NATIONAL FIRE PROTECTION ASSOCIATION

The leading information and knowledge resource on fire, electrical and related hazards

Safety messages about smoke alarms

Smoke alarms are a key part of a home fire escape plan. When there is a fire, smoke spreads fast. Working smoke alarms give you early warning so you can get outside quickly.

- A closed door may slow the spread of smoke, heat, and fire. Install smoke alarms in every sleeping room and outside each separate sleeping area. Install alarms on every level of the home. Install alarms in the basement. Smoke alarms should be interconnected. When one sounds, they all sound.
- Large homes may need extra smoke alarms.
- It is best to use interconnected smoke alarms. When one smoke alarm sounds, they all sound.
- Test all smoke alarms at least once a month. Press the test button to be sure the alarm is working.
- Today's smoke alarms will be more technologically advanced to respond to a multitude of fire conditions, yet mitigate false alarms.
- A smoke alarm should be on the ceiling or high on a wall. Keep smoke alarms away from the kitchen to reduce false alarms. They should be at least 10 feet (3 meters) from the stove.
- People who are hard-of-hearing or deaf can use special alarms. These alarms have strobe lights and bed shakers.
- Replace all smoke alarms when they are 10 years old.
- Smoke alarms are an important part of a home fire escape plan.

Children and smoke alarms

NFPA is aware of research indicating that sleeping children don't always wake up when a smoke alarm is activated. While this research is worrisome, we shouldn't allow them to obscure the fact that smoke alarms are highly effective at reducing fire deaths and injuries.

NFPA reaffirms the value of the smoke alarms already available to protect people from home fire deaths and voice its concern about the number of U.S. households without these early warning devices. While almost all American homes have at least one smoke alarm, no smoke alarms were present or none operated in one-third of the reported home fires from 2014 through 2018. Almost three-fifths of home fire deaths resulted from fires in homes with no smoke alarms or no working smoke alarms.

NFPA emphasizes the need to continue planning and practicing home fire escape plans and to make sure everyone in a home can be awakened by the sound of the smoke alarm. NFPA suggests practicing the escape plan during which the smoke alarm is activated so all family members know its sound.

Every home fire escape plan is different, and every family should know who will - and who won't - awaken at the sound of the smoke alarm. If someone doesn't wake up when the alarm sounds during a drill, the family should design an escape plan that assigns a grown-up who is easily awakened by the alarm to wake the sleepers, perhaps by yelling "FIRE," pounding on the wall or door, or blowing a whistle.

Plan your escape

Your ability to get out of your house during a fire depends on advance warning from smoke alarms and advance planning.

- Get everyone in your household together and make a home escape plan (PDF). Walk through your home and look for two ways out of every room.
- Make sure escape routes are clear of debris and doors and windows open easily. Windows with security bars or grills should have an emergency release device.
- Plan an outside meeting place where everyone will meet once they have escaped. A good meeting place is something permanent, like a tree, light pole, or mailbox a safe distance in front of the home.
- If there are infants, older adults, family members with mobility limitations or children who do not wake to the sound of the smoke alarm, make sure that someone is assigned to assist them in the event of an emergency.
- If the smoke alarm sounds, get outside and stay outside. Respond quickly – get up and go, remember to know two ways out of every room, get outside quickly, and go to your outside meeting place with your family.
- Learn more about home escape planning.

Carbon monoxide alarms

Although the popularity of carbon monoxide (CO) alarms has been growing in recent years, it cannot be assumed that everyone is familiar with the hazards of carbon monoxide poisoning in the home.

Often called the invisible killer, carbon monoxide is an odorless, colorless gas created when fuels (such as gasoline, wood, coal, natural gas, propane, oil, and methane) burn incompletely. In the home, heating and cooking equipment that burn fuel are potential sources of carbon monoxide. Vehicles or generators running in an attached garage can also produce dangerous levels of carbon monoxide.

- The dangers of CO exposure depend on a number of variables, including the victim's health and activity level. Infants, pregnant women, and people with physical conditions that limit their body's ability to use oxygen (i.e. emphysema, asthma, heart disease) can be more severely affected by lower concentrations of CO than healthy adults would be.
- 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.
- In 2016, local fire departments responded to an estimated 79,600 carbon monoxide incidents, or an average of nine such calls per hour. This does not include the 91,400 carbon monoxide alarm malfunctions and the 68,000 unintentional carbon monoxide alarms.
- Data from the Center of Disease Control and Prevention’s (CDC’s) National Center for Health Statistics shows that in 2017, 399 people died of unintentional non-fire carbon monoxide poisoning.

Safety tips

- CO alarms should be installed in a central location outside each sleeping area and on every level of the home and in other locations where required by applicable laws, codes or standards. For the

best protection, interconnect all CO alarms throughout the home. When one sounds, they all sound.

- Follow the manufacturer's instructions for placement and mounting height.
- Choose a CO alarm that has the label of a recognized testing laboratory.
- Call your local fire department's non-emergency number to find out what number to call if the CO alarm sounds.
- Test CO alarms at least once a month; replace them according to the manufacturer's instructions.
- If the audible trouble signal sounds, check for low batteries. If the battery is low, replace it. If it still sounds, call the fire department.
- If the CO alarm sounds, immediately move to a fresh air location outdoors or by an open window or door. Make sure everyone inside the home is accounted for. Call for help from a fresh air location and stay there until emergency personnel.
- If you need to warm a vehicle, remove it from the garage immediately after starting it. Do not run a vehicle or other fueled engine or motor indoors, even if garage doors are open. Make sure the exhaust pipe of a running vehicle is not covered with snow.
- During and after a snowstorm, make sure vents for the dryer, furnace, stove, and fireplace are clear of snow build-up.
- A generator should be used in a well-ventilated location outdoors away from windows, doors and vent openings.
- Gas or charcoal grills can produce CO — only use outside.

Symptoms of CO poisoning

CO enters the body through breathing. CO poisoning can be confused with flu symptoms, food poisoning and other illnesses. Some symptoms include shortness of breath, nausea, dizziness, light headedness or headaches. High levels of CO can be fatal, causing death within minutes.

The concentration of CO, measured in parts per million **(ppm)** is a determining factor in the symptoms for an average, healthy adult.

- 50 ppm: No adverse effects with 8 hours of exposure.
- 200 ppm: Mild headache after 2-3 hours of exposure.
- 400 ppm: Headache and nausea after 1-2 hours of exposure.
- 800 ppm: Headache, nausea, and dizziness after 45 minutes; collapse and unconsciousness after 1 hour of exposure.
- 1,000 ppm: Loss of consciousness after 1 hour of exposure.
- 1,600 ppm: Headache, nausea, and dizziness after 20 minutes of exposure.
- 3,200 ppm: Headache, nausea, and dizziness after 5-10 minutes; collapse and unconsciousness after 30 minutes of exposure.
- 6,400 ppm: Headache and dizziness after 1-2 minutes; unconsciousness and danger of death after 10-15 minutes of exposure.
- 12,800 ppm: Immediate physiological effects, unconsciousness and danger of death after 1-3 minutes of exposure.

Source: NFPA's Fire Protection Handbook, 20th Edition.