

# A p a r t m e n t

# SAFETY NOTES



SPOKANE FIRE DEPARTMENT

FEBRUARY 2010

## SMOKE ALARMS

### What you need to know!

“Working” smoke detectors have been required in Washington rental units since 1979. But revelations from fire departments in Vermont, Massachusetts and Indiana over the past few years have raised the bar in our understanding of what “working” detectors means in residential properties.

There are two basic types of smoke detectors: **ionization** and **photoelectric**. Both have been on the market since around 1974. Both have been produced by the main manufacturers of smoke alarm devices. Since ionization units were typically a few dollars cheaper, most residential properties in the U.S. installed that type.

**Ionization detectors**, which operate because of an electrical field sustained by a small amount of radioactive americium, quickly detect the very tiny smoke particles associated with fast, flaming fires.

**Photoelectric detectors**, which use a special light beam that triggers an alarm when smoke particles are detected, are more efficient at detecting slow-burning, smoldering types of fire.

All smoke detectors sold in the U.S. must be tested to the specifications of UL Standard 217. For years, Underwriters Laboratories has basically said that, while ionization detectors react more quickly to flaming fires and photoelectric respond better to smoldering fires, that either would alarm in time for escape.

**Unfortunately, this has not proven true for a significant number of persons who have died in homes protected only by ionization detectors.** Their alarms did not sound in time (or at all) during a slow-burning, smoldering fire.



A "tipping-point" tragedy happened December 17, 2005 in Barre, VT when a smoldering fire claimed the lives of Art Foster's wife and their four children.

As a result of this fire in which hardwired ionization detectors failed to alarm, the Barre Fire Department worked with Assistant Chief Jay Fleming of the Boston Fire Department to test ionization and photoelectric detectors in house fire simulations. Their tests showed that ionization detectors typically responded seconds faster in hot, flaming fires while photoelectric detectors responded 10 to 40 **minutes** faster in smoldering fires. Spokane Fire Department subsequently tested a variety of ionization and photoelectric detectors at

their burn tower with results similar to the Vermont trials.

Today Vermont, Massachusetts and Indiana have changed their State laws to reflect the importance of photoelectric detectors in alerting residents to smoldering fires. Photoelectric or dual sensor ionization and photoelectric detectors are now required in all dwellings in MA.

The current recommendation from the US Fire Administration is for landlords and homeowners to either install BOTH ionization and photoelectric detectors or **dual sensor** alarms that contain both ionization and photoelectric components.

Learn more about the ionization vs. photoelectric alarm story at

[www.wthr.com/global/Story.asp?s=6552929](http://www.wthr.com/global/Story.asp?s=6552929).

## Detector Tips

Reduce false or "nuisance" alarms by installing photoelectric detectors within 20 feet of a kitchen or bathroom.

If the ionization detectors in your units are less than 7 years old, add a photoelectric alarm ASAP.

Replace all smoke detectors every 10 years because of a 3% annual failure rate.


Landlords face a \$250 fine if smoke detectors are not working whenever new tenants move into a unit.

Liability in a fatality fire without working smoke detectors is considerably more than \$250

Tenants are responsible for keeping batteries in the detectors and replacing them every year or whenever they begin to chirp. Failure to do so can result in a \$250 fine.

For the best protection, install smoke detectors inside bedrooms as well as outside all sleeping areas.

Dual-sensor, photoelectric-ionization, smoke detectors cost about \$28. Single station photoelectric detectors should cost about \$13.



You can sign up for this monthly newsletter, ask a fire-related question or suggest a specific safety topic by contacting Jan Doherty at [jdoherty@spokane-fire.org](mailto:jdoherty@spokane-fire.org) or by calling (509) 625-7058.