January 2007

State of Vermont ~ Department of Public Safety

Division of Fire Safety

Code Information Bulletin

CIS-20

Residential Smoke Alarms

The Impact of Smoke Alarms

In the 1960's, the average U. S. citizen had never heard of a smoke alarm. By 1995, an estimated 93 percent of all American homes - single - and multi- family, apartments, nursing homes, dormitories, etc. - were equipped with alarms.

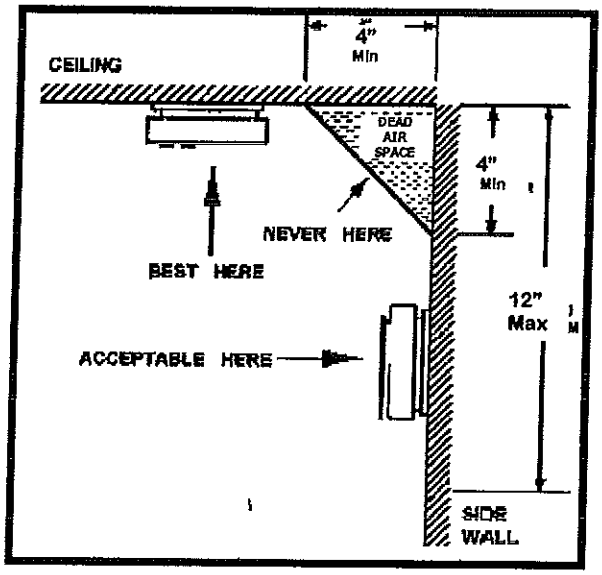
In the event of a fire, properly installed and maintained smoke alarms will provide an early warning signal to your household. This alarm could save your own life and those of your loved ones by providing the chance to escape.

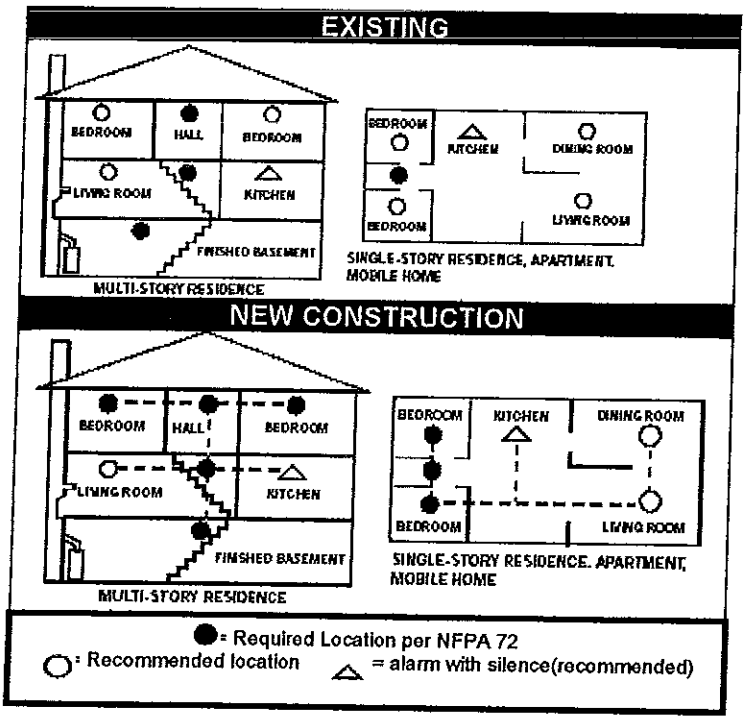
Why should my home have smoke alarms?

In the event of a fire, a smoke alarm can save your life and those of your loved ones. They are the single most important means of preventing house and apartment fire fatalities by providing an early warning signal -- so you and your family can escape.

Where do I put them?

Install smoke alarms on every level of your home, including the basement. Many fatal fires begin late at night or in the early morning. In new buildings install smoke alarms both inside and outside of the sleeping rooms. This is because most fire fatalities occur between 2 a.m. and 6 a.m. when most people are sleeping. Contrary to popular belief, the smell of smoke may not wake a sleeping person. Instead, the poisonous gases and smoke produced by a fire can dull the senses and put one into a deeper sleep. The only thing standing between the deadly fumes of a fire and a safe escape is the piercing sound of a smoke alarm.





Requirements of the FIRE / LIFE SAFETY CODE

NFPA 101

[24.3.4] Detection, Alarm, and Communications Systems. Smoke alarms or a smoke detection system shall be provided in accordance with either 24.3.4.1 or 24.3.4.2, as modified by 24.3.4.3.

