

# FIRE PREVENTION

Tips for keeping  
your home and  
family safe



# Common Causes of Fires

To avoid a potential house fire, it's best to know and recognize the problem areas that lead to most fires in the home.

According to the National Fire Protection Association (NFPA), the biggest danger areas include smoking materials, cooking, heating equipment, candles and arson.

Smoking materials, specifically cigarettes, are the leading cause of fatal fires — causing 700-900 deaths each year on average. They are the leading cause of fire deaths in any location, in the United States and every other country where sufficient data is collected. In most cases, carelessly discarded smoking materials ignite trash, bedding or upholstered furniture. Most smoking-related fires start in the living room, family room or den, as opposed to a bedroom.

Cooking fires are often very preventable and typically occur when a hot stove is left unattended. It only takes a few moments, and any distraction can lead to a fire from unattended cooking. Cooking equipment is the leading cause of home fires and injuries in home fires. At least two-thirds of these fires involve the range, especially the cooktop, and two-thirds of home cooking fires start within the first 15 minutes of cooking.

Behind kitchens, heating equipment is the second leading cause of home fires and third leading cause of home



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fire deaths. Approximately 66 percent of heating-related fires can be traced to improperly used space heaters (including fireplaces, fixed and portable space heaters and wood stoves). Space heaters are most dangerous when

something combustible is left nearby, while chimney fires are typically caused by creosote buildup.

Though candles are often used for ambiance or smell, most candle-related fires occur when a candle is being

used for light, typically during a power outage. When finished using a candle, always blow it out.

Arson is the leading cause of property damage in the United States and includes a maliciously started fire. But

statistics show two-thirds of intentionally set fires are never reported to authorities, and they rarely result in arrests. NFPA statistics show most fire-starters are teenagers, with more than half of those arrested under 18 years of age.

# Know the Dangers

**T**hough technology and safety equipment has improved drastically in recent years, fire deaths remain a major concern in the United States.

In 2013, there were an estimated 369,500 reported house fires and 2,755 deaths in the United States due to fires, according to the latest data available from 2013. House fires are extremely dangerous, and fire can spread rapidly through a home, leaving an occupant as little as one or two minutes to escape safely once an alarm sounds.

Fires are also extremely common. According to the National Fire Protection Agency (NFPA), a fire department responds to a fire every 20 seconds in the United States. A structure fire occurs every two minutes in the United States.

The total cost of fire in 2011, the most recent year for which statistics are available, was estimated at \$329 billion by the NFPA, or roughly 2.1 percent of U.S. gross domestic product (GDP). Adjusted for inflation, the total cost represents a 34 percent increase over 1980, while its proportion of U.S. gross domestic product has declined by about one-third.

Fires in 2011 caused \$13.3 billion in direct property damage, while new building construction for fire protection was estimated at \$31 billion in 2011.



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According to the Federal Emergency Management Agency, cooking is the leading cause of home fires and home fire injuries in the United States. The agency recommends anyone cooking make an effort to remain in the

kitchen and not leave a stove unattended.

Most fire deaths are caused by smoke inhalation, not burns. Smoke incapacitates so quickly that people are often overcome and unable to make it to an otherwise accessible

exit.

The way modern homes are built also can complicate the issue. Synthetic materials used in homes can produce dangerous substances when burned. As oxygen is burned, in conjunction with those

chemicals, it can create potentially toxic gases.

The most common toxic gas during a fire is carbon monoxide (CO), which can be deadly even in small doses and replaces oxygen in the bloodstream.

# Know Your Escape Plan

In the tragic event a fire does occur, every family should have an escape plan in place.

The National Fire Prevention Association recommends families work together to create an escape plan, by walking through the home to inspect all possible exits and escape routes. For households with children, it's recommended to draw a floor plan of the home, marking two clear routes out of each room, including windows and doors. The location of each smoke alarm also should be marked. Including the entire family can make for an educational exercise that also has a clear focus on safety.

