Protecting Your Home From Smoke, Gas, And Fire

In 2011, more than 3,000 people were killed and another 17,500 people injured by fire -- the vast majority of them inside a house.

The real tragedy in these numbers is that nearly all of these deaths and injuries are preventable. By making fire safety a priority, you can protect your home and your family from the ravages of fire and smoke. Knowing how to prevent a fire and knowing what to do when a fire breaks out can mean the difference between life and death for you and your loved ones.

Fire Safety: How Can I Protect My Family?

There are two vital steps you can take right now to significantly reduce your family's risk of dying or being injured if a fire breaks out in your home:

- Develop and have everyone routinely practice an escape plan.
- Install and make sure you properly maintain smoke alarms.

Getting out of the house fast is essential, but you have very little time to react. A small flame can turn into an out-of-control fire in less than 30 seconds. And within a matter of minutes, your entire home can be engulfed in flames and toxic smoke.

Fatal fires often start late at night or early in the morning when people are asleep. Properly working smoke alarms can wake the entire family while there is still time to get out of the house. According to the Centers for Disease Control, more than one third of fire-related deaths are in homes without smoke alarms.

But once people in your home are aware of the fire, they also need to know what to do. The environment created by a fire is confusing, disorienting, and potentially deadly. Creating and practicing an escape plan will help everyone, including children; stay focused on what they need to do to get out.

Fire Safety: Creating an Escape Plan

The goal of an escape plan is to make sure everyone can get out of the house as quickly as possible in the event of a fire. You can use paper to create a floor plan of your house and then decide the best way to exit each room. Be sure to pick two exits from each room -- a primary exit that would be the most direct way out of the house, and an alternative exit in case the main one is blocked by fire.

For instance, you might choose a window that can be climbed out of as a backup exit. A room that's on an upper floor should have a collapsible ladder that can be used for a window exit if there is no other way down and the main escape is blocked. Any security bars on windows and doors should have a quick release device and everyone should know how to remove the bars quickly.

Once you've decided on an escape plan, make copies and give one to every member of the family and schedule regular practice sessions. Everyone should know how to exit and practice exiting from each room in the house. These sessions should include practicing how to get out in the dark with eyes closed.

As you practice the escape plan, be sure everyone understands the following concepts:

- When there is a fire, it's important to leave immediately. There is no time to stop to remove anything.

- A door that's hot to the touch should never be opened. Before opening a door in a fire, feel it with the back of your hand. Also feel the doorknob and the crack between the door and door frame. If it's hot, use the alternate exit.

- Even doors that are cool should be opened carefully. The proper way to open a door is to pull it open slowly with your shoulder braced against it. If smoke or flame bursts into the room, quickly slam the door shut and use the alternate exit.

- If there is smoke along the exit route, people should crawl on the floor beneath it with their mouth and nose covered to avoid being overcome.

- Have a designated meeting place outside and away from the house, such as under a specific tree or at the end of the driveway. Everyone needs to go there and someone needs to be responsible for counting heads and making sure everyone made it out. Then, someone needs to be designated to go to a neighbor's house and call 911 or the emergency number for the fire department.

- Once outside, no one should go back inside the house for any reason. If someone is still in the house, tell the firefighters when they arrive. They have equipment they can use for making a safer rescue.

Smoke Alarms: What Kind and How Many?

- There are two kinds of smoke alarms that you can buy: photoelectric alarms and ionization alarms. Each responds in a different way to different kinds of fires. Ionization alarms respond more quickly to fires that are flaming and fast-moving

and photoelectric alarms are set off more quickly by smoldering, smoking fires. There are also alarms called dual sensor alarms that combine photoelectric and ionization alarms in a single smoke detector.

- The purpose of a smoke alarm is to give your family as early a warning as possible. And because there's no way to predict what kind of fire may break out in your home, the National Fire Protection Association recommends you install both kinds of alarms or use dual sensor alarms.

- To be properly protected, you need to install smoke alarms on each level of your home, including the basement. There should also be an alarm outside each sleeping area and inside each bedroom.

- Interconnecting alarms so that when one is set off anywhere in the house they all sound provides the most protection. You can do that either by installing hard-wired alarms -- alarms connected to your homes electrical system -- or using wireless technology to interconnect battery-operated alarms.

- Some alarms are designed to alert people who are hard of hearing. They may use a strobe light, for instance when they are set off.

Smoke Alarms: Tips for Maintenance

- Always make sure smoke alarms are installed according to the manufacturer's instructions. If you're using hard-wired alarms, an electrician should do the installation. If you have questions about installing your alarms, get answers by calling the non-emergency number of your local fire department.

- Once your smoke alarms are installed, test them once a month to be sure they're working. Alarms powered by long-lasting batteries are designed to be replaced after several years based on the manufacturer's schedule. Standard batteries, including batteries used as backup for hard-wired alarms, should be tested once a month and replaced once a year or when they begin to chirp. To make it easier to remember to replace them, choose a holiday or a day like your birthday to do it.

Carbon Monoxide Poisoning and Carbon Monoxide Alarms

- Carbon monoxide (CO) is an invisible, odorless gas that is given off in fires and when fuels such as gasoline, wood, charcoal, and natural gas burn incompletely. If CO becomes concentrated in a space, it can be deadly. In your home, heating and cooking equipment are potential sources of CO; so are cars or a generator running in the garage.

- Because it is odorless and invisible, people can be overcome by CO before they even know it's there. Symptoms vary depending on a person's health and activity level and on the level of CO concentration. Infants, pregnant women, and people with conditions such as emphysema can be more severely affected by lower concentrations than others.

