# Fire Chiefs Presentation Notes

Fathers for Fire Safety

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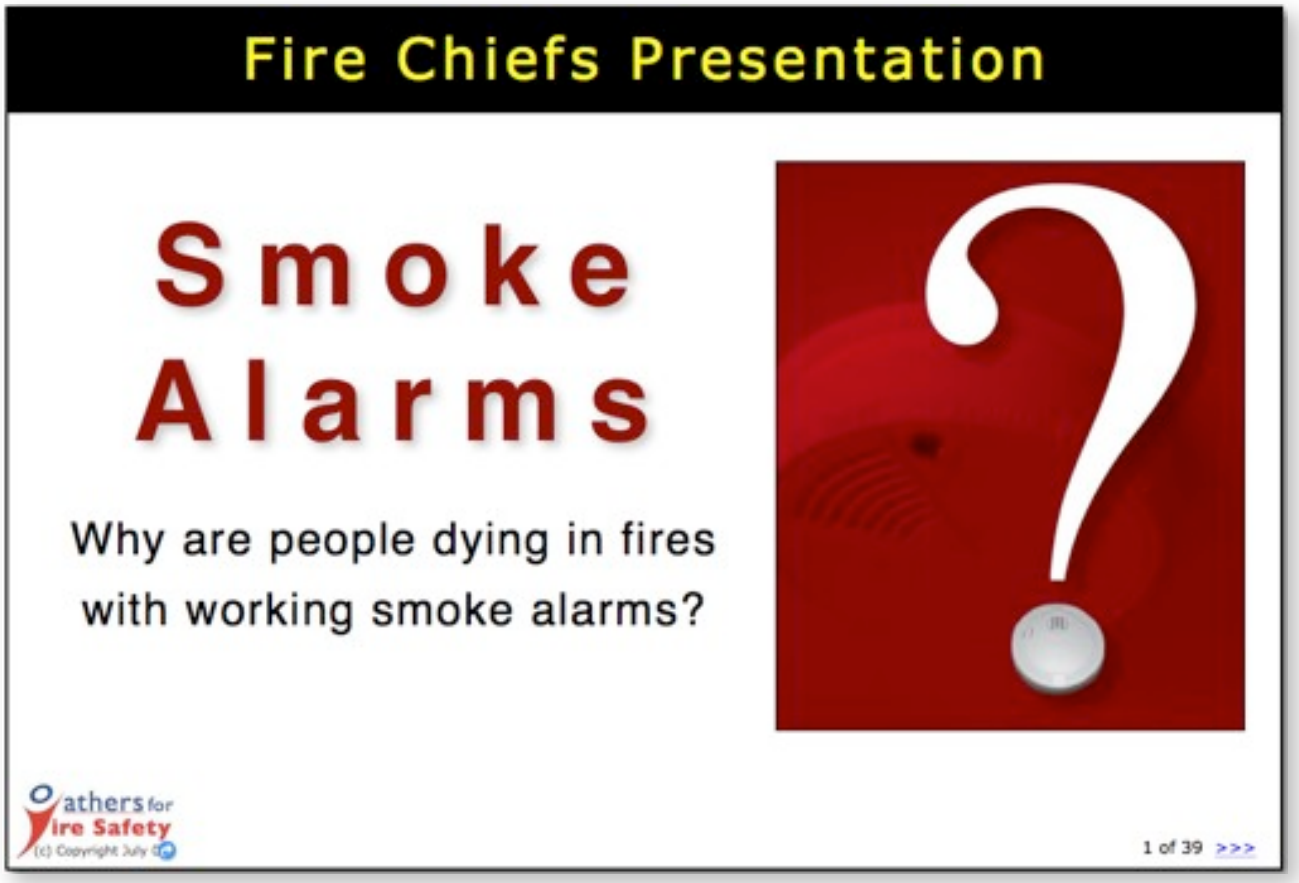
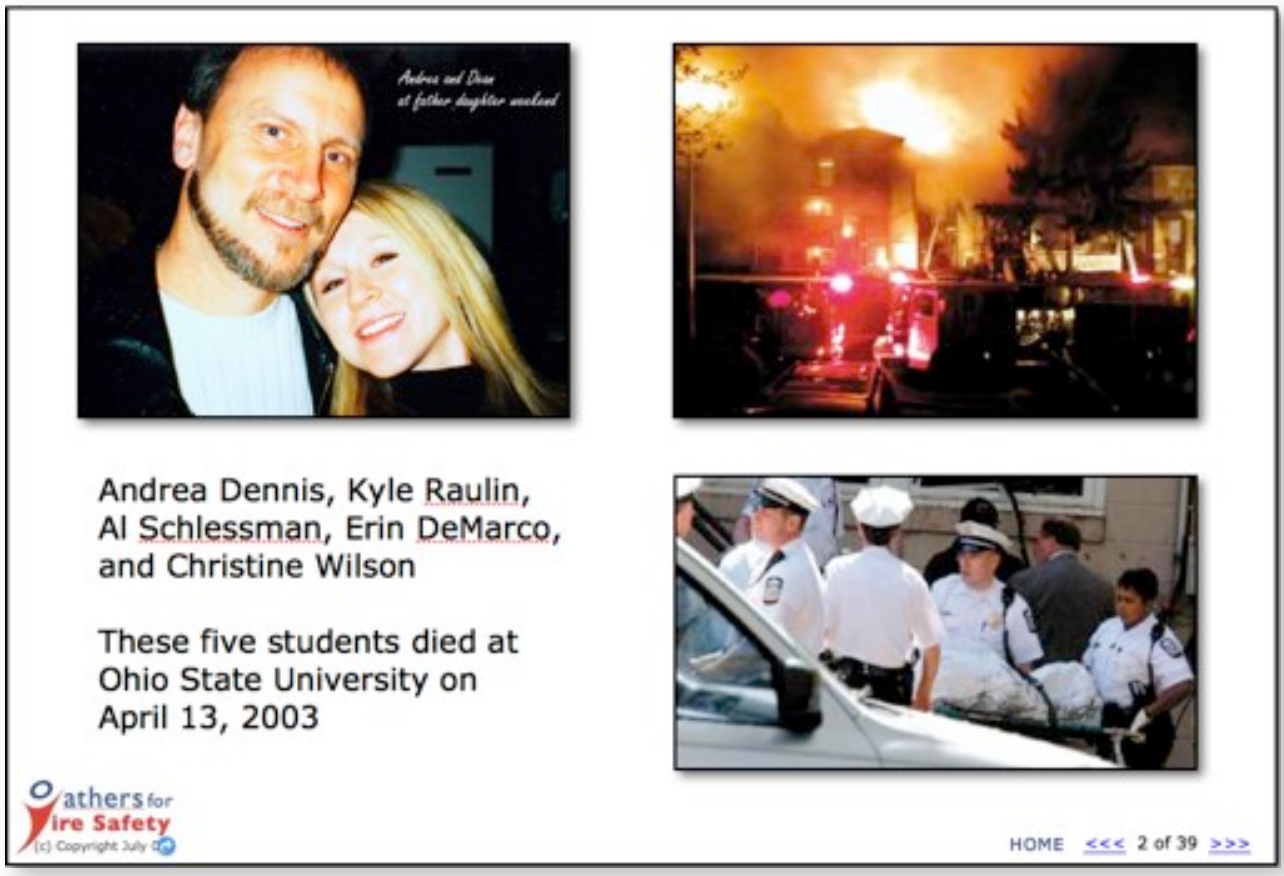


