



Santa Monica Fire Department

Smoke Detectors

Who Needs A Smoke Detector?

America in 1999: 2,895 dead, one death every 181 minutes; 16,425 injured, one injury every 32 minutes; \$5,092,000,000 in property damage, \$2,328 every minute; 383,000 homes burned. In a study funded by the United States Fire Administration, it was estimated that 75 percent of residential fire deaths, and 84 percent of residential fire injuries, could have been prevented by smoke detectors.

Most fire fatalities result from the inhalation of smoke or poisonous gases, not from the flames. Smoke detectors, mounted on the ceiling or wall, automatically sense smoke, and other products of combustion, and sound a warning. With enough warning, and proper planning, you and your family can escape from a fire.

Who needs a smoke detector? You do.

Choosing A Detector

There are two basic types of smoke detectors, both of which are available in either battery or hardwired versions:

Ionization detectors contain a radioactive material that ionizes the air, making an electrical path. When smoke enters the detection chamber, the smoke molecules attach themselves to the ions. Changing the electrical current, and activating the alarm. Ionization detectors contain a very small and harmless amount of a radioactive material called Americium.

Photoelectric detectors contain a light source, such as a small bulb, or an LED, and a photocell. Normally, light from the source does not reach the photocell, but when smoke enters the detection chamber, the smoke particles reflect light onto the photocell, activating the alarm.

Which type of detector is best? Both types are approved by the California State Fire Marshal and by nationally recognized testing laboratories. Ionization detectors trigger slightly faster to open flames, while photoelectric detectors respond faster to smoldering fires. Some models have both types of detection sensors built in. If affordable, we recommend at least one of each type of detector. If you can afford only one type of detector, a photoelectric is recommended. Whichever type you choose, make sure that it has a testing laboratory approval.

How Many and Where

How many detectors should you have, and where should they be placed? We recommend that homes have a minimum of one smoke detector on each level. Ideally, you should have a detector outside each sleeping area, and if a member of your household sleeps with the bedroom door closed, one inside the bedroom. On floors without bedrooms, detectors should be installed in or near living areas, including basements. A smoke detector should be placed at the top of a staircase. Smoke detectors should not be placed near a fireplace, or a wood burning stove, and are not recommended for kitchens.

Mounting Your Detectors

Proper mounting of a smoke detector is also important to its operation. You can easily mount battery operated detectors yourself, but those connected to household wiring should have their own separate circuit, and be installed by a professional electrician.

If you mount your detector on the ceiling, be sure to keep it at least 18 inches away from dead air space near walls and corners. If you mount it on the wall, place it six to 12 inches below the ceiling, and away from corners.

Never place them any closer than three feet from an air register. Don't place them near doorways or windows where drafts might impair the detector operation. Because heat may effect their operation and useful life, don't place a detector on an uninsulated exterior wall or ceiling.

Detector Maintenance

Maintenance of detectors is simple, always follow the manufacturer's instructions. Replace the batteries every year, or at the interval recommended by the manufacturer. Most models will make a chirping or similar sound when the battery needs replacing, when this is heard, replace the battery with the recommended type at the first opportunity.

All detectors have a test button, use it to check operation every 30 days. Clean the detector face and grillwork often, and according to manufacturer's instructions, and vacuum at least once a year. Never paint a smoke detector, as it will hamper its function.

What To Do Before The Alarm Sounds

Make an escape plan to [Get Out Safely](#), and practice it.

What To Do When The Alarm Sounds

Follow the plan. [Get Out Safely](#).