

Smoke Alarms: different products for different needs

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Fire data in Ontario reveal that fewer people die in home fires when a smoke alarm is present and activates. Because the majority of fatal fires in the home occur at night when people are asleep, a working smoke alarm can provide an early warning of fire and the time needed for occupants to evacuate.

A smoke alarm is a battery operated or electrically connected device that senses the presence of visible or invisible particles produced by combustion and that is designed to sound an alarm within a room or suite in which it is located.

Smoke alarm technology has been around since the 1960s, and the single-station alarm known by the public has been in use since the 1970s. In the last 25 years, smoke alarms have evolved into cost-effective, reliable and remarkably sophisticated devices that can make the difference between life and death.

There are many smoke alarm makes, models and prices available in the marketplace, and some are intended to serve particular needs within the home. This article discusses several issues associated with several of these products based on recent queries handled by the OFM.

Smoke alarms and the hearing impaired

Both the Ontario Building Code and Fire Code identify the need to install smoke alarms in residential occupancies. By definition, such a device must sound an alarm. Unfortunately, an audible alarm may not alert an individual who has hearing loss.

In general, there are numerous smoke alarms available that address the needs of the hearing impaired. Some devices are designed to produce low and/or high frequency alarms for the benefit of individuals who are hard of hearing (for instance, older persons may have high frequency or pitch hearing loss). There are also devices that have visual alert features, such as strobe lights to identify an emergency condition for those who have complete hearing loss. Smoke alarms may also incorporate a tactile alert in the form of a vibration much like a vibrating pager.

In some instances, these smoke alarm features have energy requirements that prevent the use of batteries. As opposed to a hard-wired connection to the home electrical panel, some smoke alarms are designed to plug into a standard house receptacle. The Standard for Smoke Alarms, CAN/ULC-S-531, identifies that the primary power supply for a smoke alarm must be either a utility supply or an integral battery/batteries. A utility supply may take the form of a power-supply cord connected to a home electrical outlet.

Distinct from this, the Ontario Building Code requires hard-wired smoke alarms during new construction, to ensure a permanent, non-removable connection. An exception to allow a battery operated smoke alarm exists for small buildings that are not provided with access to a hard-wired circuit. The Ontario Fire Code also specifies that a smoke alarm needs to be powered by a permanent connection to an electrical circuit. As the Fire Code applies to existing dwelling units, it also permits the use of battery operated smoke alarms. This option ensures that occupants can readily install smoke alarms, without having to provide new electrical wiring.

As the Fire Code provides a minimum level of life safety, a person may choose to install additional smoke alarms for their own personal protection, acknowledging that they must be in addition to, not in lieu of, smoke alarms installed to satisfy Code requirements.

Smoke alarms with remote controls

A recently advertised dual sensing smoke alarm incorporates a hush/silencing feature that can be activated by most standard household remote controls from up to 20 feet - great for the classic couch potato, you might think.

The silencing feature is common to many smoke alarm models. It allows a user to silence an alarm that has sounded due to, for example, bathroom steam or because of inappropriate placement, say, in a kitchen.

With this product, an alarm can be easily silenced, so there is some concern that a person could silence an alarm without investigating the source of the alarm. In fact, this feature does not disable the device, it temporarily silences the noise. As required by the smoke alarm standard, if smoke around the unit is dense enough to suggest a potentially dangerous situation, it will stay in alarm, or may re-alarm quickly even though it has been silenced. Further, silencing by the remote control will only work once. This smoke alarm is both UL and ULC listed.

Wind-up alarms

Another device that is being promoted these days is a wind-up alarm. This type of device, or a variation of it, has been around for over 30 years. It requires no batteries or electricity to operate, and uses mechanical means that are said to sound an alarm for more than 5 minutes.

So how does it sense smoke? It doesn't, because it is, in fact, a heat detector, not a smoke alarm. The "brains" of this alarm is the fusible link that is set to melt at a preset temperature.

But a heat detector is not a smoke alarm, and this product may be marketed as a substitute for a smoke alarm, particularly where nuisance alarms are an issue. Or,

a consumer may perceive this product to be an equivalent to a smoke alarm (a comparatively high end equivalent, priced at over \$350 dollars). In fact, the installation of a heat detector as a life safety measure is only appropriate when installed in addition to smoke alarms that are required by Code. The OFM has shared its concerns with the company that distributes this product.

Vocal smoke alarm

A smoke alarm that incorporates a vocal command has recently appeared in the marketplace.

The premise of this product is that it is an improvement over a traditional smoke alarm, particularly where sleeping children are concerned. The manufacturer's website states that "traditional smoke detectors (alarms) are incapable of awakening sleeping children - not because they are not loud enough, but rather, it is a function of the way the brain recognizes sounds that are familiar to the child."

The alarm lets parents record a message in their own voices to be played back in an alarm situation - for instance, telling the child to go out the door to the family meeting place. The recording alternates with a more conventional alarm sound. It is recommended that a smoke alarm be installed in each child's bedroom.

We understand that this product is currently being reviewed by UL, and that ULC approval will be sought in future.

Another smoke alarm manufacturer also has a voice-enhanced smoke alarm, however it uses a generic voice.

As mentioned above, these products are meant to be used in addition to, not instead of, smoke alarms installed to satisfy Code requirements.

Smoke Alarms Save Lives

The OFM firmly believes in the use of smoke alarms in homes, and supports innovative products that enhance fire safety, as long as they also meet the Code and associated smoke alarm standard requirements. Working smoke alarms on every level and outside all sleeping areas can provide an early warning that can make the difference between life and death, and form part of an overall home fire safety strategy that also includes preventing fires by adopting fire safe behavior, and developing and practicing a home fire escape plan.

It is the consumer's responsibility to assess the circumstances of their household to select the most appropriate alarm. When purchasing an alarm, look for a product that has been manufactured and tested to an acceptable standard, with a marking by the Underwriters Laboratories of Canada (ULC), or Underwriters Laboratories Incorporated (cUL). We have every reason to believe that alarms listed by a

certification agency accredited by the Standards Council of Canada will function as intended.

Consider installing more than one device, to take advantage of both ionization and photoelectric sensing means, or use a combination/dual sensing alarm. There are numerous features available in the marketplace, such as a hush/silencing feature, hard-wiring with battery backup, long life batteries, not to mention alarms that incorporate strobe lights, vibrations or lights, which may be particularly suited to specific needs.

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