On May 29th, 2008 the Vermont Governor signed the following.

S.226

AN ACT RELATING TO REQUIRING THE INSTALLATION OF PHOTOELECTRIC-ONLY-TYPE SMOKE DETECTORS

It is hereby enacted by the General Assembly of the State of Vermont:

Sec. 1. FINDINGS; INTENT

(a) The general assembly finds:

(1) Public safety experts recognize that smoke detectors serve as a lifesaving early-warning device in residential properties, and thousands of individuals can attest that detectors have saved their lives.

(2) The general assembly has concurred with these public safety experts that smoke detectors belong in Vermonters' homes and has enacted chapter 77 of Title 9, requiring the installation of smoke detectors in newly constructed single-family homes and at the time of the sale or exchange of a single-family home.

(3) **Despite the acknowledged benefits of smoke detectors, the Boston Fire Department has conducted carefully developed and supervised research that confirms that smoke detectors based only on the ionization technology will not necessarily save as many lives as other types of smoke alarm technology that are similarly priced.**

(4) **The Boston Fire Department research documented that when confronted with a smoldering fire, a smoke detector using only ionization technology responds on average 30 minutes after photoelectric technology and often not until debilitating levels of smoke exist.**

(5) The ionization-only smoke detectors also tend to set off excessive nuisance alarms, two-to-eight times more often than photoelectric detectors, causing them to be disabled.

(6) **The Boston Fire Department research documented that the vast majority of homes in Massachusetts is equipped with smoke detectors that use only ionization technology, and that 50 percent of the fatal fires in that state occur in buildings with working smoke detectors.**

(7) Since 1990, the state of Massachusetts has acknowledged the deficiencies of ionization-only smoke detectors by requiring that smoke detectors located near kitchens and bathrooms employ only photoelectric technology.

(8) Due to the extensive research that the Boston Fire Department developed, the city of Boston has petitioned the state legislature for the authority to place new severe restrictions on the use of ionization-only smoke detectors.

(9) Photoelectric-type smoke detectors are significantly more effective in providing earlier detection and warning than ionization-type smoke detectors in smoldering fires.

(10) Photoelectric-type smoke detectors provide earlier detection and warning than ionization-type smoke detectors in smoldering fires by tens of minutes. Ionization-type smoke detectors provide earlier detection and warning than photoelectric-type smoke

detectors in flaming fires by seconds or tens of seconds. Therefore, although this act requires photoelectric-only-type smoke detectors for the reasons set forth in these findings, the general assembly does not discourage the use of either battery operated/powered ionization type smoke detectors in addition to the photoelectric-only-type smoke detectors required by this act. In any event, combination smoke detection is not accepted in place of photoelectric-only-type detection.

(11) The tragic deaths of a mother and four children December 17, 2005 in Barre because of a smoldering fire prompted the Barre Fire Department to test the two kinds of smoke detectors and conclude that the tragedy could have been averted by the use of a photoelectric type.

(b) Therefore it is the intent of the general assembly to avoid these needless deaths by requiring the use of the photoelectric smoke detectors.

Sec. 2. 9 V.S.A. § 2882(a) and (b) are amended to read:

(a) A person who constructs a single-family dwelling shall install ~~one or more~~ 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.

(b) 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. In a single-family dwelling newly constructed after July 1, 2005 that is provided with electrical power, carbon monoxide detectors shall be powered by the electrical service in the building and by battery.

Sec. 3. 9 V.S.A. § 2883(a) and (b) are amended to read:

(a) The seller of a single-family dwelling, including one constructed for first occupancy, whether the transfer ~~be~~ is by sale or exchange, shall certify to the buyer at the closing of the transaction that the dwelling is provided with ~~one or more~~ photoelectric-only-type, smoke detectors and ~~one or more~~ carbon monoxide detectors in accordance with this chapter. This certification shall be signed and dated by the seller.

(b) If the buyer notifies the seller within ten days by certified mail from the date of conveyance of the dwelling that the dwelling lacks ~~a~~ any photoelectric-only-type, smoke

~~detector~~ detectors or ~~a~~ any carbon monoxide ~~detector~~ detectors or that ~~either~~ any detector is not operable, the seller shall comply with this chapter within ten days after notification.

Sec. 4. 20 V.S.A. § 2731(j) is added to read:

(j) Rules adopted under this section shall require that information, written, approved, and distributed by the commissioner, on the type, placement, and installation of photoelectric smoke detectors and carbon monoxide detectors be conspicuously posted in the retail sales area where the detectors are sold.

Sec. 5. EFFECTIVE DATE

(a) This act shall take effect upon passage.

