

Fire Safety Issues

Town Health Officer Training ~ August 2009



Department of Public Safety

DIVISION OF FIRE SAFETY

OFFICE OF THE STATE FIRE MARSHAL, STATE FIRE ACADEMY and the STATE HAZ-MAT TEAM

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OVERVIEW

- Facts about fire in Vermont
- Overview of the Division of Fire Safety
- State Laws & What is a Public Building
- Vt Fire and Building Safety Code
- Key Residential Fire Safety Issues
- Other Common Residential Issues
- Resources

Facts About Fire in Vermont

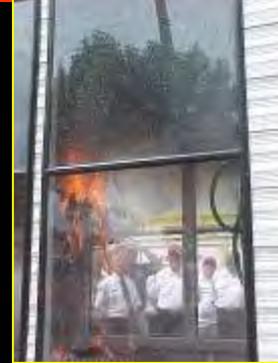
- Heating is the # 1 cause of structure fires in Vermont .
- Vermont is considered the most rural state of the United States.
- 70 % of Vermont's homes were built before 1978.
- in 2008 56% of all structure fires were in one-two family dwellings.
- In 2008 there were 8 fire deaths in Vermont.
- The average response time for a fire department in Vermont is 6 min
- Newer energy efficient homes built today have tighter construction which holds the heat so they burn faster and hotter.
- Today occupants have about 3 minutes to escape before being overcome by heat and smoke.

