

# Residential Smoke Alarms

## FACT SHEET

### Possible reasons for non-functioning smoke alarms:

'Nuisance' or false alarms triggered by cooking smoke or steam from the kitchen prompt the owner to disconnect the power supply.

The battery life has come to an end or the hardwire connection inside the smoke alarm has come loose.

The 10-15 year, or long-life battery life has come to an end.

The smoke alarm was improperly installed or was installed in an ineffective area (always follow the manufacturer's installation and placement instructions).

The smoke alarm is no longer working properly or is malfunctioning.

The sensors inside the smoke alarm are dirty and require cleaning.



Smoke alarms are small, self-contained electrical units that signal an alarm warning when detecting the presence of smoke or fire. Smoke alarms may be hard wired into a building, and powered by a replaceable battery, or a combination of the two. There are many makes, models, and manufacturers of smoke alarms in Canada, ranging in price from under \$20 to over \$60.

### What are the costs associated with residential structure fires?

85% of fire deaths occur in homes. Even though most homes in North America have smoke detectors installed, many are not functioning. Secondary to human life, the monetary costs of fire damage associated with residential structure fires has historically been upwards of \$45,000 per unit in Canada.

### Do smoke alarms really save lives?

The presence of a *working* smoke alarm can reduce the risk of dying in a residential fire by over 50% by providing sufficient warning to residents. However, while 90% of North American homes have smoke alarms installed, in two-thirds of fatal residential fires smoke alarms were either not installed or not functioning. It is essential that residents check fire alarms on a regular basis to ensure they are functioning. Common reasons for a non-functioning alarm are listed in the column to the right.

### Why are there different types of smoke alarms?

*Ionization* smoke alarms contain small amounts of radioactive material in an air chamber where an electric current passes through. Smoke entering the chamber disrupts the current, which triggers the alarm to sound. Ionization smoke alarms are usually more responsive to low-smoke, high-flame fires. *Photoelectric* smoke alarms send a beam of light away from the unit into an internal chamber. When smoke enters the chamber, it reflects light from the beam towards a light sensor that triggers the alarm to sound. Photoelectric smoke alarms are typically more responsive to higher smoke, smoldering fires. There are also alarms with a strobe light function or personalized voice recordings. These additional functions may be useful to wake deep sleeping individuals, children, or those who are hard of hearing. This is important as vulnerable residents (e.g. children and seniors) are most at risk of dying in a residential fire.

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Smoke alarms sold in Canada must abide to a testing standard set forth by Underwriters' Laboratories of Canada (ULC), as required by Canadian legislation. Ensure your smoke alarm is marked with the ULC certification label. By baring the ULC label, you will be assured that your smoke alarm unit meets Canadian standards.



Regardless of the type of alarm, smoke alarms are found to work less often in households that had at least one smoker residing there.

## Centre for Public Safety and Criminal Justice Research

33844 King Road  
Abbotsford, BC  
V2S 7M8  
604 854-4553  
<http://cjr.ufv.ca>

### How many smoke alarms should I have and where should they go?

Generally, each level of the home should have its own smoke alarm installed, including outside of each sleeping area. For the best protection, smoke alarms should be interconnected. This way if one alarm sounds they all sound. Smoke alarms should be located high on the wall or on the ceiling, and near bedrooms. To avoid the alarm going off by mistake or being turned off by a resident, they should be located just outside of the kitchen.

### How do I maintain my smoke alarm?

Smoke alarms should be cleaned at least once every six months, or as stated in the manufacturer's instruction manual. It is also important to test a smoke alarm on a monthly basis. On most models, a test button is located on the outside of the unit. If the alarm does not sound after the test button has been pressed, consider changing the batteries or replacing the unit all together. It is suggested that smoke alarms older than 10 years be replaced.

### What can I do if I experience a lot of false or 'nuisance' alarms?

Several newer model smoke alarms are equipped with a 'hush' button that will disarm the smoke alarm for a short period to allow the air to clear. Do not remove the batteries or unplug your alarm.

### Where can I find more information on smoke alarms?

For more information on smoke alarms, you can visit any local hardware store or contact your local fire service.

### Resources

- The British Columbia Office of the Fire Commissioner. 1-888-988-9488, or online at <http://embc.gov.bc.ca/ofc/index.htm>
- Canada Safety Council <http://www.safety-council.org/info/home/smalarm.htm>
- Underwriters' Laboratories of Canada [http://www.ulc.ca/consumer/Page.asp?Page\\_ID=942](http://www.ulc.ca/consumer/Page.asp?Page_ID=942)
- National Fire Protection Agency <http://www.nfpa.org/search.asp?query=smoke+alarm>
- The Fire Marshall's Public Fire Safety Council <http://www.firesafetycouncil.com/english/pubsafet/fasa.htm>
- 2006 BC Building Code and 2006 BC Fire Code <http://www.housing.gov.bc.ca/building/code/index.htm>