(b) In Sec. 2 of this act, 9 V.S.A. § 2882(a) shall apply to persons newly constructing a single-family dwelling after **January 1, 2009.**

(c) Secs. 2(b) and 3 shall apply to transfers on or after **January 1, 2009**.

(d) The requirement in this act for the installation of "photoelectric-only-type" smoke detectors does not prohibit and does not discourage the additional use of separately powered ionization or photoelectric/ionization combination smoke detectors.

Smoke alarm failures prompt Vt. Senate bill

February 1, 2008
By Peter Hirschfeld Vermont Press Bureau

MONTPELIER – State lawmakers are increasingly concerned that the smoke alarms installed in about 90 percent of Vermont homes may not offer adequate protection against some fires.

Smoldering fires – slow-burning events commonly caused by electrical shortages or cigarettes dropped in a sofa – are responsible for about 35 percent of fire fatalities nationwide.

But ionization smoke alarms, the type installed in the vast majority of households, perform measurably worse than photoelectric alarms in smoldering fires.

In what has emerged as one of the surprise issues in the Statehouse this session, Vermont senators are considering a bill that would require the use of photoelectric smoke alarms in Vermont homes and businesses.

"I'm leaning toward photoelectric only, because the weight of the evidence strongly supports photoelectric alarms only," Sen. Vince Illuzzi, an Essex County Republican, said Tuesday.The issue arrived in Montpelier on the backs of Barre City firefighters. Their investigation into a fatal fire that killed four young children and a mother revealed shortcomings in ionization technology that allow smoldering fires to go undetected by conventional alarms. In that fire, firefighters said, three hardwired ionization alarms failed to activate before it was too late.

In several tests the photoelectric devices have proven far more effective at rousing sleeping occupants from smoke-filled homes.

"People are dying from this, and they're dying because they're not protected," Barre City Firefighter Matthew Cetin told legislators.

On Tuesday, representatives from two national fire safety organizations confirmed the superiority of photoelectric alarms in smoldering fires.

"Ionization alarms responded faster in our study to flaming fires, which produce smaller (smoke) particles," said John Drengenberg, manager of consumer affairs for Underwriter Laboratories, Inc. "Whereas photoelectric alarms responded faster to smoldering fires, those producing larger smoke particles."

Robert Duval, senior fire investigator for the National Fire Protection Association, said his organization, based on the 2007 U.L. study, has recommended, on an interim basis at least, that homeowners install both photoelectric and ionization alarms.

Both Drengenberg and Duval said that ionization alarms activate more quickly in flaming fires and that they continue to play a critical role in fire safety.

But the endorsement of photoelectric alarms by both safety organizations hasn't appeased the Boston firefighter largely responsible for bringing the issue to the fore in Vermont.

Joseph Fleming, deputy chief of the Boston Fire Department, has been studying smoke alarms for more than 20 years. Evidence proving the relative ineffectiveness of ionization detectors, he said, has existed for more than a decade. Undue influence by smoke alarm manufacturers, he said, led Underwriters Laboratory and the NFPA to suppress that information.

The 2007 "smoke characterization" study that prompted the NFPA to recommend photoelectric alarms, Fleming said, shouldn't have come as a surprise to either organization.

"This supposedly new information isn't new at all," Fleming said. "They've known about this since at least 1998, and right now they're just trying to cover their tracks."

Fleming said influence by manufacturers of ionization alarms compelled U.L. and the NFPA to disregard research suggesting photoelectric alarms are more effective than ionization alarms. Now, fearing liability, Fleming said, the safety organizations are standing by the effectiveness of ionization alarms, even though he believes photoelectric alarms supplant the need for ionization alarms entirely.

"Now they're going to say you need both, which they're doing to protect themselves and manufacturers against the liability claims they'll face from the thousands of people who have needlessly died in fires," Fleming said.

The ionization alarms perform only marginally better than photoelectric alarms in flaming fires, according to Fleming, and they are far more prone to "nuisance" alarms. Nuisance alarms – triggered by steam from a shower or smoke from burnt toast, for instance – lead people to disconnect smoke alarms and consequently increase their chances of dying in a fire.

"The combination ionization-photoelectric alarms will actually kill more people, because the ions are more likely to cause nuisance alarms, and people will just disconnect them," Fleming said. "If we go with all photoelectric, it's good for flaming fires, smoldering fires, and you don't get the nuisance alarms."

Illuzzi said he is compelled by the weight of Fleming's evidence.

"There is clearly a close relationship between manufacturers and Underwriters Laboratory," Illuzzi said. "There's a strong suggestion that U.L. and NFPA are concerned

about declaring ionization alarms faulty because it will open up product liability lawsuits against manufacturers."