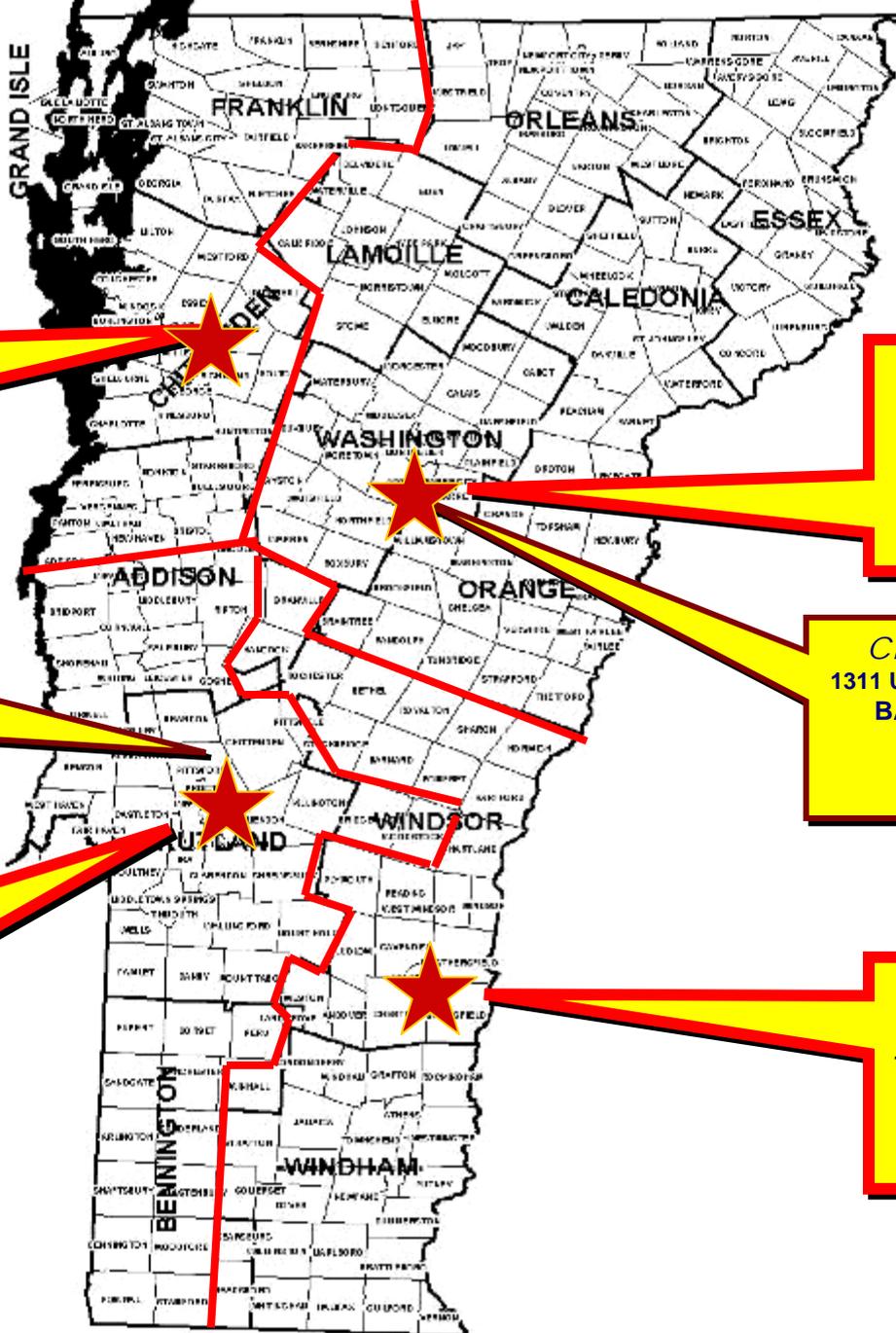
About the Division of Fire Safety



In 2004 the division of fire safety was created within the Department of Public Safety. It combined the efforts of Fire Prevention, Fire Service Training, Fire Prevention Education and Haz Mat response.

The multi-faceted mission of the Division of Fire Safety is to protect the public and the fire service with coordinated efforts in code enforcement, fire service training, public education, hazardous materials and incident investigation thereby reducing the loss of life and property due to fire and other emergencies in the State of Vermont.





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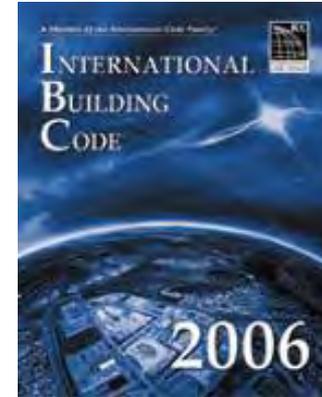
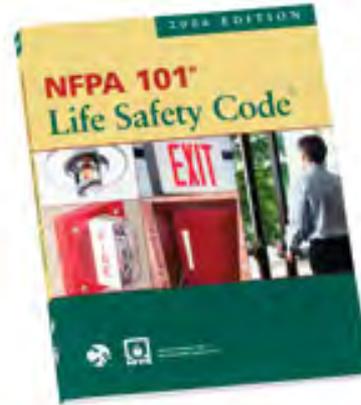
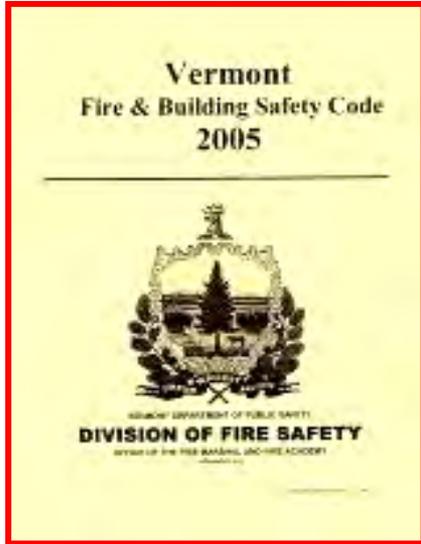


The Fire, Building and Life Safety codes are adopted under Vermont Law

TITLE 20. Chapter 173,

Subchapter 2 “Fire Safety Division”
Subchapter 3 “Fire Hazards and Dangerous Substances”

The Fire/Safety Codes are administered and enforced by the Commissioner of Public Safety and the assistant state fire marshals in the Division of Fire Safety



The division adopts nationally recognized safety standards, for the purpose of making rules regarding the safeguarding of people and property.

