

Smoke Alarms

Introduction

3,425 deaths
16,400 injuries
\$11.3 billion in property loss

That was the tragic outcome of fires in residential buildings during 2006 as reported by the U.S. Fire Administration. The number of residential fire deaths in 2006 exceeded the number of deaths attributed to all of the natural disasters in the United States during the same time.

An installed and properly functioning smoke alarm can reduce the chance of residential fire death by over 50 percent. Sadly, over two thirds of the fire deaths occur in homes with no smoke alarms or with smoke alarms that do not work.

A recent study completed by the University of Washington and the Injury Prevention and Research Center shows that 1 in 5 homes in the United States do not have a working smoke alarm and that 73% of smoke alarm failures are the result of dead or missing batteries.

What CAU Recommends:

- > Install hard-wired smoke alarms with a battery backup on every level of a home, inside each sleeping room and outside each sleeping area
- > Do not disable smoke alarms or remove the batteries except to replace them
- > Install both ionization and photoelectric smoke alarms or better yet, combination alarms
- > Replace all smoke alarms after 10 years of service
- > Plan and practice escape routes several times a year

Need More Information?

Additional information on smoke alarms is available through the Consumer Product Safety Commission (www.cpsc.gov), U.S. Fire Administration (www.usfa.dhs.gov), the National Fire Protection Association (www.nfpa.org) and other sources.

Associations may request additional information on this topic by contacting CAU's Loss Control Department.



Types of Smoke Alarms

There are many brands of smoke alarms available, but there are only two basic types of detection technology—ionization and photoelectric. The most common and economical smoke alarm is the ionization smoke alarm.

Ionization alarms are best for detecting smoke from a flaming, fast-moving fire such as a kitchen fire. When smoke enters an ionization alarm, the ionized air molecules attach to the smoke particles. This reduces the ionizing current and triggers the alarm.

Photoelectric alarms are best for detecting smoke from a smoldering, smoky fire such as when a lit cigarette falls into upholstered furniture. When smoke enters a photoelectric alarm, smoke particles reflect light from a pulsating light source onto a light sensor, triggering an alarm.

A combination or dual technology smoke alarm using both of these technologies is also available.

Batteries

Battery powered smoke alarms are common in many older properties while electrically powered smoke alarms are common in properties built after 1989.

Battery powered smoke alarms are independent alarms designed to detect smoke and sound an alarm at that location. The other smoke alarms in the building will not alarm until they detect smoke. Many of these alarms operate with a 9-volt alkaline battery that requires replacement at least annually. Some newer models operate with a 10-year lithium battery that does not require replacement each year. Never use a 10-year lithium battery in a smoke alarm unless the manufacturer's instructions state the device is compatible with this type of battery.



Electric powered or hard wired smoke alarms are usually interconnected and all alarms in the home will sound once one alarm detects a smoke condition. These alarms are usually equipped with an alkaline battery as a back up. This battery will require replacement at least annually.

Maintenance and Testing

Like any appliance, smoke alarms require routine maintenance and testing to help ensure that they will operate when required. The instruction manual provided by the manufacturer will list the specific maintenance and testing procedures required for your smoke alarm. Typical maintenance and testing activities include:

- Vacuum dust from alarms at least once a year
- Test alarms monthly by pushing the test button
- Replace alkaline batteries at least once a year and anytime the alarm “chirps,” warning that the battery is low

Smoke alarms will wear out over time. Ten years is the recommended replacement time. After operating 24 hours a day for ten years, even a well maintained smoke alarm will have a 30 percent chance of failing to operate in a fire. It is a good idea to write the installation date on the inside of your alarm with a marker so you will know when to replace it.

While associations may have no responsibility to install alarms within a “unit,” they should still encourage owners to follow these guidelines. Unit owners should be aware of the specific model of smoke alarms installed within their units and the manufacturer's recommendations for testing and maintenance. For rental units, the owner should inform the tenant of the alarm functions and any testing and maintenance requirements.