SUBLETTE COUNTY UNIFIED FIRE

PO Box 2410 Pinedale WY 82941 Tel: 307-367-4550 Email: unifiedfire@sublettewyo.com

Elevation Effects on Smoke Alarms

Every home should have Smoke Alarms in every bedroom and a CO Detector and a Smoke Alarm in the common area on every floor. They can save your life by detecting fires and Carbon Monoxide, (CO), gas early and giving you time to get yourself and your family to safety.

- Three out of five home fire deaths result from fires in properties without working smoke alarms
- More than one-third (37 percent) of home fire deaths result from fires in which no smoke alarms are present.
- The risk of dying in a home fire is cut in half in homes with working smoke alarms.

There are two type of smoke alarm technologies on the market, ionization and photoelectric. The most commonly available is the inexpensive battery-powered ionization-type smoke alarm. These are very good at detecting fast-burning fires, but may not be the best detector for people who live at high altitudes.

How They Work

Ionization Smoke Alarms: Ionization Smoke Alarms contain a tiny amount of radioactive material, (americium-241) which emit alpha particles that ionize the air creating a weak electric current in the device's detection chamber. Smoke particles interact with this ionized air and neutralize their electric charge. This disrupts the weak current, triggering the alarm. Standard ionization-type smoke alarms are meant to be used at altitudes of less than 3,000 feet. The thinner air associated with the 7000 to 9000 foot elevation of our county causes the Ionization Type Smoke Alarms to respond more slowly to smoke.

Photo-Electric Smoke Alarms: Photo-electric Smoke Alarms use a light source and a photo-sensor. Smoke obscures the path between the light source and the photo-sensor causing the smoke alarm to go off. These types of smoke alarms typically provide faster alerts to smoldering fires or fires that generate a lot of smoke. Photo-electric Smoke Alarms do not have an elevation problem.

Note: CO Detectors use a different technology and are not affected by elevation.

Why is this important

20-30 years ago, most house furnishings, i.e. carpets, draperies, sofas and chairs were made from natural fibers and wood. Fires in this environment are slower to develop, produce less smoke, and typically take 20-30 minutes before becoming life threatening. Modern furnishings use more if not all synthetic materials. Fires in this environment develop significantly faster, providing hotter flame, with more toxic fumes, and can becoming life threatening in a 3-4 minute time. Early warning by smoke alarms is becoming more critical as a result for life safety. As such, it is recommended to use photo-electric smoke alarms at our elevation because they will react quicker, allowing occupants more time to escape from the home.

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Sublette County Unified Fire Smoke Alarm recommendation

- **We are not recommending changing out all your existing ionization type smoke alarms, but for new installation:**
- Use interconnected, smoke alarms when possible. (generally needed to be installed during new construction)
- **Install one photo-electric** or **combo photo-electric/ionization** type smoke alarm per **bedroom**.
- In addition to the bedrooms, **install one combo CO detector/photo-electric** smoke alarm **or one CO Detector + one photo-electric smoke alarm per floor** in the common area of the residence. Install smoke alarms away from kitchen or wood burning stoves to avoid nuisance alarms.
- **Use long life battery units when possible**. The batteries in these type units last 10 years, the usable life of the smoke alarm. This avoids the dead battery issue. Long life battery units are available in:
  - both portable or wired alarms;
  - both single purpose photo-electric smoke alarms or CO detectors
  - in combo CO detector/photo-electric smoke alarm units.

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