THERE ARE THREE MAIN DOCUMENTS WHICH ARE ADOPTED AS THE CODE IN VERMONT

***NFPA 1 Uniform Fire Code 2006 Edition
NFPA 101 Life Safety Code 2006 Edition
ICC International Building Code (IBC) 2006 Edition***

This is not a complete listing of all adopted and referenced Codes and Standards



FIRE SAFETY ISSUES



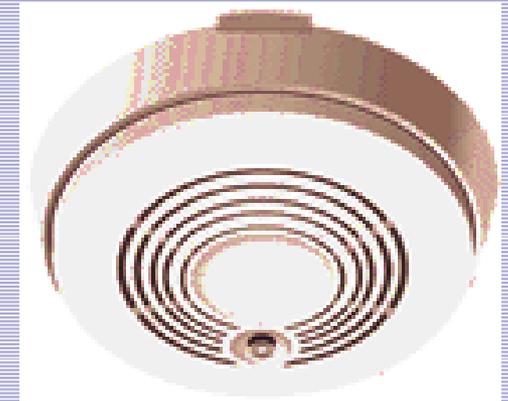
SMOKE & CARBON MONOXIDE ALARMS

SMOKE ALARMS (DETECTORS)

Vermont law has required smoke alarms to be installed in single-family dwellings since 1994.

Smoke alarms have been required to be installed in multi-family and rental dwellings for more than 30 years.

In spite of these requirements, and the general public's awareness about the value of smoke alarms, one common factor in most fatal fires is the lack of properly installed, and working, smoke alarms.



Smoke Alarm Regulations

Single Family Owner Occupied Residence

VSA Title 9 Chapter 77

NEW after January 1, 2009

- A person who constructs a single-family dwelling shall install photoelectric-only-type smoke detectors in the vicinity of any bedrooms and on each level of the dwelling, and one or more carbon monoxide detectors in the vicinity of any bedrooms in the dwelling in accordance with the manufacturer's instructions.
- In a dwelling provided with electrical power, detectors shall be powered by the electrical service in the building and by battery.

Smoke Alarm Regulations

Single Family Owner Occupied Residence

VSA Title 9 Chapter 77

EXISTING

- Any single-family dwelling **when transferred by sale or exchange** shall contain one or more photoelectric-only-type smoke detectors in the vicinity of any bedrooms and on each level of the dwelling installed in accordance with the manufacturer's instructions and one or more carbon monoxide detectors powered by the electrical service in the building **or** by battery, or by a combination of both, and installed in accordance with the manufacturer's instructions.
- A single-family dwelling constructed **before January 1, 1994** may contain smoke detectors powered by the electrical service in the building **or by** battery, or by a combination of both.
- In a single-family dwelling newly constructed **after January 1, 1994** that is provided with electrical power, smoke detectors **shall be** powered by the electrical service in the building **and by** battery.

Smoke Alarm Regulations

1 & 2 Family Rental dwellings, apartments, condos and multi family dwellings

NFPA 101 section 24.3.4.1 section 30.3.4.5.1

NEW

- **Power for Smoke Alarms:** All newly installed smoke alarms in one & two family dwellings, multiple unit dwellings, lodging or rooming houses, hotels and dormitories shall be directly wired to a non-dedicated electrical branch circuit for the building and by battery.
- **Photoelectric Smoke Alarms:** All newly installed smoke alarms in dwelling units, lodging or rooming houses, hotels and dormitories, shall be the photoelectric-only-type.
- **Smoke alarms shall be installed 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 in the basement
- **All smoke alarms within the dwelling unit must be interconnected.**

Smoke Alarm Regulations

1 & 2 Family Rental dwellings, apartments, condos and multi-family dwellings

NFPA 101 section 31.3.4.5

EXISTING

- **Power for Smoke Alarms: Hardwired into the buildings electric system OR by battery.**
- **Photoelectric Smoke Alarms: All newly installed smoke alarms shall be the photoelectric-only-type.**
- **Smoke alarms shall be installed 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 in the basement**
- **Electrically powered with battery backup and interconnection will be required if alarms are not being maintained.**

General Smoke Alarm Notes

1. Combination photoelectric smoke and CO alarms are acceptable. Ionization and photoelectric combinations are not.
2. Replacement of 1 smoke alarm of a like type shall not require the entire system in the dwelling unit to be upgraded.
3. All newly installed or replaced alarms are required to be photoelectric only type.
4. One and Two family dwellings used from transient lodging (6 -16 people) : smoke alarms shall be installed in every sleeping room, not required to be interconnected or powered by buildings electrical system where it has been demonstrated that testing and maintenance and battery replacement will take place.
5. Smoke alarms over 10 years old must be replaced in accordance with the manufacture's instructions.
6. Single Station Smoke alarms may be interconnected using a listed RF module.
7. One and Two family dwellings used as a family day care home (3-12 clients) shall include single station smoke alarms in each room used for sleeping.