[24.3.4.1] Smoke alarms shall be installed in accordance with 9.6.2.10 in the following locations:

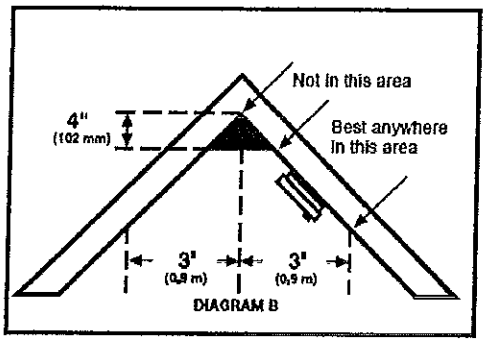
(1) **All sleeping rooms** in other than existing one- and two-family dwellings

(2) **Outside of each separate sleeping area**, in the immediate vicinity of the sleeping rooms

(3) On **each level** of the dwelling unit, including **basements**

[24.3.4.2] Dwelling units shall be protected by an approved smoke detection system in accordance with Section 9.6 and equipped with an approved means of occupant notification.

[24.3.4.3] In existing one- and two-family dwellings, approved smoke alarms powered by batteries shall be permitted.



Is there any place I should not put a smoke alarm?

Smoke alarms are not made to work in extreme heat or cold. They aren't recommended for attics and similar spaces that aren't heated in the winter or cooled in the summer. This also applies to garages. In addition to the heat and cold in garages, the smoke from engine exhaust fumes will cause nuisance alarms and clog the smoke alarm. Also, don't mount your smoke alarms near drafts created by fans, air ducts, windows, doors, or fireplaces. The moving air can blow smoke away from the sensor. Don't mount your smoke alarm too near the stove or bathroom shower. Smoke from cooking food or steam from the shower may result in frequent nuisance alarms. Consider using a smoke alarm with a "hush" feature for smoke alarms located near these areas.

What if the alarm goes off while I'm cooking?

Then it's doing its job. Do not disable your smoke alarm if it alarms due to cooking or other non-fire causes. You may not remember to put the batteries back in the alarm after cooking. Instead, clear the air by waving a towel near the alarm, leaving the batteries in place. The alarm may have to be moved to a new location.

How long will my smoke alarm last?

About eight-to-ten years, after which it should be replaced. Like most electrical devices, smoke alarms wear out. You may want to write the purchase date with a marker on the inside of your unit. That way, you'll know when to replace it. Always follow the manufacturer's instructions for replacement.

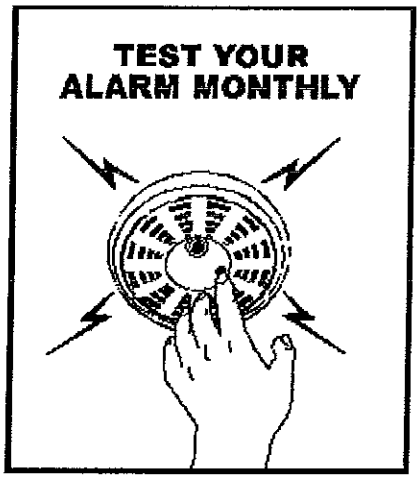
How do I take care of my smoke alarms?

Smoke alarms are pretty easy to maintain. Unfortunately, improper maintenance is a big reason smoke alarms fail. According to a study by the Consumer Product Safety Commission, 90 percent of U.S. households have smoke alarms. However, the smoke alarms in 20 percent of these households - about 16 million - weren't working. And in half of those households, the residents thought the smoke alarms were working. Again, non-working smoke alarms create a false sense of security that can lead to tragedy.

Maintenance of your smoke alarms is critical. Smoke alarms can save lives but they won't work if they aren't maintained. Replace the batteries at least once a year, or according to the manufacturer's instructions. Always use fresh batteries. Never remove the battery unless replacing it. Common batteries should last approximately one year. Pick a holiday or birthday and replace the batteries each year on that day. Many people change their batteries when they change their clocks for daylight savings time in the fall. That way they can remember to "Change The Clock/Change the Battery".

If your battery-powered smoke alarm starts to "beep" or "chirp" every minute or so this usually indicates a weak battery. Replace the battery immediately with a fresh one and reset the alarm. If it continues to chirp, clean the unit. If the unit continues to chirp, replace it with a new smoke alarm.

Smoke alarms hooked into your electrical system need to be maintained just like the battery- powered kind. If they contain a battery for back-up purposes, the batteries need to be changed at least once a year, or according to manufacturer's instructions.