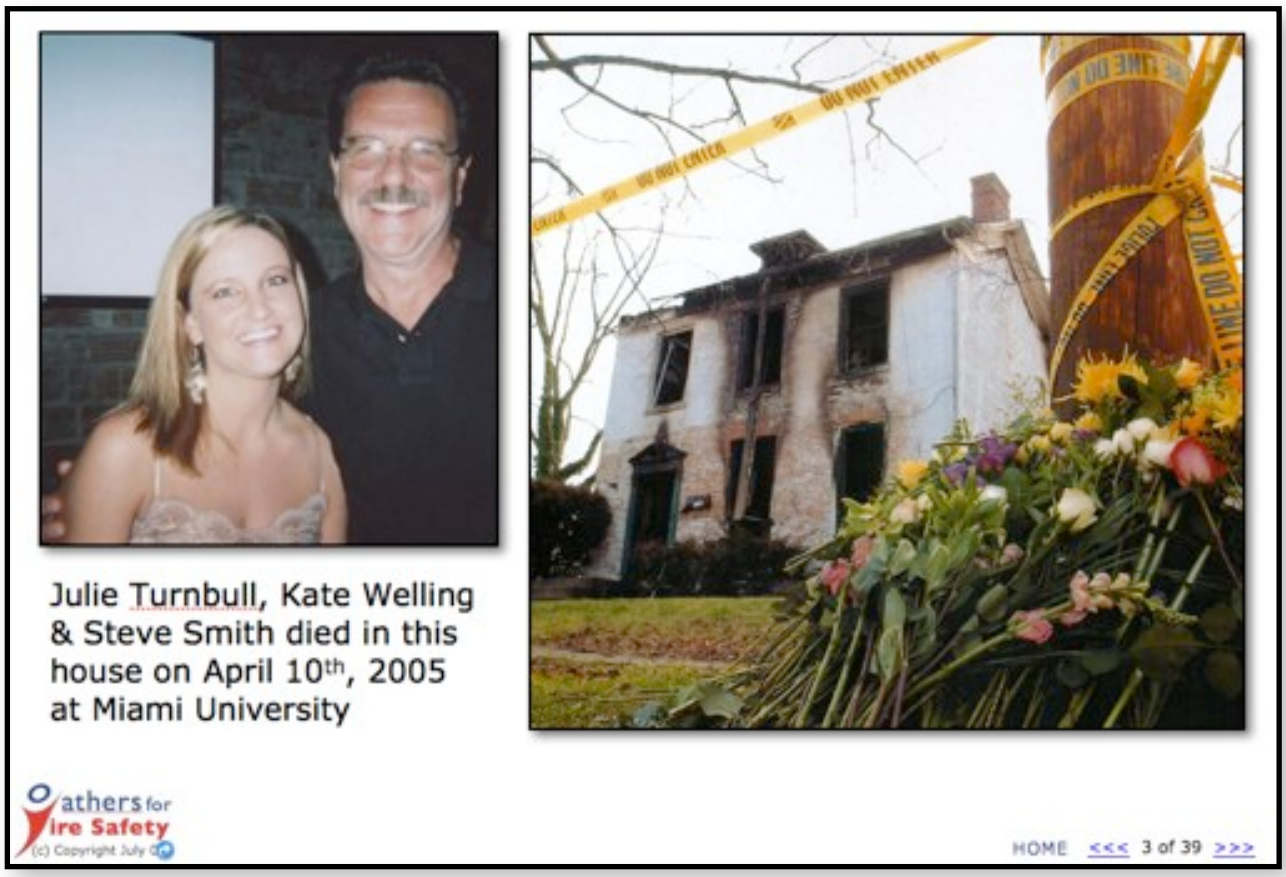

For many years, fire departments such as Boston's fire department, have been troubled by the fact that people have been dying in fires where there were fully operational smoke detectors. This phenomenon hasn't gone unnoticed by the media, as they too have documented this, and have even conducted tests to show the public.

The purpose of this presentation is to provide factual information to explain why people are dying with working smoke alarms, so we as leaders can educate the public and effect policy that will save lives. This presentation is meant to serve as a dialogue and at any time you want to ask a question please feel free. If this presentation is successful, you will gain a better understanding of the vast differences between ionization alarms and photoelectric alarms. We feel strongly that the wrong smoke alarm is prevalent in our residential structures and that is why so many people are dying in fires with working smoke detectors.