Once the plan is in place, families are recommended to run through periodic drills to ensure all members of the family understand the plan and can problem solve and recognize the best exits depending on the situation. For homes with windows with security bars or extra security measures, make sure they have release devices inside to ensure they can be opened immediately in the event of an emergency.

In the event of a real fire, find the clearest path out and move that direction, making sure to close doors along the way. A closed door will help slow the spread of the fire, along with smoke and potentially toxic gas, and allow more time to escape.

Families also should choose an outside meeting place (such as a neighbor's house, light post, mailbox or



stop sign) a safe distance away from the home so everyone can rendezvous outside. Make sure to mark the location of the meeting place on the escape plan.

It's also recommended that homeowners make sure the street number

and house number are clearly visible from the road, to assist potential responders and fire personnel in finding the house quickly in the event of a fire. House numbers can be installed easily to a home or curb, if needed. Everyone in the home also should

memorize any necessary emergency phone numbers (local fire department, family, etc.). The NFPA notes that doing so will increase response time by allowing the first person out of the house to call immediately for assistance.

# Tips to Stay Safe

**T**hough a fire can't be completely avoided, there are some steps that can be taken to decrease the odds that a house fire might occur.

FEMA and the Red Cross provide the following safety tips.

- The Red Cross recommends keeping items that can catch on fire at least 3 feet away from anything that gets hot, such as space heaters.

- Never smoke in bed.
- Talk to children regularly about the dangers of fire, especially playing with matches and lighters. Parents should make every effort to keep those items out of reach. Never play with lighters or matches when you are with your children. Children may try to do the same things they see you do.

- Turn portable heaters off when leaving the room or going to sleep. Never leave them unattended.

- Keep children at least 3 feet away from anything that can get hot. Space heaters and stove-tops can cause extremely serious burns. Keep children at least three feet away from stoves, heaters or any other item that reaches temperatures hot enough to cause injury.

- Keep smoking materials secured in a high place.

- Regularly inspect rooms and buildings for fire hazards. Ask your local fire department for assistance. Inspect exit doors and windows and make



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sure they are working properly.

- Conduct fire drills and practice escape routes and evacuation plans. Urge students to take each alarm seriously.
- Place candles in sturdy

holders, and never leave a burning candle unattended. Keep candles away from anything that can burn.

- Keep lamps, light fixtures and light bulbs away from anything that can burn, and never use an extension cord

with large appliances, such as a refrigerator. Do not overload outlets, and only use surge protectors or power strips with internal overload protection.

- A few basic steps can go a long way toward preventing a kitchen fire. When cooking,

remain near the pan and keep a close eye on the stove. Turn pot handles toward the back of the stove, to avoid bumping them off accidentally. Keep a pan lid nearby and within reach, to cover a pot or grease fire.