SMOKE & CARBON MONOXIDE ALARMS

CARBON MONOXIDE ALARMS (DETECTORS)

Requirements for carbon monoxide, or CO, detectors (alarms) went into effect in 2005 for all buildings where people sleep.

Carbon monoxide is a gas that has no odor or color that is produced from the incomplete burning of fuel.

Carbon monoxide poisoning can mimic flu symptoms such as headaches, dizziness, nausea and fatigue. Higher levels of exposure result in disorientation, drowsiness, unconsciousness and death.

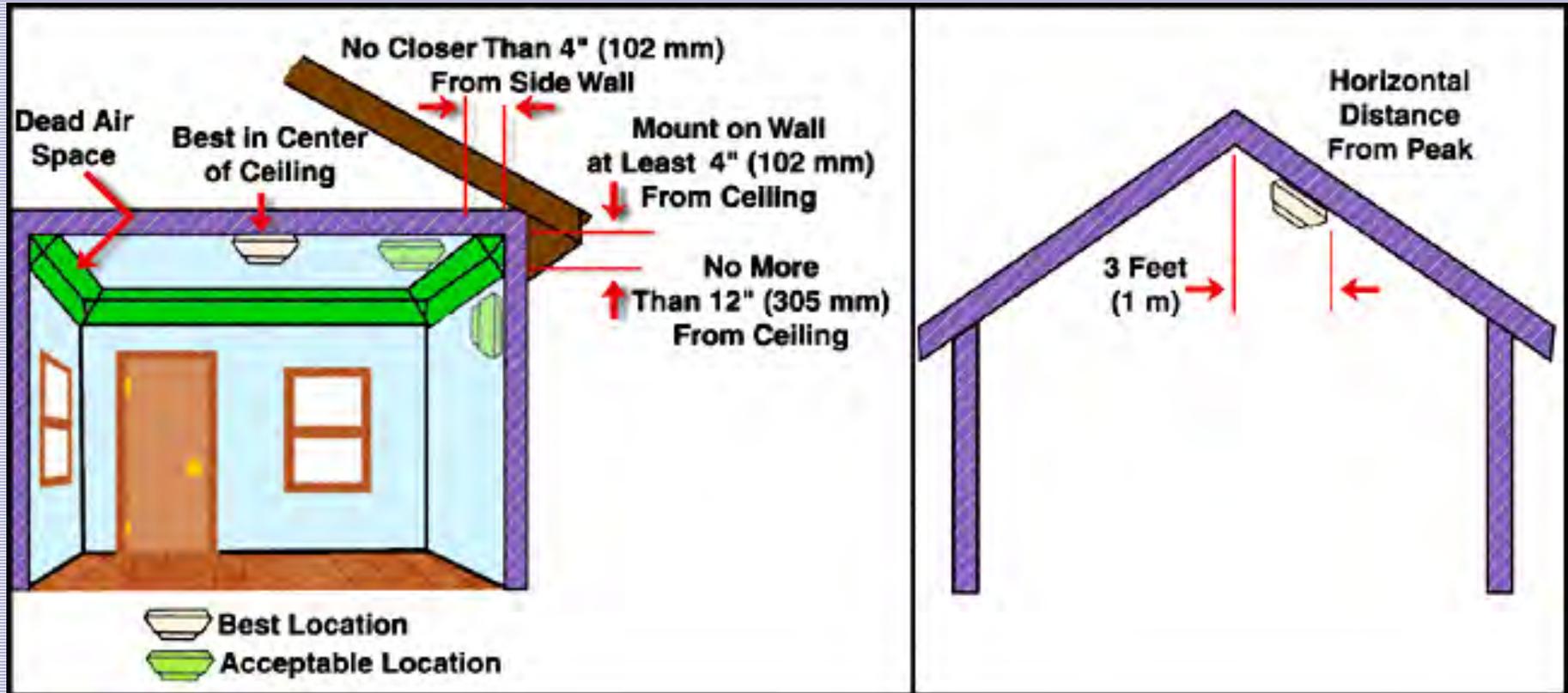
Common sources of carbon monoxide include heating appliances, water heaters, clothes dryers, emergency generators, temporary cooking appliances or space heaters and motor vehicles running in attached garages or adjacent to a building.