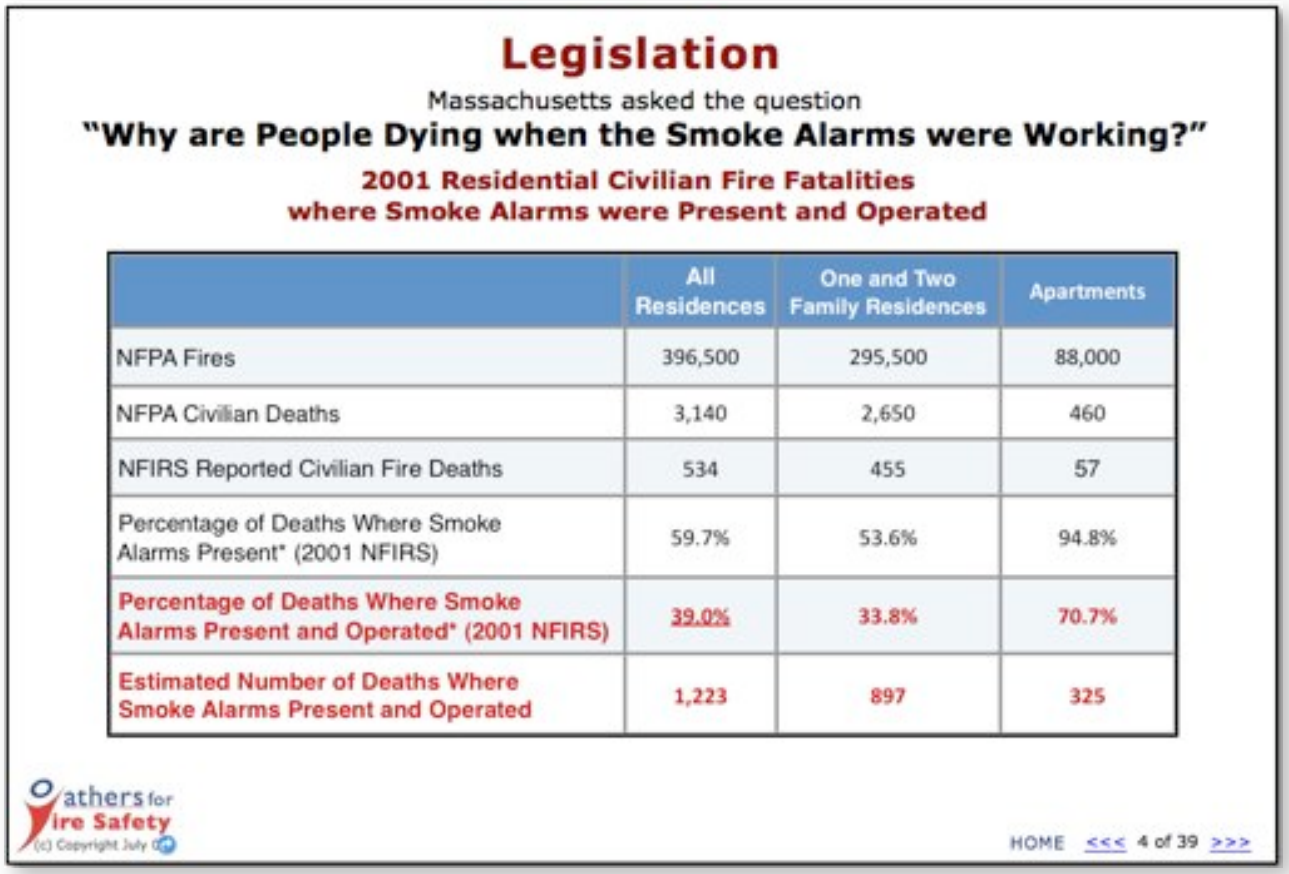

This is a picture of my daughter Andrea. You'll also notice on the right the house she died in. The house was equipped with ionization detectors, some worked and some had the batteries removed. Andrea and four other students died of smoke inhalation, not the heat.

Most people don't get burned to death, they die from smoke inhalation. The smoke detector that would have detected the smoke first would have possibly given the students a chance. We'll talk about why batteries get removed from ionization detectors later.




Pictured here is Julie Turnbull with Doug her Dad (Doug is the other 'Fathers for Fire Safety' Founder). Also pictured, is the house Julie and two other students died in. You'll notice that the house had been filled with heavy smoke. There were 17 working ionization smoke alarms in this house. The problem was they didn't alarm for nearly an hour after the smoldering fire tarted.

When they alarmed three of the students were already dead. The student that survived woke up in a daze in just enough time to jump from the second floor window.



## Legislation

Massachusetts asked the question

**"Why are People Dying when the Smoke Alarms were Working?"**

**2001 Residential Civilian Fire Fatalities where Smoke Alarms were Present and Operated**

| | All Residences | One and Two Family Residences | Apartments |
|---|---|---|---|
| NFPA Fires | 396,500 | 295,500 | 88,000 |
| NFPA Civilian Deaths | 3,140 | 2,650 | 460 |
| NFIRS Reported Civilian Fire Deaths | 534 | 455 | 57 |
| Percentage of Deaths Where Smoke Alarms Present* (2001 NFIRS) | 59.7% | 53.6% | 94.8% |
| Percentage of Deaths Where Smoke Alarms Present and Operated* (2001 NFIRS) | 39.0% | 33.8% | 70.7% |
| Estimated Number of Deaths Where Smoke Alarms Present and Operated | 1,223 | 897 | 325 |