OFFICE OF THE STATE FIRE MARSHAL & STATE FIRE ACADEMY

Central Office Berlin 802-479-7561 **State Fire Academy Office** Pittsford 802-483-2755
Regional Offices Barre 802-479-4434 * Rutland 802-786-5867 * Springfield 802-885-8883 * Williston 802-879-2300
www.vtfiresafety.org

Smoke & CO Alarms

New Requirements for Photoelectric Alarms

The Vermont Division of Fire Safety has prepared the following information regarding the type, placement, and installation of photoelectric smoke alarms and carbon monoxide alarms in single family dwellings. This information is required to be posted where smoke alarms and carbon monoxide alarms are sold in accordance with Vermont state law, 20 VSA § 2731 (j).

Smoke Alarm Requirements

Photoelectric-only type of smoke alarms are required to be installed in the vicinity of any bedrooms and on each level of a dwelling, for all new dwellings and dwellings that are sold or transferred, beginning January 1, 2009.

The law allows the use of photoelectric and carbon monoxide combination alarms but it does not allow ionization / photoelectric combination alarms to be used for these specific locations.

The Different Types of Smoke Alarms

There are two different types of smoke alarms in general use today.

Ionization - Ionization smoke alarms respond faster to flaming fires, such as those involving paper or flammable liquids.

Photoelectric - Photoelectric smoke alarms respond faster to smoldering fires, such as those involving upholstered furniture or bedding materials.

Updating Smoke Alarms

Smoke alarms save lives, prevent injuries, and minimize property damage by alerting people to a fire when a fire is still small. Smoke alarms need to be properly installed, maintained and replaced when needed.

Many existing Vermont homes currently have old outdated ionization smoke alarms installed. These old alarms need to be replaced. The division recommends that when you are replacing alarms that you update to a photoelectric smoke alarm.

No home should be without smoke alarms, and ionization alarms should continue to be used until a home can be equipped with new photoelectric alarms.

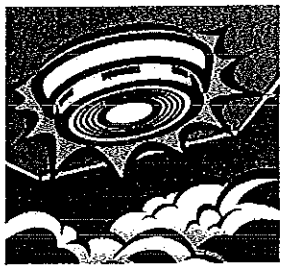
Carbon Monoxide (CO) Alarm Requirements

CO alarms are required to be installed in the vicinity of any bedrooms for all new dwellings and dwellings that are sold or transferred, beginning July 1, 2005.

Heating appliances that are not working properly are the major cause of unintentional carbon monoxide poisoning in Vermont. Other common sources include emergency generators or space heaters and motor vehicles left running in attached garages.

It is very important to be aware of the early signs of CO poisoning. Exposure to CO can mimic flu systems - headaches, dizziness, disorientation, nausea and fatigue. Higher levels of exposure will result in disorientation and drowsiness, leading to unconsciousness and death. Often the symptoms will be less when the person exposed to carbon monoxide leaves the building, only to have the symptoms reoccur when the person re-enters the building.

Power Supply for Alarms



Smoke alarms installed in a dwelling constructed after January 1, 1994 and carbon monoxide alarms installed in a dwelling constructed after July 1, 2005 must be directly wired to the building electrical service and have a battery back up.

Installation Information

Alarms that are hard-wired into the home electrical system should be installed by a qualified electrician.

Choose smoke and carbon monoxide alarms that bears the label of Underwriters Laboratories or another nationally recognized testing laboratory.

Read and follow the manufacturers' instructions that are supplied with each alarm.

Install photoelectric-only smoke alarms in the vicinity of any bedrooms and on each level of a dwelling including the basement.

Install smoke alarms in each bedroom for additional protection and interconnect smoke alarms together so if one sounds an alarm, they all sound an alarm, to make sure the alarm is heard.

Mount smoke alarms on flat ceilings no closer than 4" from the adjoining wall surface. Mount smoke alarms on walls no closer than 4", and not further than 12", from the adjoining ceiling surface. Do not install a smoke alarm within 36" of a ceiling suspended fan, a supply register or the door to the bathroom or kitchen.

Alarm Maintenance

Clean alarms monthly by gently vacuuming to remove dust and cobwebs allowing proper air flow through all vents.

Install a new battery in all alarms that require changing the battery at least once a year. Immediately install a new battery if an alarm "chirps," warning the battery is low.

Smoke and CO alarms don't last forever. Replace smoke alarms when they are 10 years old and carbon monoxide alarms when indicated in the manufacture's instructions, or when indicated by a trouble alarm on the unit.

Test alarms each month, as indicated by the manufacturer's instructions.

