

# SMOKE DETECTORS

## Information

### Smoke detectors: Worth the price?

Fire. It's a word which connotes terror, loss, tragedy. Each year in Ontario, several hundred people die and thousands of others lose their possessions.

Many of the fires could have been prevented if warning had come early enough. Most of the lives could have been saved.

In 1974, nearly 300 Ontarians died in fires and thousands more were injured. Most of these fires occurred in homes and most started at night.

### Protecting lives

Protection of your home and family from fire loss depends on a three point program: reducing fire hazards in your home, establishing a fire escape route, providing an early warning system.

### Reducing fire hazards in the home

Fire departments will, on request, inspect your home for possible fire hazards and make recommendations where necessary. You should educate children about fire danger and post the fire department number prominently beside each telephone.

### Establishing a fire escape route

The most carefully-planned escape route is useless unless practised by all family members. Decide the best method of escape and an alternative if possible then try it out.

### Providing an early warning system

Fire extinguishers should be readily available near sleeping quarters and in the kitchen, but they should be used only for small, controllable fires. Don't attempt to put out a large fire.

Because many fires begin at night when occupants are asleep, an early warning system can save lives. For that reason, the Ontario Building Code requires installation of smoke detectors in all homes where construction started after Jan. 1, 1976.

Local bylaws vary for rooming houses and apartments. Check to be sure.

### Types of fire detectors

There are two types of fire detectors: heat detectors and smoke detectors. Heat detectors are commonly used in commercial and industrial buildings but the more quickly-activated smoke detectors are recommended for residential use.

Heat (or thermal) detectors are activated only when the temperature reaches 57 degrees Celsius or 93 degrees Celsius, depending on the setting, but at that point deadly smoke may already have killed sleeping occupants. Heat detectors, then, are more effective for protecting property than lives.

Be sure that any unit you buy has been tested by Underwriters Laboratories of Canada.

### Smoke detectors

Smoke detectors read a fire signal and set off an audible alarm long before thermal detectors would be affected.

There are two types of smoke detectors: ionization (or products-of-combustion) and photoelectric. Both are effective in warning occupants, but the degree of effectiveness varies.

### Ionization type smoke detectors

Ionization type smoke detectors use a minute amount of radioactive material to allow the air inside the unit to conduct electricity. A small current passes through the ionized air. When smoke enters the chamber, it impedes the flow of current and, at a predetermined level, sets off the alarm.

### Photoelectric type smoke detectors

This type uses a light-sensitive photoelectric cell and a light source, either a bulb or a light-emitting diode. When smoke enters the unit, it scatters the light beam, deflecting it to the photoelectric cell and setting off the alarm.

### Effectiveness of smoke detectors

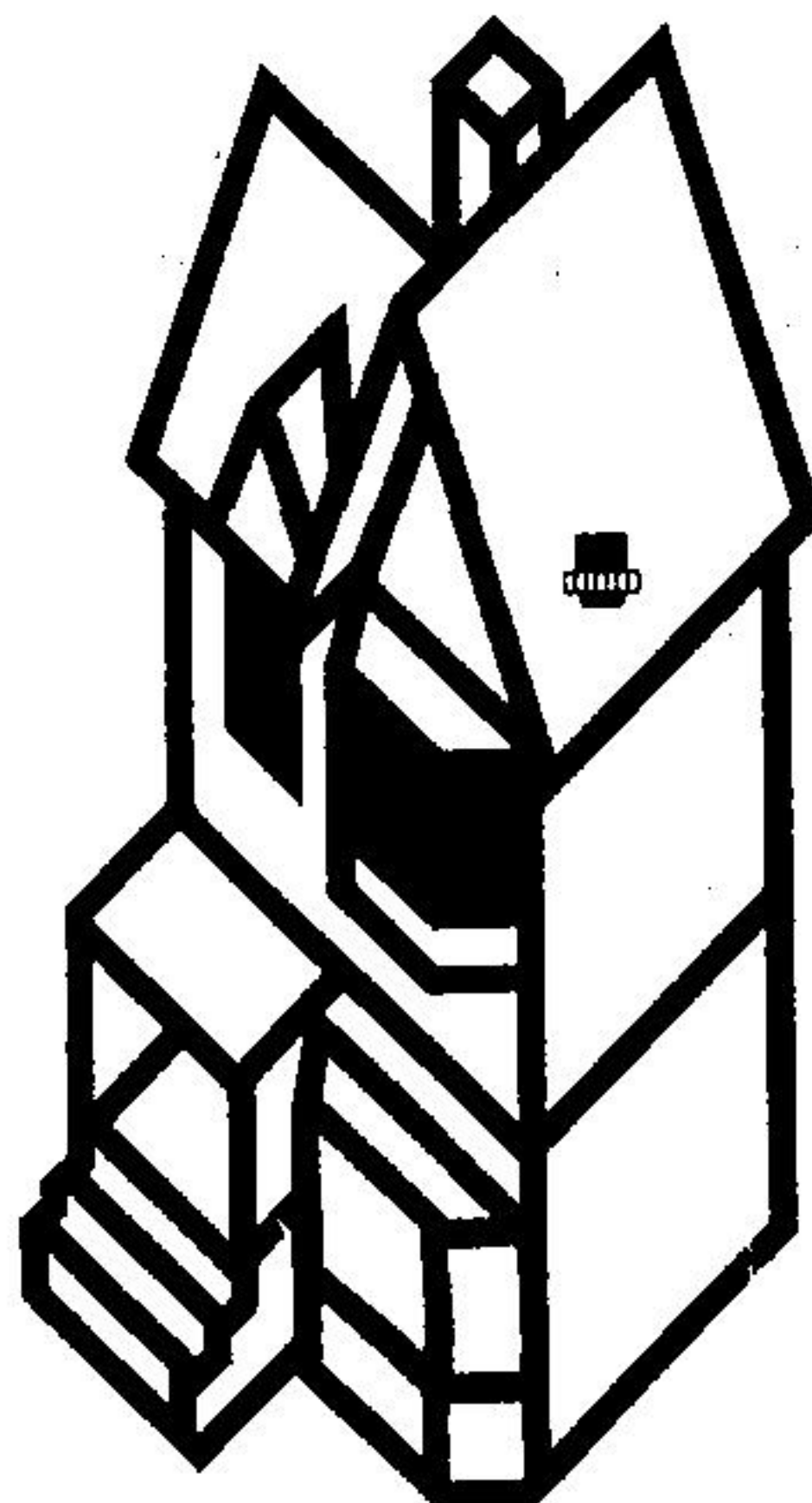
Ionization detectors are relatively effective in detecting smoke from fires even before the smoke is visible. Photoelectric units, according to some tests, may respond more quickly to smouldering fires. Both types will sound the alarm much more quickly than heat-activated detectors.

### Stages of a fire

Fires go through four basic stages: the incipient stage, where there are no visible products of combustion (such as smoke); ionization detectors can detect fire at this stage.

The smouldering stage, where smoke is visible but flames have not yet started. Photoelectric detectors will be triggered at this stage.

The flame stage, where actual fire has broken out. It is followed almost instantly by the heat stage with uncontrolled heat and expansion of air. It is at this stage that heat-activated detectors will sound the alarm.



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