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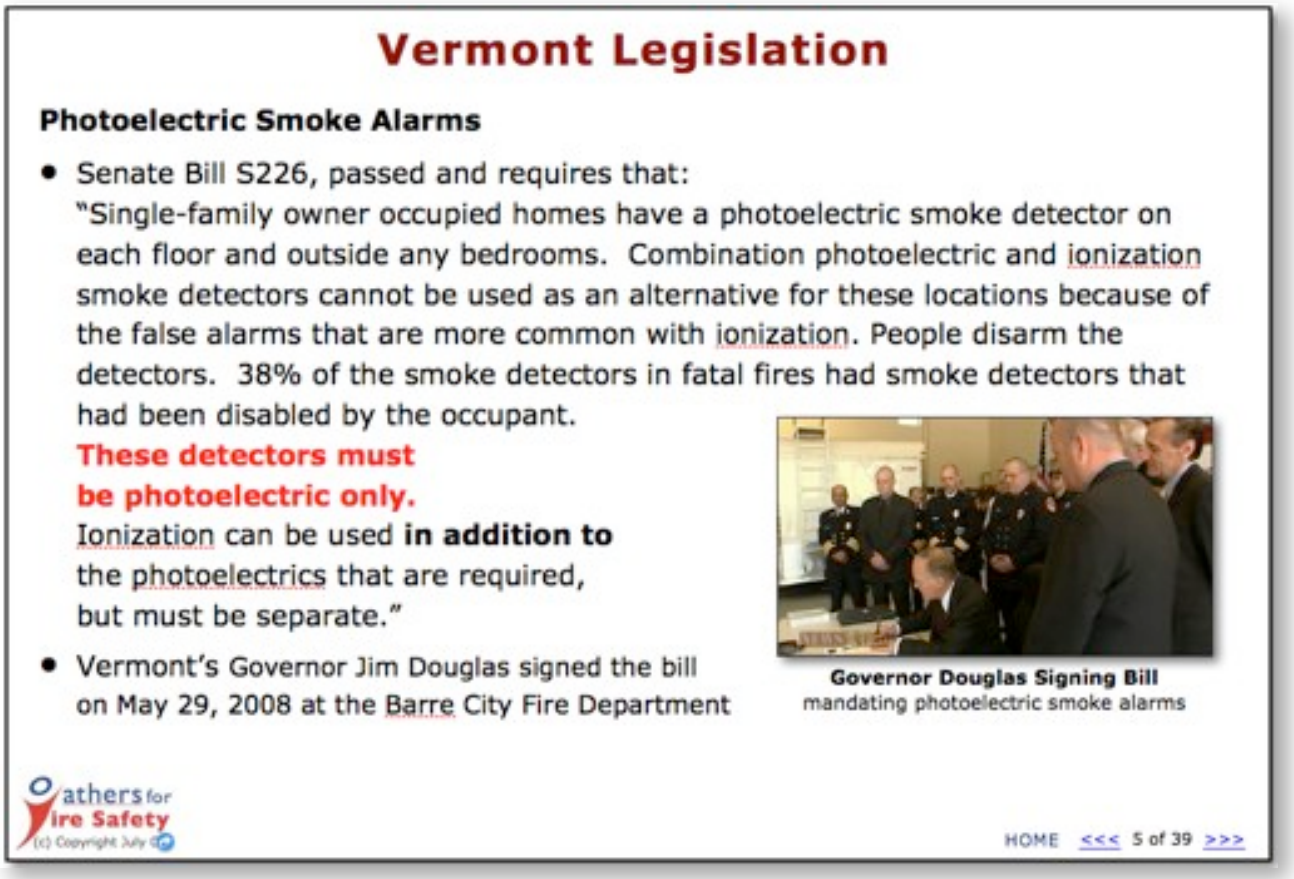
Massachusetts asked, "Why are people dying when smoke alarms are working?" This slide is put out by the NFPA (National Fire Protection Association). These important public information statistics show that in residential fire fatalities nearly 60% of the residents had a smoke alarm present and they operated in almost 40% of the deaths. Keep in mind that an overwhelming 90 plus % of these detectors in residential building are ionization alarms.

You probably know that almost 100% of commercial property is protected with photoelectric detectors.




Vermont asked the same question as Massachusetts after a tragedy occurred that involved relatives of a local fire chief. You will see how they rallied to change the legislation in Vermont after the tragedy.

The fire took the lives of a mother and four children. The house was well equipped with ionization detectors that didn't sound in time to save the family. The fire officials instinctively knew the alarms failed the family and you are about to see a film on what they did to inform the public. First, let's look at how Vermont's Fire Smoke Alarm laws were changed. (Read slide and point out that all smoke alarms required must be Photoelectric).


Show WTHR's 'Aquarium Test' film.

Discussion Time.

Point out that it is informed Fire Officials that are educating the public and mention they can come back and watch the UL film, on the Internet, later at their own leisure.

BRK First Alert for what matters most.

**To: Local Fire Service Administration**
**From: First Alert**
**Date: July 17, 2008**
**Re: Photoelectric-Specific Legislation**

The Vermont State Legislature recently approved Senate Bill 226 requiring photoelectric-type smoke alarms to be installed in new and existing single-family homes. This bill was signed by Governor Jim Douglas on Thursday May 29, 2008 for passage into law. Massachusetts already abides by a state law that mandates the usage of photoelectric smoke alarms near specified rooms. Similar legislation is pending in Tennessee House Bill 2528 and Senate Bill 2600. Smoke sensing technology type policy discussions are also being discussed in Indiana, Iowa, Ohio, Utah, and California.

Clearly there is a growing consensus within state legislatures as well as the fire service community that favors photoelectric technology. First Alert has played a crucial role in a tremendous industry effort to inform consumers on the importance of the home safety technologies; and more specifically the differences between smoke sensing technologies. In light of recent studies and ongoing industry-performed field research regarding the comparison of photoelectric and ionization smoke alarms, First Alert is offering the following two scientifically substantiated determinations:

1 of 2 . . .

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Next we will see a slide of how the major companies are reacting.
You first need to be aware that these companies are trying to duck major liabilities. These companies have lost major court cases such as the Hackert case and the Mercer case in which millions were awarded to the plantif's and the judgments stated that their products (ionization alarms) failed to protect the victims and the companies had reasonable knowledge that they would fail to protect. Were you aware of the Class Action Law Suit against the four largest ionization smoke alarm manufacturers?

These companies can not come out and state that the 90 plus % of ionization detectors in homes need to move towards photoelectric because of liability issues. Instead they are sending this letter out to anyone that is promoting photoelectric alarms. Note that they are in essence take the burden off fire officials by stating that they are tired of ionization detectors becoming disabled due to their high nuisance alarm rate.

