



RESIDENTIAL SMOKE ALARMS: "WHAT YOU NEED TO KNOW"

This article will go over residential smoke alarms. The most important thing you can do when purchasing a smoke, carbon monoxide (CO), or gas alarm/detector is to read the manufacturer's instructions completely. Follow the instructions on where and how to install them, what is needed to maintain them, and when to replace the alarm/detector. There are many types of smoke alarms as well as different types of detectors, such as heat and flame. This article will cover residential smoke alarms.

SMOKE ALARM BASICS

There are two common household types of smoke alarms: ionization alarms and photoelectric alarms.

IONIZATION DETECTORS

Ionization detectors respond more quickly to flaming fires with smaller combustion particles.

Ionization smoke alarms sound when electrically charged ("ionized") particles released in a fire interfere with the electrical current that flows through the alarm's detection chamber. The disruption in the current causes the smoke alarm to sound.

Fires (flames) result from the ignition of items such as flammable liquids, wood or paper; cooking accidents; or from open flames such as candles that ignite other items. They produce large quantities of flames and lesser visible amounts of smoke.

Ionization models are best suited for rooms that contain highly combustible materials that can create flaming fires. These types of materials include flammable liquids, newspapers, and paint cleaning solutions.

In review, ionization detectors are:

- Fastest type to respond to flaming fires
- Lowest cost and most commonly sold

PHOTOELECTRIC DETECTORS

Photoelectric detectors respond more quickly to smoldering fires. Photoelectric smoke alarms sound when smoke particles interfere with and reflect the alarm's light beam that travels through the alarm's detection chamber. The presence of suspended smoke particles in the chamber scatters the light beam. This scattered light is detected and sets off the alarm.

Smoldering fires most often occur when smoking materials, such as cigarettes, are left unattended. In general, they initially produce minimal amounts of flames and larger, visible amounts of smoke.

Photoelectric models are best suited for living rooms, bedrooms and kitchens. This is because these rooms often contain large pieces of furniture, such as sofas, chairs, mattresses, counter tops, etc. which will burn slowly and create more smoldering smoke than flames.

The choices are not simple and will require additional research for you to do on your own. The one thing that is for sure - a working smoke alarm is better than a non-working alarm or no smoke alarm at all.

In review, photoelectric detectors are:

- Fastest type to respond to smoldering fires and white or gray smoke
- Less prone to nuisance alarms from cooking

STYLES OF SMOKE ALARMS

Battery Operated Smoke Alarms are the most common alarms found in residential homes. These alarms rely on a battery for power. The prices for these alarms can range from \$1.00 to \$100.00.

Long Life Smoke Alarms with a 10-year, non replaceable lithium battery are available and easy to find.

Hardwired with Battery Back Up Alarms are wired directly into your home's electrical system. The battery is a backup to ensure alarm works during power outages.

Interconnected Hardwired Smoke Alarms with battery back up. These are the type of alarms that are required in all new homes. These alarms are wired together and when one alarm goes off all the alarms in the home will sound.

Wireless Smoke Alarms with battery backup. These work like interconnected alarms and do not require wiring or an electrician to install.

Voice Smoke Alarms have an alarm and a pre-recorded voice that may say, "Fire! Fire!" or similar message to alert occupants. There are studies showing that the traditional, high pitched siren of a standard smoke alarm cannot be heard by the hearing impaired and an alarm alone will may not awaken a child in deep sleep in time if at all.

Vocal Smoke Alarms with an alarm and a recording device. The alarm allows you to record a personalized alarm message and provide personal escape instructions to your child, and have it replayed when the alarm sounds.

Vibrate or Shaker Smoke Alarms use a vibrating device to shake a bed or chair to awaken and alert a deep sleeper, a hearing impaired or deaf person.

Strobe Alarms use an extra bright strobe light to alert a deep sleeper, the hearing impaired or deaf of a fire. Some strobe alarms also include a vibrator device.

Dual Detectors come with the ability to alert occupants of smoke, Carbon Monoxide (CO), or hazardous gas. These detectors are cost efficient, but make sure you are aware of the recommended replacement life of the alarms/detectors. One draw back of dual detectors is that the Carbon Monoxide alarm generally needs to be replaced every 5 years (60 months) as well as natural and propane gas detectors. Smoke alarm usually do not need to be replaced for 8-10 years. If you purchase a dual detector you will have to replace it in 5 years. The recommendation for CO alarm placement may differ from smoke detectors placement. Smoke detectors should be in bedrooms, outside sleeping areas, and on every level of the home. Co alarms should be 10 feet out side of sleeping areas so they can detect the CO and alert the occupants. Alarms that detect all three are prone to false readings and malfunctions. Most dual alarms/detectors do not have as many features and do not have the ability to display the levels of CO or gas when it is detected.

Most smoke alarms mentioned in this article can be found at your local hardware store, large retail stores, big box and discount stores, on the internet, or a certified electrician.

MAINTENANCE

Always follow the manufacturer's instructions and recommendations on how to maintain your smoke alarms. All types of smoke alarms require regular testing.

The fire service recommends that they should be tested once a month and the batteries changed at least once a year.

Smoke alarms should be replaced every 8-10 years. It is good practice to write the purchase date on the back so you know when to replace them. Remember each type of alarm has its own replacement schedule. Alarms should also be replaced when they have been exposed to dust caused by construction, aerosols, certain chemicals, smoke from contents or a structure fire of any size, and any exposure to materials that may coat or damage the detection chamber.

To clean a detector, carefully vacuum the inside of a battery powered unit using the soft bristle brush. If electrically connected, shut off the power and vacuum the outside vents only. Restore power and test unit when finished.

Under no circumstances should you paint any part of your smoke alarm.

FEATURES

Smoke alarms come with a variety of features. No one fire alarm comes with all the features that are listed. Here are some of the common features found on most smoke alarms today - test alarm function, hush buttons, battery life indicator, and an easy-access battery drawer. Here are a few not so common features - directional speakers, escape lighting, missing battery guard (insures a battery is placed inside the smoke alarm), remote-controlled alarm testing and silencing, and a tamper resistance alarm that comes with a pin to lock the battery and unit in place.

There are countless type of smoke alarms and other detectors and alarms out there from which to choose. It is up to you, the consumer, to do your home work and decide which smoke alarm will work best for your home and help protect your loved ones.

To read more about smoke alarms, go to www.excelsiorfire.org