# Smoke Detectors

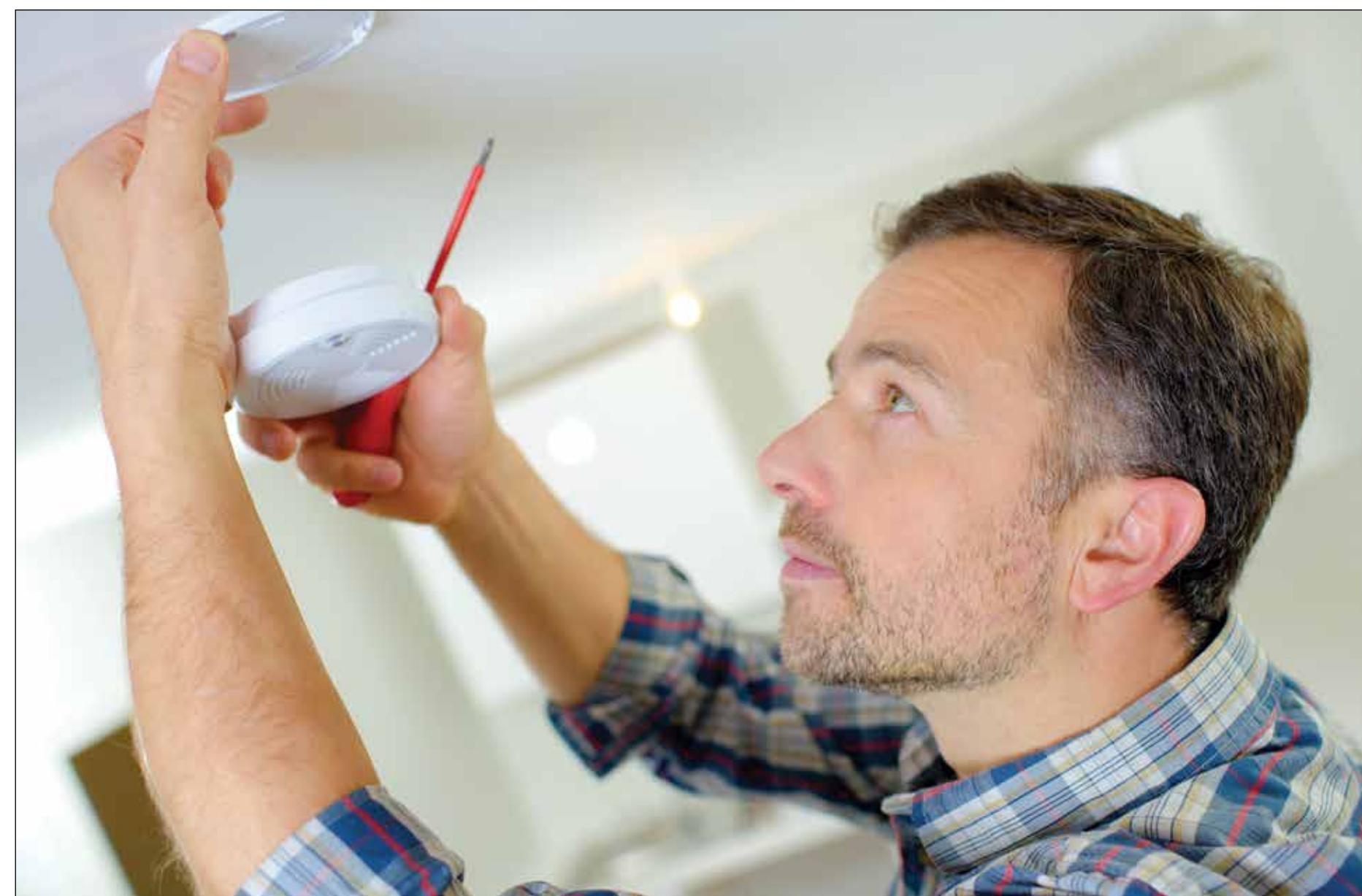
**W**orking smoke detectors can be the first warning and line of defense against a house fire, though the devices must be properly powered and correctly installed to be truly effective.

According to the National Fire Protection Association (NFPA), approximately half of home fire deaths result from fires reported between 11 p.m. and 7 a.m., when the inhabitants are typically asleep. Three out of five home fire deaths result from fires in buildings without working smoke alarms, and 37 percent of home fire deaths result from fires in which no smoke alarms at all are present.

The association notes that a working fire alarm effectively doubles the odds of survival in the event of a house fire, because the alarm will typically detect smoke before a sleeping person and allow additional time to escape before the flames spread further.

Officials recommend homeowners install a smoke alarm in every bedroom, outside each separate sleeping area, and on every level of a home — including the basement. The larger the home, the more alarms will be needed. Smoke alarms should be installed on either the ceiling, or as high as possible on a wall.

To ensure smoke alarms are functioning properly, the NFPA recommends checking each alarm at least once per month by pressing the “test” button typically found on the front of the device.