I then tell my story of how I called First Alert when I ordered a box of photoelectric alarms and note they stated on the outside of the packaging "Reduces Kitchen Nuisance Alarms." I called BRK and asked, "Where in my house should I move my ionization alarm instead of using a photoelectric?" They told me "Placement of detector instructions is inside the packaging." I told them it stated the same placement inside the packaging for the ionization and the photoelectric, so "Where is a better place to mount the ionization detector?"

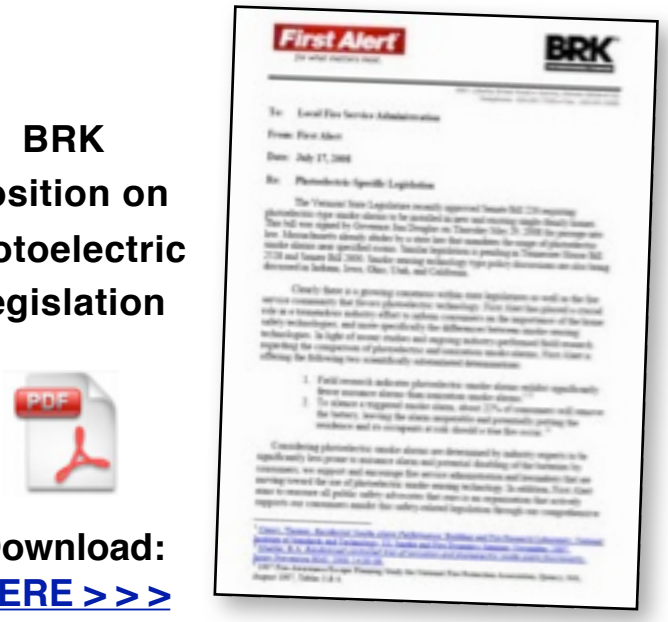
continued . . .

Continued . . .

They told me they couldn't answer that question and I would have to put it in writing. After a week of calling, emailing my question of "Where is a better place in my house to place an ionization alarm over a photoelectric?" they finally said,

"Mr. Dennis you know we are not going to answer that question and we know who you are, you you are one of those guys in Ohio that's trying to change the legislation. We'll send you out a letter of support." (I had been transferred to three departments in one week by the time BRK came clean!)

