

Residential Fire Safety Planning

Types of Smoke Alarms

A smoke alarm is a battery operated or electrically connected device designed to sound an alarm when the presence of visible or invisible particles produced by combustion are sensed within the room or area in which it is located. There are two types of household smoke detectors in common use - ionization and photoelectric. Both possess strengths and weaknesses.

Ionization smoke alarms, the most common type in use and generally less expensive to purchase at \$5 to \$20, uses a small amount of radioactive material to ionize air in the sensing chamber. An alarm is triggered when a predetermined level of smoke particles enter the chamber. These detectors are generally more effective at detecting fast-flaming fires which consume combustible materials rapidly and spread quickly (paper burning in a wastebasket or a grease fire in the kitchen).

Photoelectric smoke alarms, priced between \$30 and \$40, are generally more effective at detecting slow, smoldering fires (cigarettes burning in couches or bedding) which smolder for hours before bursting into flame. They consist of a light emitting diode and a light sensitive sensor in the sensing chamber. An alarm is set off when the presence of suspended smoke particles in the sensing chamber causes the light beam to scatter.

While all detectors for sale in Canada must meet the standards of Underwriters' Laboratories Canada Inc. (ULC) - a non-profit safety-standards and testing organization - the two technologies operate on different principles and therefore respond differently to various conditions. Since you can't predict the type of fire that may occur, for maximum protection manufacturers recommend the use of both types of smoke alarms on each level of your home. **Smoke detectors older than 10 years should be replaced with new ones.**

The three major causes of home fires in Canada are cooking equipment, heating equipment and smoking materials. While fires caused by cooking equipment is the leading cause of Canadian home fires, fires caused by smoking materials kill more people than any other cause of fire.

Smoke alarms are not foolproof. They play a vital role worldwide in reducing the occurrence of deaths and injuries resulting from home fires. However, like any warning device, smoke alarms only work if properly located, installed, and maintained and smoke reaches them. The Office of the Fire Marshal of Ontario reports **85% of the cases where smoke alarms did not activate were due to dead or missing battery/power source**

Properly Installed and Maintained Smoke Alarms Save Lives

- Install at least one smoke alarm on every level of your home, in every bedroom or sleeping area, and in every bedroom hallway
- Read the manufacturers instructions thoroughly and follow the directions for installation and operation
- Only use the batteries recommended by the manufacturer
- Test detectors at least once a month to ensure in good working order and batteries fresh
- Develop the habit of replacing batteries with time changes, in the spring and fall
- Replace alarm immediately if not working properly
- Perform regular maintenance and always keep unit clean
- Smoke alarms older than 10 years should be replaced by new ones

Smoke Alarm Limitations

A working smoke alarm can mean the difference between life and death and just how unscathed your family survives a fire. A few of the reasons smoke alarms may not operate properly are due to dead, missing or weak batteries, a build-up of dirt, dust or grease on the cover, or improper installation and/or location. Regardless of the type of detector you use, read the manufacturers instructions thoroughly and follow the directions for installation and use.

Smoke alarms cannot operate without power ~ Do not remove or disconnect the power source. Use only batteries recommended by the manufacturer, test regularly for freshness and develop the habit of replacing with biannual time change.

Smoke alarms cannot detect fires if the smoke does not reach them ~ They may not detect fires on another floor or area of the home, in a remote area, in chimneys or walls, on roofs, or on the other side of closed doors. For maximum protection, install at least one smoke alarm on every level of your home, in every bedroom or sleeping area, and in every bedroom hallway

Smoke alarms may not be heard ~ Units which meets standards may not be audible through closed doors, above other activities, or by hearing or otherwise impaired individuals or sound sleepers. Special units should be installed for the hearing impaired

Smoke alarms may not have time to alarm before fire itself causes damage, injury or death ~ Due to the location or nature of the fire, smoke may not reach the unit immediately

Smoke alarms are not foolproof ~ Test detectors at least once a month to ensure in good working order

Smoke alarms have a limited life ~ Replace smoke alarms every 10 years. Replace immediately if not operating properly

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Smoke Detectors Part of Overall Fire Prevention Plan

While smoke detectors play a vital part in fire prevention, putting up smoke alarms is only one step in protecting your family from fires. An overall fire prevention plan reduces the chance a fire will start in your home.

- Develop a Home Escape Plan with your family with alternate ways out of each room. Practice with all members of your household, including small children. Everyone should be aware of at least two ways out of the house and a pre-arranged meeting place outside
- Educate all family members in fire prevention and safety
- Teach your children when and how to call for help. For emergency situations, dial 9-1-1
- Keep at least one working fire extinguisher on every floor and an additional one in the kitchen. Have fire escape ladders or other reliable means of escape for upper floors handy
- Install a battery operated carbon monoxide detector near the sleeping area(s) of your home
- Hazard proof your home. Follow safety rules and prevent hazardous situations. Use smoking materials with care; keep matches and/or lighters away from children; store flammable material

in proper containers; maintain electrical appliances in good condition and don't overload electrical circuits; keep cooking/heating devices grease and debris-free; never leave lighted stoves, candles, et cetera, unattended; always keep portable heaters and open flames clear from flammable materials

- Familiarize yourself with CPR (cardiopulmonary resuscitation). Statistics show that the life you save will probably be that of a loved one. Courses are available through the Red Cross, St. John Ambulance and other community agencies.

What to do in the case of a fire

- Don't panic. Stay calm. Remember what you have been taught and follow your family's Home Escape Plan
- Get everyone out of the house immediately. Don't stop to get dressed or collect belongings. Do not re-enter for any reason until it has been declared safe
- Feel doors before opening them. If hot, use an alternate escape route; if cool, open slowly
- Cover your nose and mouth and take short, shallow breaths
- Stay close to the floor and crawl if necessary
- Keep doors and windows closed unless they are part of your escape plan and then only open once ready to implement your plan
- Meet family at a planned location outside your home; make sure everybody is out safely
- Notify the Fire Department as soon as possible from outside. Give your address, then name
- Never re-enter a burning building

For more information

For more information on making your home safer, creating a home escape plan for your family which encourages children and their families to pre-plan their home fire escape, ensuring they know what to do in a home fire and can escape safely: **contact your City Fire Department.**

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