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There are several different types of smoke alarms, and experts recommend using both ionization smoke alarms and photoelectric alarms. Ionization alarms are typically quicker to recognize flaming fires, while photoelectric

alarms typically react faster to smoldering fires.

In recent years, interconnected fire alarms that will trigger every alarm in the house have also become popular and are recommended by the NFPA. Technology compa-

nies such as Nest have recently launched products such as the Nest Protect smoke alarm, which can be accessed via the Internet to keep a constant check on your home.

Officials say these newer devices can provide an extra

level of security and connectivity to monitor potential fires.

Smoke alarms should be replaced every 10 years, to ensure the internal detection equipment is up to date and reliable.

# Putting Out a Grease Fire

**O**ne of the most dangerous fires that can strike a home is a kitchen grease fire, which can start with one false move while cooking dinner and spread quickly.

Arguably the most dangerous aspect of a grease fire is that most typical fire suppression responses will either not stop — or worse, potentially spread — a grease fire.

Grease fires typically occur when cooking oils become too hot, or are spilled on an open flame, and require a different approach to safely extinguish. The common response to a fire is to douse it with water, but when dealing with a grease fire, water will only act to spread the fire. The water will make the flaming oils splash and potentially spread the fire around the kitchen. It might be the first instinct, but throwing water on a grease fire will only make it worse.

Instead, the first step should be to turn off the heat on the stove to stop the fluid from heating any further. If the fire is contained to a pot, one should not attempt to move it, as that could spill the oil and spread the fire faster. If the fire is contained to a pot, place a metal lid over the fire to extinguish it quickly. All fires, even grease fires, require oxygen to burn. A metal lid will choke the fire and force it to quickly consume all the oxygen inside.

If the fire has spread outside a cooking pot, the next



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step should be to cover it with baking soda. In the case of a grease fire, baking soda essentially acts in the same way water does to a regular fire by stopping the oil from burning.

But, this will only work on smaller fires, as it requires quite a lot of baking soda to extinguish a grease fire.

The last step to take is to extinguish the fire with a

Class B dry chemical fire extinguisher. It should be noted that this will almost certainly contaminate the kitchen, but it also should stop the fire.

Of course, if the fire has spread beyond what a fire extinguisher can stop, call the local fire department for assistance and evacuate immediately.

# After a Fire

If the worst does occur, there are some steps that can be taken to make the following days and weeks easier to bear.