For additional information and additional fire fact sheets contact:

Vermont Department of Public Safety

Division of Fire Safety

Office of the State Fire Marshal & State Fire Academy

1311 US Route 302, Suite 600, Barre, VT 05641-2351

800-640-2106 or Visit the DFS Website:

www.vtfiresafety.org

This Fire Safety Information Was Provided As A Public Service By:

Vermont Division of Fire Safety

Carbon Monoxide Detector Installation Guidelines (www.vtfiresafety.org)

Barre 479-4434...Rutland 786-5867...Springfield 885-8883...Williston 879-2300...Technical Assistance 1-800-640-2106

"Install and maintain detectors in accordance with the manufacturer's installation instructions and NFPA 720"

	Occupancy	Power Supply	Code Reference	Location	** Notes
1.	**Existing 1&2 family dwellings**	Battery, directly hardwired into the building's electrical circuit, or plug in type. **No transition period to require upgrade to electric power**	(VFBSC) Vermont Fire & Building Safety Code Page 12 – add section 24.3.4.4 to NFPA 101, 2003	Outside each sleeping area in the immediate vicinity of the bedrooms. An additional detector shall be installed in each sleeping room that contains a fuel- burning appliance. **** See Note**	** Detectors required only on floor levels where sleeping rooms are provided. ** Have your heating appliance serviced by a certified fuel service technician.
2.	**New 1 & 2 Family Dwelling constructed after October 22, 2005**	Directly hardwired into the building's electrical circuit with battery back up. **Plug in type not considered direct wired**	(VFBSC) Page 12 – add section 24.3.4.4 to NFPA 101, 2003	Outside each sleeping area in the immediate vicinity of the bedrooms. An additional detector shall be installed in each sleeping room that contains a fuel- burning appliance. **** See Note**	** Detectors required only on floor levels where sleeping rooms are provided. ** Have your heating appliance serviced by a certified fuel service technician.
3.	**Existing Apartment Buildings/Condos (3 or more units)**	Effective Oct. 22, 2005 - Battery, directly hardwired into the building's electrical circuit, or plug in type. **** See Note**	(VFBSC) Page 13 –Add section 31.3.4.6 to NFPA 101, 2003	Outside each sleeping area in the immediate vicinity of the bedrooms. An additional detector shall be installed in each sleeping room that contains a fuel- burning appliance. **** See Note**	** Effective October 1, 2007 the detectors are required to be directly hardwired with battery back up. ** Detectors required only on floor levels where sleeping rooms are provided.
4.	**New Apartment Buildings/Condos (3 or more units)**	Effective Oct. 22, 2005- Directly hardwired into the building's electrical circuit with battery back up.	(VFBSC) Page 13 –Add section 30.3.4.6 to NFPA 101, 2003	Outside each sleeping area in the immediate vicinity of the bedrooms. An additional detector shall be installed in each sleeping room that contains a fuel- burning appliance. **** See Note**	** Detectors required only on floor levels where sleeping rooms are provided. ** Have your heating appliance serviced by a certified fuel service technician.
5.	**Existing Hotels, Motels, Dormitories, and Rooming and Lodging**	Effective Oct. 22, 2005 the power may originate from battery, direct wire, or plug in type. **** See Note**	(VFBSC) Page 13 –Add section 29.3.4.6 to NFPA 101, 2003	Outside the guest rooms in the corridor spaced in accordance with the manufacturer's installation instructions. Inside each bedroom where there is no corridor, and in each sleeping room provided with a fuel- burning appliance. **** See Note**	** Detectors must be installed in accordance with the manufacturer's installation instructions. Effective October 1,07 battery detectors shall be up - graded to direct wire with battery back up.
6.	**New Hotels, Motels, Dormitories, and Rooming and Lodging built after Oct. 22, 2005**	Effective Oct. 22, 2005- Directly hardwired into the building's electrical circuit with battery back up. **** See Note**	(VFBSC) Hotels & Dorms- Page 13 (28.3.4.6) Rooming & Lodging Page 12 (26.3.3.5.4)	Outside the guest rooms in the corridor spaced in accordance with the manufacturer. Inside each bedroom where there is no corridor, and in each sleeping room provided with a fuel - burning appliance.	** Detectors must be installed in accordance with the manufacturer's installation instructions.
7.	**Single-family owner occupied home**	Effective 7-01-05, new homes directly wired into the house electrical circuit. Existing homes battery, directly wired into house circuit, or plug-in.	9 VSA Chapter 77 VFBSC – page 31	Outside each sleeping area in the immediate vicinity of the bedrooms. An additional detector is recommended in any sleeping room that contains a fuel-burning appliance. ****See Note**	** Detectors required only on floor levels where sleeping rooms are provided. ** Have your heating appliance serviced by a certified fuel service technician.

11/01/05

CARBON MONOXIDE