

# SMOKE ALARMS

*Guidelines for placement and use of smoke alarms.*



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## WHY ARE SMOKE ALARMS REQUIRED?

More fire deaths occur in residential buildings than in any other building type. More than half of all fire deaths that occur in residential buildings occur when the occupants are asleep and are unaware that a fire has occurred. Death usually results from asphyxiation long before the fire reaches the occupants.

Smoke alarms installed in a home give an early warning of smoke and fire thus giving the occupants the critical few moments needed to escape.

In order to address the tragic loss of life in residential buildings, the Minnesota State Building Code has requirements for the installation of smoke alarms in a home when new construction, remodeling or repair is undertaken and the cost of construction exceeds \$1000.00. (See specific code requirements below for exceptions.)

## GENERAL REQUIREMENTS

In general, the code requires that smoke alarms be provided on each floor of a dwelling, in the corridor giving access to bedrooms and in bedrooms. Alarms in new construction must receive their power from the building wiring and have a battery backup in the event power is lost. In remodeling where connection to the building wiring is difficult to achieve, battery operated alarms may be used. (See special Code requirements.)

An important feature of the requirement for alarms being connected into the building's electrical wiring is that there must be no disconnecting means other than the primary over current protection. This means alarms must be wired directly into the building's wiring system and that no switches, plugs or mechanical disconnects are permitted between the main fuse box and the alarm.

The code also requires that smoke alarms be located in each sleeping room and centrally located on the ceiling or wall of the corridor or area giving access to sleeping rooms. This will give the earliest warning to the sleeping occupants in sleeping rooms.

In buildings with basements, an alarm is also required in the basement.

All smoke alarms, regardless of the location in the dwelling, must be audible in the sleeping areas. In a large home this can be difficult to accomplish. For this reason, alarms must be wired together so if one detects a fire, they all sound the alarm.

## SPECIFIC CODE REQUIREMENTS

### General

Dwelling units, congregate residences and hotel or lodging guests rooms that are used for sleeping purposes must be provided with smoke alarms. Alarms must be installed in accordance with the approved manufacturer's instructions.

### POWER SOURCE

In new construction, the required smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection. Smoke alarms shall be permitted to be battery operated when installed in buildings without commercial power or in buildings that undergo alterations, repairs or additions regulated by Section R317.1.1.

# ALARMS *continued*

## LOCATION WITHIN A DWELLING UNIT

### R317.1 Single- and multiple-station smoke alarms

Single- and multiple-station smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside of each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the dwelling, including basements and cellars, but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

When more than one smoke alarm is required to be installed within an individual dwelling unit the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

All smoke alarms shall be listed and installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72.

#### R317.1.1 Alterations, repairs or additions

When interior alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be provided with smoke alarms located as required for new dwellings; the smoke alarms shall be interconnected and hardwired.

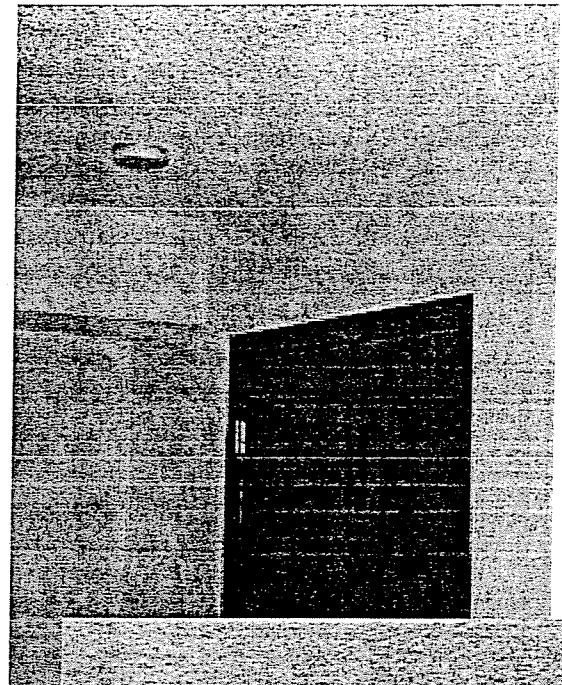
Exceptions:

1. Smoke alarms in existing areas shall not be required to be interconnected and hardwired where the alterations or repairs do not result in the removal of the interior wall or ceiling finishes exposing the structure, unless there is a crawl space or basement available which could provide access for hardwiring and interconnection without the removal of interior finishes.
2. Work on the exterior which does not require entry into the interior for inspection.

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### Follow the manufacturer's installation instructions.

Make sure everyone in the residence knows what the alarm sounds like and knows what to do in a case of a fire. A smoke detector is just one part of an emergency escape safety plan, especially if a fire occurs in the middle of the night and no lights are available to aid escape.



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Contact your local building code official regarding specific code and permit requirements in your municipality or if you have any questions regarding information presented in this brochure.