Carbon Monoxide Regulations

- **CO Detectors Required in all Buildings where People Sleep per Manufacturers Instructions 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.**
- **Single Family New Construction & Sale or Exchange**
- **Multi-family, & Lodging or Rooming facilities such as B & B Effective Oct. 22, 2005- Directly hardwired into the building's electrical circuit with battery back up. Oct. 1st)**
- **Detectors required only on floor levels where sleeping rooms are provided.**
- **Existing 1&2 family dwellings may use a “plug in” AC unit with batt backup.**

INSTALLATION



NOTE > CO alarms in Dwellings are required to be Installed in the Immediate Vicinity of any Bedrooms (no height requirements). see the Manufacturer's Instructions

2nd Means of Escape.

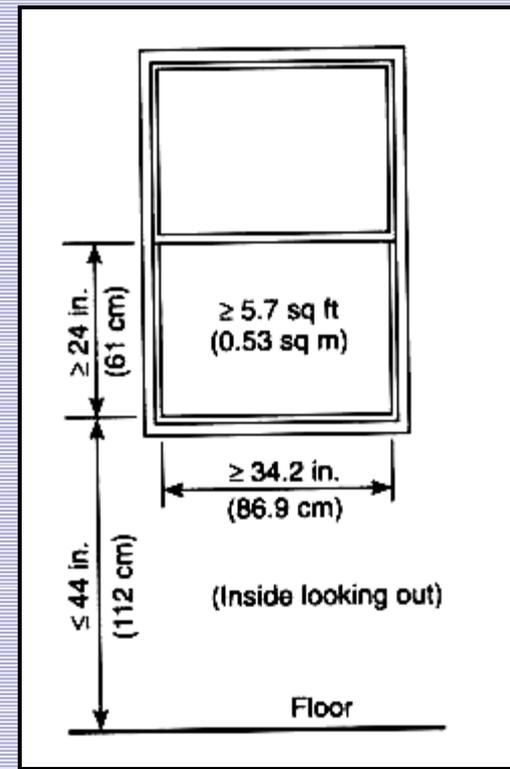
NFPA 101 24.2.2.3

The secondary means of escape shall be an outside window or door operable from the inside without the use of tools, keys, or special effort and shall provide a clear opening of not less than

5.7 sq. ft. for New Windows and no smaller than 5.0 sq. ft. for Existing Windows .

The width shall be not less than 20 in. (51 cm), and the height shall be not less than 24 in. (61 cm).

The bottom of the opening shall be not more than 44 in. (112 cm) above the floor.



Extension Cords.



NFPA 1 - 11.1.5.3.1-5

Extension cords shall be plugged directly into an approved receptacle, power tap, or multiplug adapter and shall, except for approved multiplug extension cords, serve only one portable appliance.

The ampacity of the extension cords shall not be less than the rated capacity of the portable appliance supplied by the cord.

The extension cords shall be maintained in good condition without splices, deterioration, or damage.

Extension cords and flexible cords shall not be affixed to structures; extend through walls, ceilings, or floors, or under doors or floor coverings; or be subject to environmental or physical damage.

STAIRS, GUARDS AND HANDRAILS

- Stairs are the one of the most commonly used building elements and is one of the most common places for accidents.
- Guards are required along the open sides of where there is a vertical drop of at least 30”.
- Handrails provide support for people using the stairs, and act as a feature that stair users can grab to stop a fall.