**BRK Position on Photoelectric Legislation**

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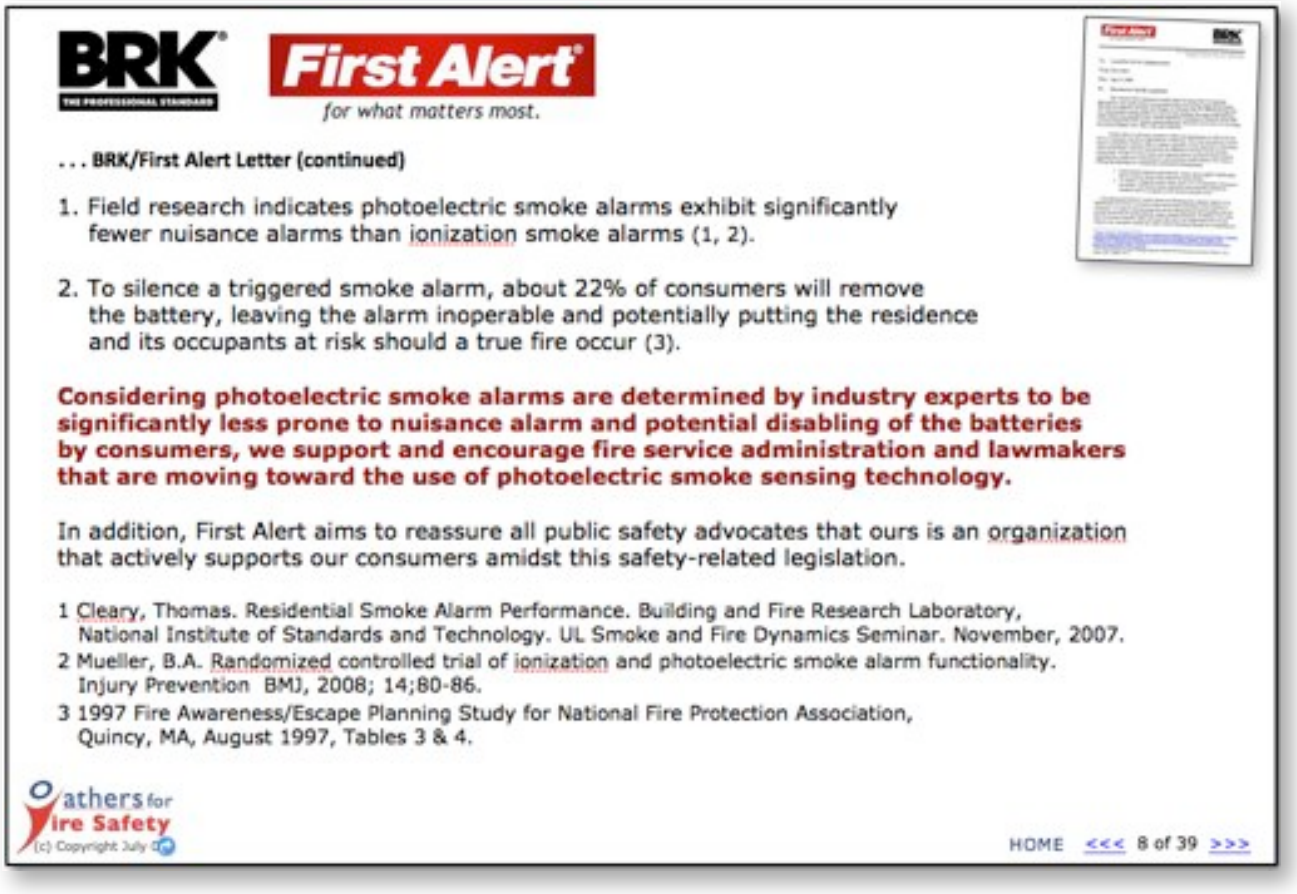
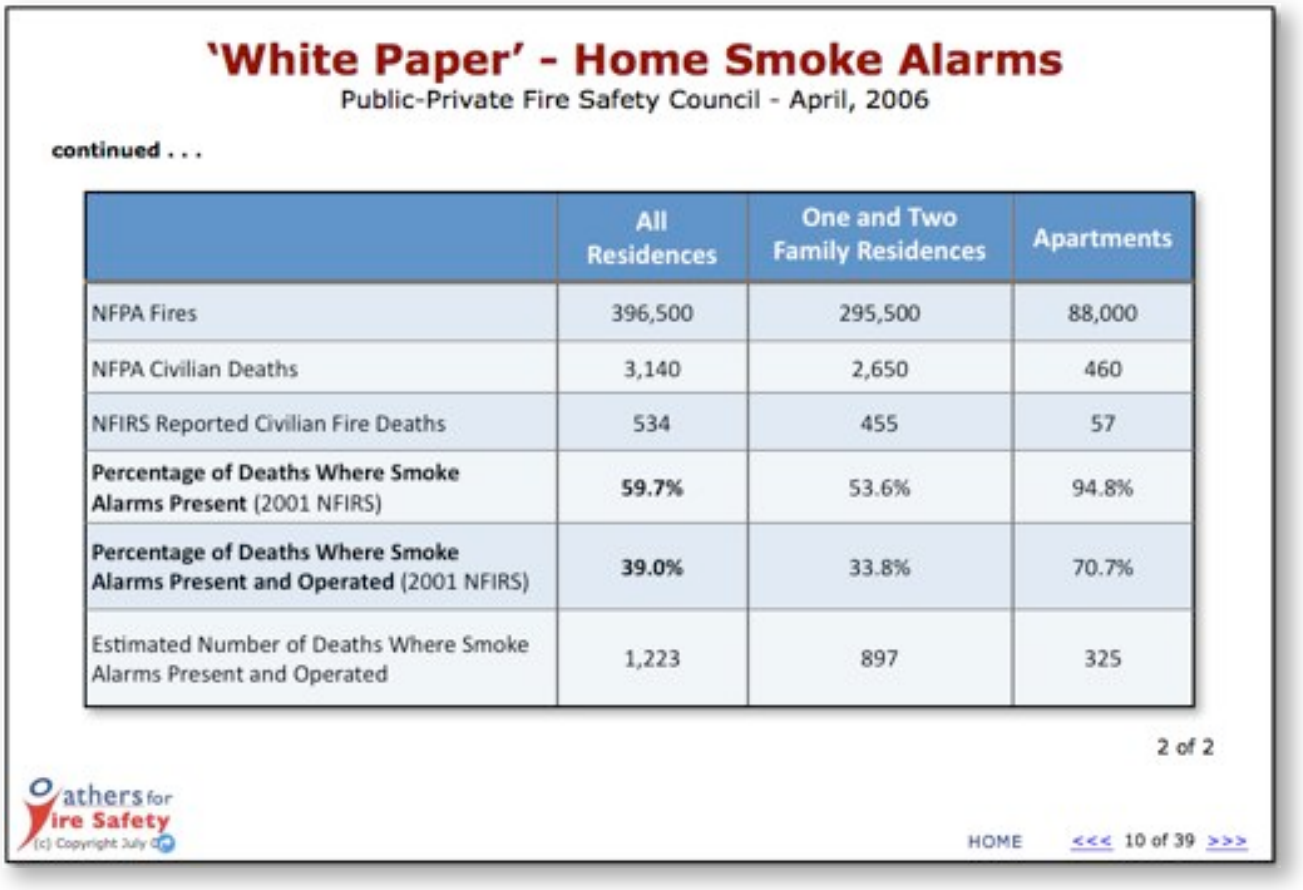



Second page of BRK/First Alert letter.

