

## Home Fires Are Common, Deadly and Preventable

Fire safety probably isn't high on the list of concerns for buyers when they purchase a home. But the statistics indicate that it should be. According to the National Fire Protection Association (NFPA), in the United States:

- Most fire-related deaths (more than 80 percent of them last year) occur in residences.
- More than 4,000 people die and 25,000 are injured in fires every year. (Separately, the American Red Cross estimates that seven people die and 36 are injured in fires every day).
- Fires cause an estimated \$8.6 billion in property damage every year.

Perhaps most important and most disturbing: Industry experts agree that most fires are preventable.

"The biggest mistake people make," Judy Comoletti, division manager for Public Education at the NFPA observes, "is to assume that 'it won't happen to me.' Fires can happen to anyone," she emphasizes, and everyone must take steps to reduce their risks.

### Smoke Alarms: The First Line of Defense

Most of these steps involve common-sense precautions, easily implemented and not very expensive. Smoke alarms top the list. Two thirds of all fire deaths occur in homes in which smoke alarms either aren't present, or aren't working, the NFPA reports.

There are two types of alarms homeowners can consider: Ionization alarms, which are more responsive to flaming fires; and photoelectric alarms, which are quicker to detect smoldering fires. Dual sensor alarms combining both features are the best choice, for obvious reasons.

Dual sensor units can't include a carbon monoxide alarm, which detects emissions of that odorless, lethal gas. So if you use gas and/or have an attached garage (which may not have been constructed properly), you should also install a separate carbon monoxide alarm.

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One critical point about smoke alarms: Their primary purpose is to alert you to a fire and give you time to get out of the building safely. You should use that time not to try to douse the fire (a very bad idea) or to save belongings or even pets, but to avoid injury and save lives.

## **Operator Errors**

Smoke alarms have some deficiencies, but they have nothing to do with the equipment, and everything to do with the people using it. The biggest problems, the NFPA says: Owners don't have enough alarms, they don't install them in the right places, and (most serious of all) they remove the batteries or don't replace them regularly, rendering the equipment useless.

In most newer homes — certainly those built in the last 10 to 15 years — the alarms are hard-wired, with battery back-ups that kick in if the power goes out. (Some state-of-the-art wired-in alarms will actually send a message to your smart phone, alerting you if the batteries are running low or if the alarms are triggered.) But whether batteries provide primary or secondary power for your alarms, the best practice is to test the batteries monthly and replace the smoke alarms themselves every 10 years.

In nearly half of the fires in which the smoke detectors didn't work, the NFPA reports, the batteries had been removed or disconnected, sometimes because owners wanted the batteries for another use, but more often because the alarms were installed too close to the kitchen, where smoke from cooking (or over-cooking) can trigger frequent and annoying nuisance alarms. That's why manufacturers typically suggest installing the alarms at least 10 feet away from cooking appliances.

To ensure maximum effectiveness (and comply with building code requirements), you should place smoke alarms inside and outside of every sleeping area and on every level of a home, including the basement. You also want to interconnect the alarms, so that if one sounds, they all go off. The reason: If you're in an upstairs bedroom and an alarm detects fire in the basement, you'll have enough time to get out of the dwelling. If you don't hear an alarm until the fire reaches your bedroom, that might not be the case.

Many local building codes and the laws in most states require smoke alarms in new or substantially renovated homes as a condition for obtaining an occupancy permit. Many also require the alarms in existing residences, but enforcement there comes when the property is sold. Because local fire inspectors don't typically go door-to-door to verify that homes have properly installed smoke alarms in place, homeowners who don't have them don't have to worry much about being fined for that violation. But they should worry a lot about their risk of dying in a fire. According to the NFPA, fire-related deaths on average are twice as high in homes that do not have smoke alarms compared with those that do.

You don't hear as much about carbon monoxide detectors, but they are no less important than smoke alarms. Thirty-eight states require them in properties where gas leaks are a potential risk. These would be homes with an attached garage, fireplace, or gas heater or appliance.

The detectors should be installed in central locations outside every sleeping area and on every level of the home and, like smoke alarms, they should be interconnected. Maintenance requirements for carbon monoxide detectors are also similar to those for smoke alarms: They should be tested monthly and replaced every 5-7 years. The detectors usually emit an end-of-battery-life warning alert before they fail, but it is obviously a good idea to replace them before they reach that point. If the manufacturer estimates a seven-year life, the six-year mark is probably a good time to begin thinking about replacement.