Requirements

Stairs – are required to be have no irregularities from one step to an adjacent step. detailed permissible rise and run requirements are in the codes

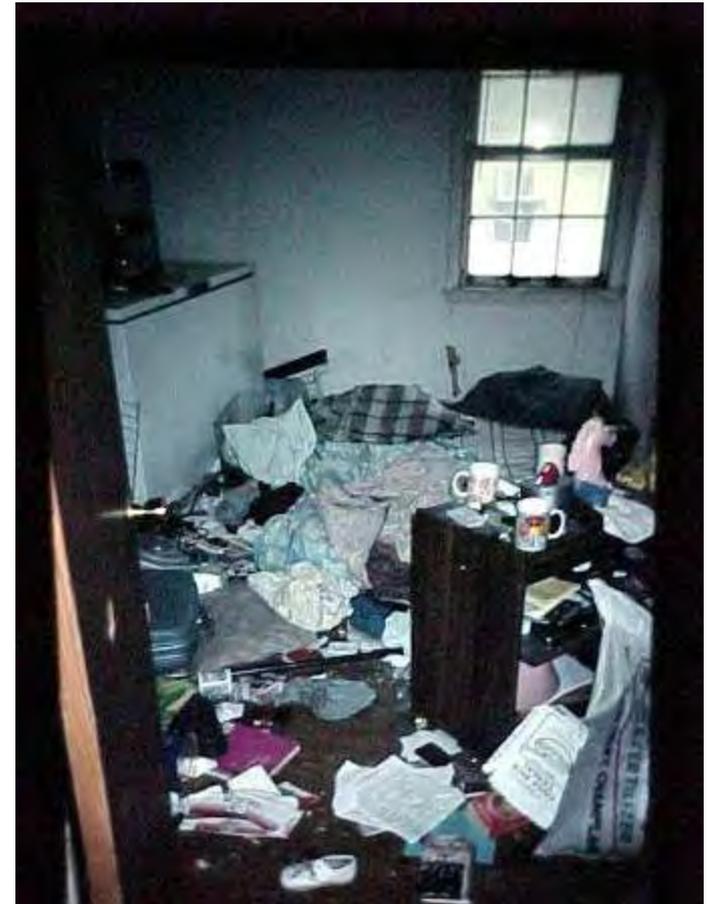
Guards – 42” high (new) Guards with in a dwelling unit not less than 36”
Guards on existing stairs not less than 30”

Handrails – New 34”-38” Existing 30”-38”