Carbon Monoxide Poisoning and Carbon Monoxide Alarms continued...

Symptoms of CO poisoning are sometimes confused with flu symptoms, food poisoning, or some other illness. They include shortness of breath, light headedness, nausea, headaches, and loss of consciousness. High concentrations of CO can cause death within minutes.

To protect yourself and your family against CO poisoning, you can purchase carbon monoxide alarms to place in central locations outside sleeping areas and on each level of the home. It's important to follow the manufacturer's instructions for installing them. Like smoke alarms, they should be tested every month to make sure they are still working. When you do install them, call the fire department's non-emergency number to find out where to call if the alarm goes off and put that number someplace where everyone in the house can get access to it.

Fire Extinguishers: Do You Need Them?

To be able to properly use a fire extinguisher you need training and the ability to make sound decisions. The USFA recommends that fire extinguishers be used only by people who have been trained and only under the following circumstances:

- All other occupants have been alerted of the fire and someone has called the fire department
- The fire is small and contained to a single object, such as a waste basket
- The person using the extinguisher is safe from toxic smoke and fumes from the fire
- There is a means of escape identified and the fire is not between the person and the escape route
- The person's instincts say it is safe to use the extinguisher

If all those conditions are not met, everyone should leave the house following the escape plan, go to the meeting place designated in the plan, and call the fire department from a cell phone or from a neighbor's house.

If you do decide to buy a fire extinguisher, you need to be aware of the fact there are five types of extinguishing agents and most extinguishers have symbols that show what type of fire they can be used on.

- Class A extinguishers, which can be used on ordinary combustible materials like wood, paper, and cloth
- Class B extinguishers, which are used for fires from flammable liquids like gasoline, oil, grease, and oil-based paints
- Class C extinguishers, which are used for fires from electric appliances and tools
- Class D extinguishers, which are used for flammable metals and are usually designed for specific metals and found in factories
- Class K extinguishers, which can be used on vegetable oils or animal oils and fat in cooking appliances and usually found in commercial kitchens

Fire extinguishers are also available that cover different types of fires.

7 Ways You Can Prevent Kitchen Fires

The best way to prevent a fire is to know what could cause one and then to routinely inspect your home for hazards and correct them. It's also important to practice fire safety.

Cooking equipment, especially ranges and stove tops, are the number one cause of fires and fire injuries in the US. Here are some important fire safety tips to keep in mind when working in the kitchen.

- All cooking equipment should be approved by a recognized testing facility, such as Underwriters Laboratories (UL) and be installed according to manufacturer's instructions and local code.
- All electric cooking equipment needs to be plugged directly into an outlet, not an extension cord.
- Do not leave the kitchen when something is frying, grilling, or broiling without turning off the stove.
- If something is simmering, baking, roasting, or boiling, you need to check it regularly. You can use timers to help you remember.

- Anything that can catch fire -- for instance, paper towels, recipe cards, cloth hot pads -- needs to be kept away from the stove top. And burners and ovens need to be clean.

- Never wear loose clothing that might catch fire if it gets too close to the flame.

- If something in a pan catches fire, put a lid on the pan and turn off the source of heat. Do not attempt to move the pan or remove the lid until the fire is out and the pan has cooled.

Fire Safety Rules

- More than 15,000 fires are started by candles each year, and more start in the bedroom than any other room of the house. The primary cause of candle fires is putting the candle too close to combustible material. Candles should always be extinguished after use and burning candles should never be left untended. Children should never be allowed to play with matches, lighters, or candles. Candles should never be put on a Christmas tree. Using a candle holder with a glass bulb around the candle can keep the flame from spreading.

- Misuse and poor maintenance are responsible for more electrical fires than are appliance defects. It's important to routinely inspect electrical appliances and power tools and to replace old, worn, or damaged cords immediately. Use only appliances and tools that have been approved by a national laboratory such as Underwriters Laboratories. Keep electric appliances off of wet surfaces, and avoid overloading extension cords.

- Gas appliances require careful maintenance. Have your furnace serviced once a year by a qualified professional to keep it working properly. The door that covers the pilot light and burners should be securely fastened. Never store combustible material such as paints, solvents or gasoline in the same room with your furnace or your water heater, and don’t stack mops, brooms, or rags next to the furnace or water heater. Have the chimney and furnace pipes inspected once a year and cleaned when needed. If you smell gas in or around your furnace, do not attempt to light it. Turn off all controls and open doors and windows and call the gas company. Have gas shut-off valves installed at each gas appliance so you can turn off the gas only to that appliance if there is a leak or the appliance needs to be repaired or moved.

- If you smoke, it’s best to smoke outside. Fires caused by smoking kill more than 1,000 people -- smokers and nonsmokers -- every year. Wherever you smoke, use deep sturdy ashtrays. Never smoke in bed, and never smoke in a home where oxygen is being used.

- If you use a wood stove, be sure to follow the manufacturer’s instructions for installation and maintenance. Inspect and clean pipes and chimneys annually. Check for cracks and proper seals, and keep all combustible material at least three feet away from the stove. If you use an electric or kerosene heater, be sure it's been evaluated by a nationally recognized laboratory such as UL. Never dry clothes or put things on top of a heater, and always unplug an electric heater that's not in use. If you use a fireplace be sure there's a strong screen in front of it to prevent sparks and coals from coming out. Burn only well-seasoned wood in it to avoid creosote buildup, which can catch fire, and have the chimney inspected and cleaned every year.

You can find more tips for fire safety at the U.S. Fire Administration’s (USFA) web site. USFA is part of the Federal Emergency Management Agency.