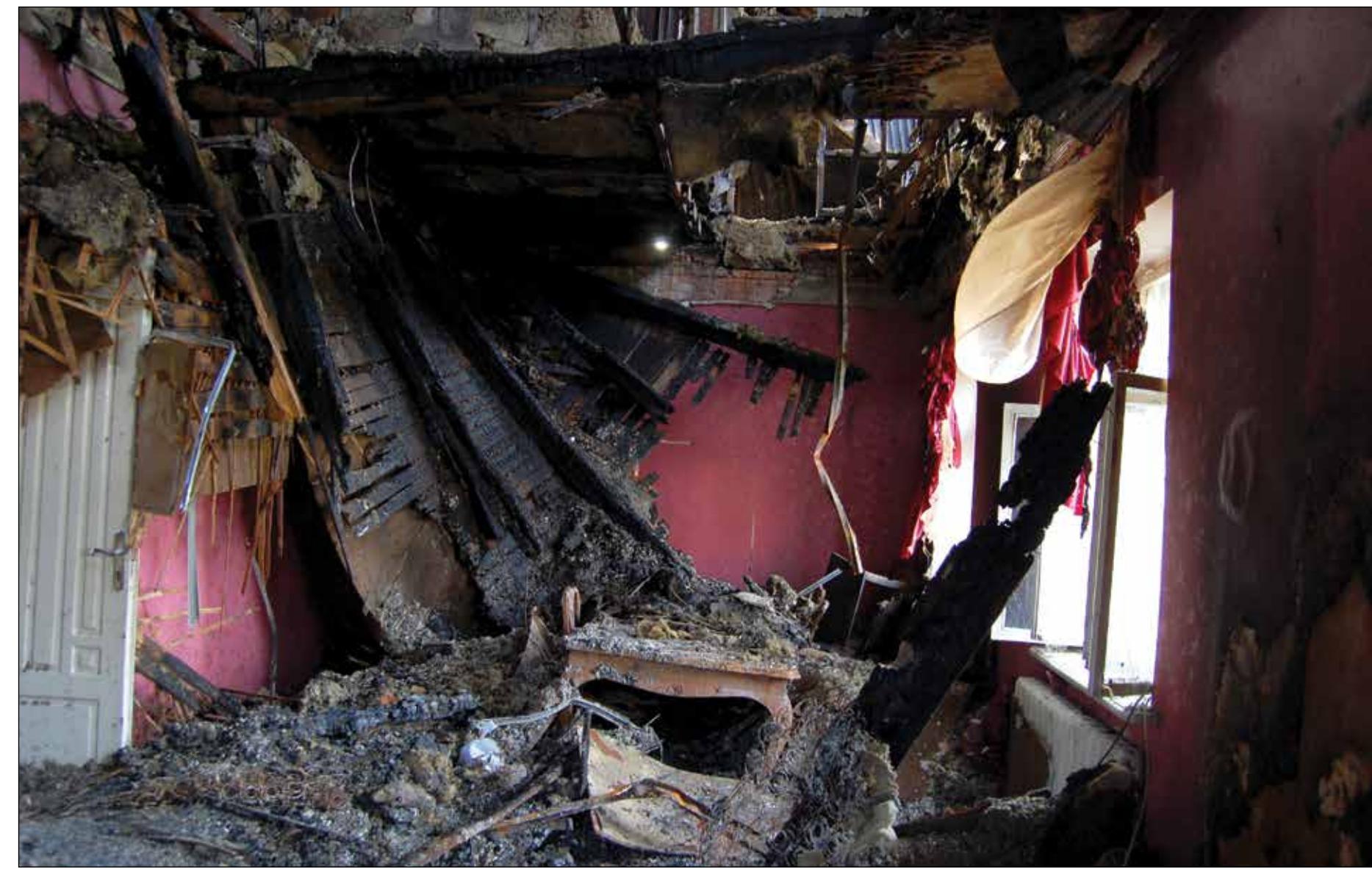
A fire in a home, regardless of size or type, can cause serious damage. Before returning, be emotionally and physically prepared. The building and many of the things in the home may have been badly damaged by flames, heat, smoke and water.

Many of the items inside the home not damaged by the smoke or flames will almost certainly be soggy or potentially water damaged from the fire department response to put out the fire. Anything that is to be salvaged or reused will need to be carefully cleaned to remove soot and other contaminants left behind.

The home also might have damaged not specifically caused by the fire. When fire fighters are battling a fire, it's not uncommon for them to break windows and cut holes in the roof to let out heat and smoke. The cleanup effort will take both time and patience.

In the immediate aftermath of a fire, FEMA recommends having injuries treated by a medical professional. For small wounds, wash them with soap and water to help prevent infection, and keep any cuts covered with clean bandages.

"Remain calm. Pace your-



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self. You may find yourself in the position of taking charge of other people," FEMA notes. "Listen carefully to what people are telling you, and deal patiently with urgent situations first."

Before returning to the

home, check with the fire department to make sure the residence is safe to enter.

Anyone entering a fire-damaged home should wear long pants, a long-sleeved shirt, closed-toed rubber-soled shoes or boots and work

gloves, plus dust masks, safety goggles and/or a hard hat, when necessary.

Even after a fire has been extinguished, it's critical to understand the lingering health and safety risks. Soot and dirty water left behind by

the process can still contain things that could adversely affect one's health, and fire-damaged items could have contaminants. Use extreme caution when inside a fire-damaged home or structure.