrigerators, furnaces, ovens and stovetops use propane. Check them for leaks. Keep an updated gas leak detector on board.
- Have your propane system inspected to make sure it still works properly.
- Know two ways out. Make sure windows open easily.
- Have everyone practice the home fire escape plan.
- Do not keep camping heaters and lanterns on while sleeping.
- Before setting up a campfire, make sure it is allowed.
- If campfires are allowed, they need to be at least 25 feet away from anything that can burn.
- Have your vehicle serviced by a qualified mechanic.
- Keep a portable fire extinguisher on board. Only adults who know how to operate it should use it. Only use it if the fire is small and can be contained. Make sure everyone else is leaving. Make sure someone is calling the fire department.

**Carbon Monoxide Awareness**

Carbon monoxide (CO) is a gas. You cannot see it. You cannot taste it. You cannot smell it. CO poisoning can result from leaks in the exhaust. It can happen because of improper use of appliances. Sometimes CO comes from another vehicle. Make sure you have a working CO alarm.

**FACT**

When the vehicle is used as a structure, the most common area for these fires to start is the kitchen or cooking area. This is followed by the engine area, running gear, or wheel area. Check for safety inside and outside of the vehicle.

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- HAND SANITIZER: A FIRE HAZARD? 8:23
- NFPA 1581 OVERVIEW 8:38
- ARE 3D-PRINTED BUILDINGS SAFE? 4:38

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NEW! Journal Special

JULY/AUGUST 2020

In this issue, NFPA Journal details the return of crews to a post-COVID-19 world, the path toward remote video inspection, and the latest in crowd management research. PLUS: A look at how a massive natural explosion in Los Angeles could set the industry back, an interview with a wildfire preparedness coordinator, the 2019 US firefighter relations report, and much more.

FEATURES

- A COVID CRISIS: An expert safety expert offers an operational look at the challenges of coming together during an ongoing pandemic.
- COVID CONTROL: As crews return, a new tool from NFPA will offer facility managers and entry crews the power to evaluate and manage potentially dangerous areas anytime.
- RENEWLED INSPECTION: Insulation by COVID-19. NFPA has gone from a skeptical and skeptical to the real big thing: Insulation life safety, it is here.

THE NFPA PODCAST





## What You Didn't Know About Carbon Monoxide Poisoning and Alarms

Carbon monoxide poisoning is a potentially fatal health hazard most common in winter. But did you know that research suggests carbon monoxide is also dangerous when you are exposed to low levels over long periods of time, and a carbon monoxide alarm or detector might not alert you to these levels? In this episode of *Learn Something New™* by [NFPA Journal](#)<sup>SM</sup>, we explore the lesser known impacts of carbon monoxide and how low-level and long-term exposure could affect health.

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## Room 225

Since her parents were found dead in a North Carolina hotel room, Kris Hauschildt has worked to expose the hidden dangers of carbon monoxide

INTERVIEW CONDUCTED AND EDITED BY JESSE ROMAN • 13 MINUTE READ

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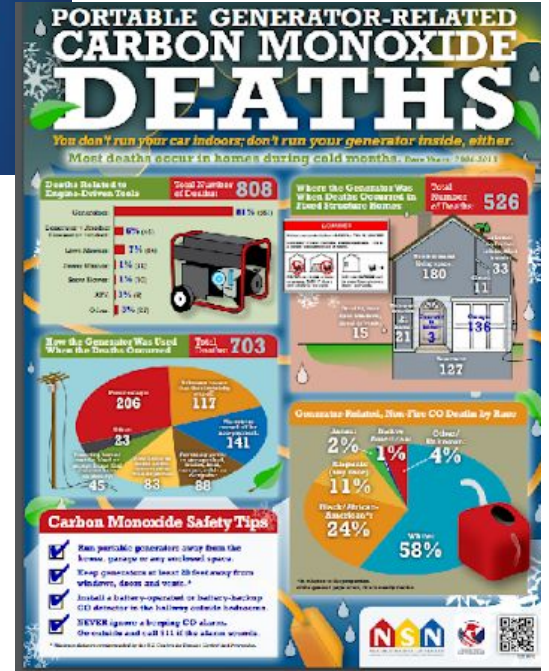
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16:48



# Other Emerging Issues



⚠ DANGER

## H<sub>2</sub>S

Poisonous gas  
may be present.  
No open flames.

<https://orders.gpo.gov/formOrders.aspx?Appid=70&login=0>







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