## **Sprinkler Systems: Cost vs. Safety**

Smoke alarms are by far the most widely used fire safety equipment in homes; fire sprinkler systems are far less common, but arguably even more important. Unlike the high-pressure sprinklers in commercial buildings, which can actually extinguish a fire, lower-pressure residential systems reduce the heat, flames and smoke a fire produces and perhaps slow its spread. Like smoke alarms, they are designed to save lives, not to save property. According to the NFPA, properly installed sprinklers reduce the risk of dying in a fire by approximately 80 percent compared with a 30 percent reduction for smoke alarms; they can reduce property losses by 70 percent.

The International Fire Code has required fire sprinkler systems in new or substantially renovated multi-family properties since 2003. A Home Fire Sprinkler Coalition spearheaded by the NFPA has been fighting for years to make sprinkler systems mandatory for single-family homes, as well, but with limited success. Only two states (California and Maryland) and the District of Columbia require sprinklers in new one- and two-family dwellings. Seventeen states give communities the option of adopting the requirement, but 31 states have enacted laws prohibiting local adoption of sprinkler requirements for new homes.

Opposition to making fire sprinklers mandatory for single-family homes has come primarily from home builders and Realtors, who argue that the costs (and negative impact on home affordability) outweigh the safety benefits.

The estimated costs vary widely, depending on the source. The NFPA's Sprinkler Coalition's estimate is at the low end — 1.35 per sprinklered square foot; the housing industry's National Construction Estimator is nearly triple that, at \$3.70. Reality probably falls somewhere in between. Home owners will have to do their own research to determine the cost, and their own cost-benefit analysis to decide how much they are willing to pay for the added safety fire sprinkler systems provide.

## Additional Fire Safety Precautions

Smoke alarms, carbon monoxide detectors and sprinkler systems form the cornerstones of fire (and health) safety defenses for homeowners. But fire safety planning should include a number of other measures. The NFPA, the Red Cross and other fire safety experts recommend these:

1. Develop an escape plan and make sure everyone in your household understands it. Home furnishings “burn hotter and faster” than in the past, the NFPA’s Judy Comoletti notes. “When an alarm sounds, you have maybe two minutes to get out. Everyone has to know exactly what to do.”
2. If your home has more than one story, you need a means of escape other than jumping out of a window; you should have escape ladders in every occupied room (including guest bedrooms) above the first floor. If your home has a basement with window wells, you should also have a ladder in the basement.
3. Place fire extinguishers on every level of your home – definitely in the kitchen and in the garage, where fire risks are high – and make sure you know how to use them. “Fires double in size every 60 seconds,” the NFPA notes, “so you don’t want to be fumbling around, reading over the instruction manual, as a small flame on the stove grows into an inferno.” Also, don’t try to use an extinguisher on a fire that exceeds its capacity. Your priority is to get out safely.
4. If you have double locks that require a key on the inside as well as the outside of the door, replace them ~ immediately! They provide terrific security, but they could create a death trap if you’re trying to escape from a fire. If the key isn’t in the lock, you’re not going to have much time to look for it.
5. Practice safe housekeeping: Have chimneys and fireplaces cleaned and inspected annually; have clothes dryer vents cleaned annually as well – more often if you do a lot of laundry.
6. If you have a gas-fed fireplace, make sure it has a damper block to prevent the damper from closing. If you have a gas leak, a closed damper would trap fumes inside the house, creating a potentially life-threatening risk for occupants.
7. Replace smoke alarms every 10 years. I said this earlier, but it can’t be emphasized enough. An alarm that has exceeded its useful life won’t reliably detect smoke from a fire. It is no longer a safety device; it’s a wall ornament and it won’t do you any good at all.

The NFPA has additional advice for residents of multi-family properties:

- Pick a building with a fire sprinkler system, if possible. This is particularly important in a multi-family dwelling, Comoletti, says, because “you don’t know what your neighbors are doing.”
- Talk to the manager or the governing board (in a condominium) about the fire escape and general disaster management plan. Make sure there is a plan and that someone is responsible for publicizing and implementing it.
- Know where fire exits are located and make sure they aren’t locked or otherwise blocked.
- Obey the rules regarding outdoor grills, which are usually prohibited on balconies, and make sure your neighbors obey them too.
- Pay particular attention to smoking restrictions. Rules prohibiting smoking inside buildings often allow smoking a designated distance from them. If you see residents who aren’t following those rules, or aren’t disposing of cigarette butts safely, report them to the manager or the board. If they don’t respond, Comoletti, advises, contact your local fire department. Silence in this context isn’t golden; it is dangerous. “There are a lot of people living in multi-family buildings,” Comoletti notes, “and there are a lot of lives at risk.”