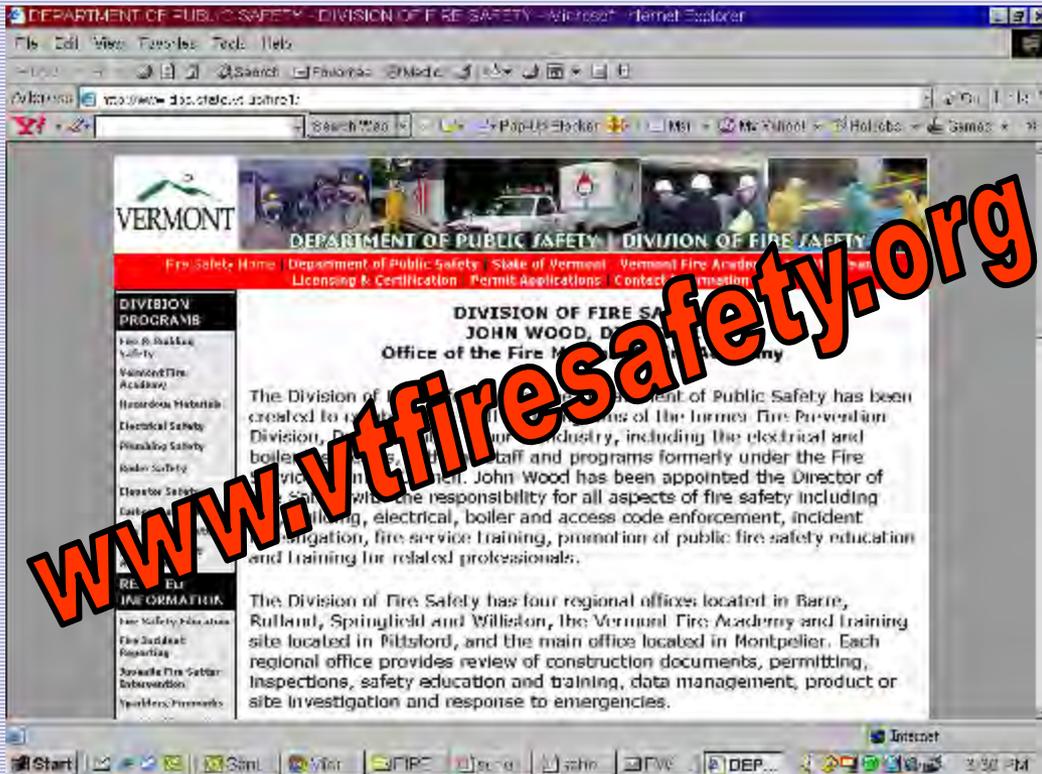
HOUSE KEEPING

NFPA 1:19.1.3

- No person owning or having control of any property shall allow any combustible waste material to accumulate in any area or in any manner that creates a fire hazard to life or property.
- Combustible waste or refuse shall be properly stored or disposed of to prevent unsafe conditions.



Resources For You



CODE INFO SHEETS

January 2006
State of Vermont ~ Department of Public Safety
Division of Fire Safety
Code Information Sheet



NFPA 1 SECTION 18 Fire Department Access Roads.

Required Access. Fire department access roads shall be provided in accordance with Section 18.2 for every facility, building, or portion of a building hereafter constructed or relocated. [18.2.2.1]

When there are not more than two one- and two-family dwellings or private garages, carports, sheds, and agricultural buildings, the requirements may be permitted to be modified. [18.2.2.1.1]

When access roads cannot be installed due to location on property, topography, waterways, nonnegotiable grades, or other similar conditions, the AHJ shall be authorized to require additional fire protection. [18.2.2.1.2]

Access to Building. A fire department access road shall extend to within 50 ft (15 m) of a single exterior door providing access to the interior of the building. [18.2.2.2]

Additional Requirements.
Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 ft (46 m) from fire department access roads as measured by an approved route around the exterior of the building or facility. [18.2.2.3.1]

When buildings are protected with an approved automatic fire sprinkler system that is installed in accordance with NFPA 13, NFPA 13B, or NFPA 13R, the distance shall be permitted to be increased to 450 ft (137 m). [18.2.2.3.2]

Multiple Access Roads. More than one fire department access road shall be provided when it is determined by the AHJ that access by a single road could be impaired by vehicle congestion, condition of terrain, climatic conditions, or other factors that could limit access. [18.2.2.4]

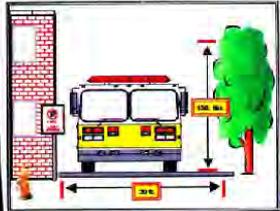
Dimensions.
Fire department access roads shall have an unobstructed width of not less than 20 ft (6.1 m) and an unobstructed vertical clearance of not less than 13 ft 6 in. (4.1 m). [18.2.2.5.1.1]

Vertical clearances may be reduced, provided such reduction does not impair access by fire apparatus, and approved signs are installed and maintained indicating the established vertical clearance when approved. [18.2.2.5.1.2]

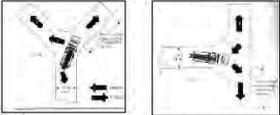
Vertical clearances or widths shall be increased when vertical clearances or widths are not adequate to accommodate fire apparatus. [18.2.2.5.1.3]

Surface. Fire department access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be provided with a surface suitable for all-weather driving capabilities. [18.2.2.5.2]

Turning Radius. The turning radius of a fire department access road shall be as approved by the AHJ. [18.2.2.5.3]



Dead Ends. Dead-end fire department access roads in excess of 150 ft (46 m) in length shall be provided with approved provisions for the turning around of fire apparatus. [18.2.2.5.4]



Grade.
The gradient for a fire department access road shall not exceed the maximum approved. [18.2.2.5.6.1]

The angle of approach and departure for any means of fire department access shall not exceed 1 ft drop in 20 ft (0.3 m drop in 6 m), and the design limitations of the fire apparatus of the fire department shall be subject to approval by the AHJ. [18.2.2.5.6.2]

Marking of Fire Apparatus Access Road. Where provided by the AHJ, approved signs or other approved notices shall be required and maintained for fire department access roads to identify such roads, or prohibit the obstruction thereof, or both. [18.2.2.5.7]

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www.nfpa.org

www.homesafetycouncil.org

www.firesafety.gov

www.cpssc.gov

Questions ?



Thank You

Have a Fire Safe Day