



Home Tips



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Q & A

Most Home Smoke Detectors Will Fail A Smoke Test!

We just heard a news report about smoke detectors not protecting you in case of a fire. What is this all about, and how can we insure our home is properly protected?

Most people assume their smoke detector will sound when there is smoke....WRONG! The majority of all smoke detectors installed in American homes were designed to sense flaming fires and not smoldering fires. In other words, they were not designed to sense smoke.

The October 3, 2012 edition of NBC Nightly News had an investigative report on the problem. Everyone should watch the report: <http://www.nbcnews.com/video/nightly-news/49279732#49279732>



National Fire Protection Association
The authority on fire, electrical, and building safety

IONIZATION VS. PHOTOELECTRIC

The two most commonly recognized smoke detection technologies are ionization smoke detection and photoelectric smoke detection.

- Ionization smoke detection is generally more responsive to flaming fires.
How they work: Ionization-type smoke alarms have a small amount of radioactive material between two electrically charged plates, which ionizes the air and causes current to flow between the plates. When smoke enters the chamber, it disrupts the flow of ions, thus reducing the flow of current and activating the alarm.
- Photoelectric smoke detection is generally more responsive to fires that begin with a long period of smoldering (called "smoldering fires").
How they work: Photoelectric-type alarms aim a light source into a sensing chamber at an angle away from the sensor. Smoke enters the chamber, reflecting light onto the light sensor and triggers the alarm.

For each type of smoke alarm, the advantage it provides may be critical to life safety in some fire situations. Home fatal fires, day or night, include a large number of smoldering fires and a large number of flaming fires. You cannot predict the type of fire you may have in your home or when it will occur. Any smoke alarm technology, to be acceptable, must perform

acceptably for both types of fires in order to provide early warning of fire at all times of the day or night and whether you are asleep or awake.

The best evidence has always indicated that either type of smoke alarm will provide sufficient time for escape for most people for most fires of either smoldering or flaming type. However, research is ongoing, and standards are living documents. If at any time research points to a different conclusion, then that will lead to proposals for changes in the NFPA standard or the closely related Underwriters Laboratories standard for testing and approving smoke alarms. Both organizations currently have task groups looking at smoke alarm performance in the current home environment.

WHAT TYPE DO YOU HAVE?

90% of the smoke detectors installed in homes are the ionization type. To see what type you have, take the detector



down and look on the back side. They will be labeled either "ionization" or "photoelectric." Ionization alarms all contain a trace amount of a radioactive material, Americium 241. They'll all have a warning about this on the back side.

FOR THE BEST PROTECTION, USE BOTH TYPES

For best protection, it is recommended both (ionization and photoelectric) technologies be in homes. In addition to individual ionization and photoelectric alarms, combination alarms that include both technologies in a single device are available. In current practice, manufacturers may set alarm sensitivities in dual photoelectric/ionization alarms less sensitive than in individual sensor alarms with the intent to reduce nuisance alarms.

SMOKE ALARM SAFETY TIPS

Smoke alarms save lives. Almost two-thirds of home fire deaths resulted from fires in homes with no smoke alarms or no working smoke alarms. When there is a fire, smoke spreads fast, and you need smoke alarms to give you time to get out.

- Install smoke alarms in every bedroom, outside each separate sleeping area and on every level of the home, including the basement. Interconnect all smoke alarms throughout the home. When one sounds, they all sound.
- An ionization smoke alarm is generally more responsive to flaming fires, and a photoelectric smoke alarm is generally more responsive to smoldering fires. For the best protection, both types of alarms or a combination alarm (photoelectric and ionization) should be installed in homes.
- Test alarms at least monthly by pushing the test button.
- Smoke rises. Install smoke alarms following manufacturer's instructions high on a wall or on a ceiling. Save manufacturer's instructions for testing and maintenance.
- Replace batteries in all smoke alarms at least once a year. If an alarm "chirps" warning the battery is low, replace the battery right away.



[Download these NFPA safety tips on smoke alarms](#) (PDF, 219 KB).

- Replace all smoke alarms, including alarms that use 10-year batteries and hard-wired alarms, every ten years.
- Be sure the smoke alarm has the label of a recognized testing laboratory.
- Alarms that are hard-wired (and include battery backup) must be installed by a qualified electrician.
- If cooking fumes or steam sets off nuisance alarms, replace the alarm with an alarm that has a "hush" button. A "hush" button will reduce the alarm's sensitivity for a short period of time.
- An ionization alarm with a hush button or a photoelectric alarm should be used if the alarm is within 20 feet of a cooking appliance.
- Smoke alarms that include a recordable voice announcement in addition to the usual alarm sound, may be helpful in waking children through the use of a familiar voice.
- Smoke alarms are available for people who are [deaf or hard of hearing](#). These devices use strobe lights. Vibration devices can be added to these alarms.
- Smoke alarms are an important part of a [home fire escape plan](#).

Source: <http://www.nfpa.org/>

A Tip Of The Hat To:

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