Point out content of BRK's letter.


The “White Paper” report is very important because it is a report of every public and private fire organizations efforts to objectively look at this important topic.

It fact one of the earlier slides you saw was included in this report. Let’s look at some of their agreed to findings.



## 'White Paper' - Home Smoke Alarms

Public-Private Fire Safety Council - April, 2006

**continued . . .**

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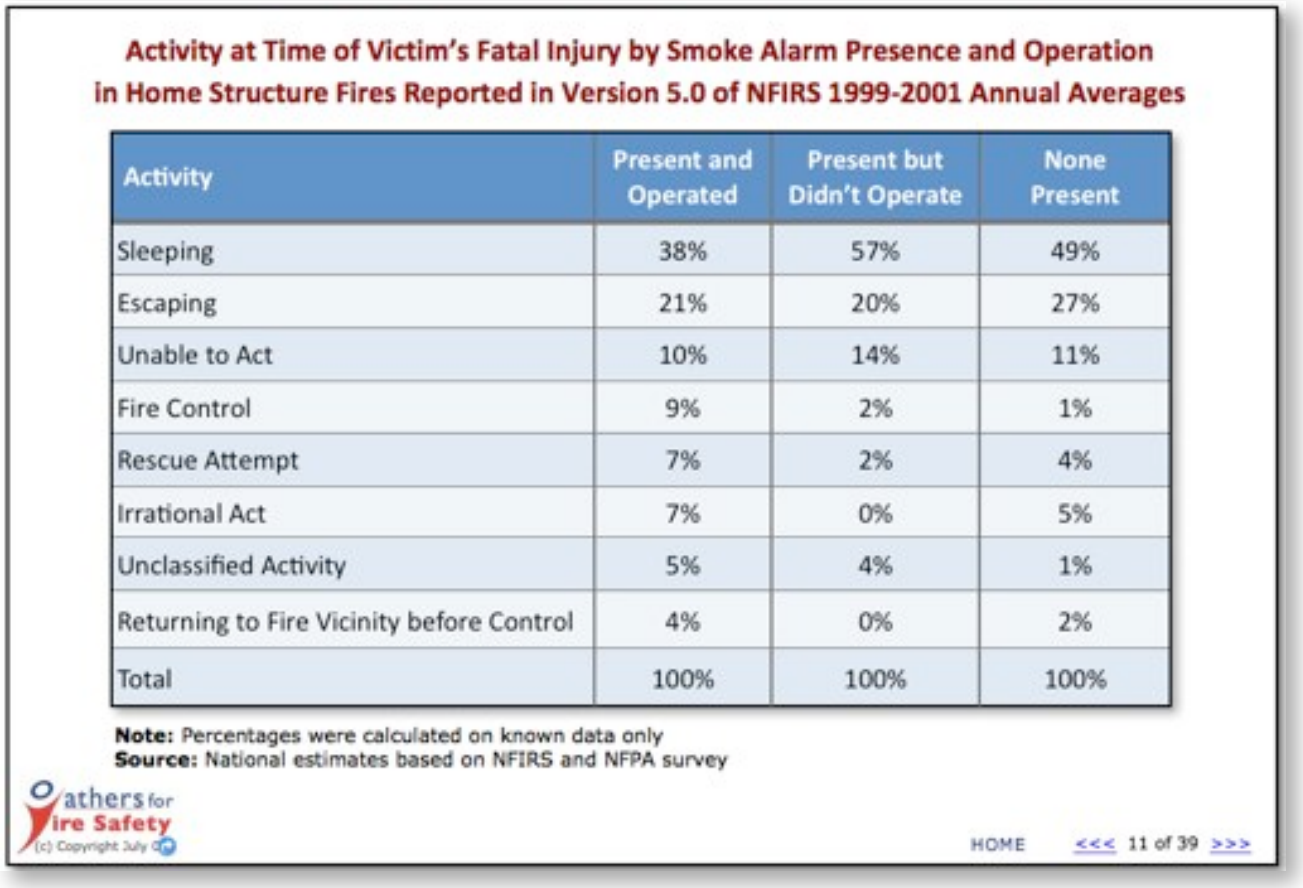
Again, in residential fire deaths, 60% of the people had smoke alarms (again, remember we are talking about ionization alarms) and 40% died anyway.

You'll soon learn that studies show that slightly more than 20% of all ionization alarms are disabled in under a year due to nuisance alarms.



**Activity at Time of Victim's Fatal Injury by Smoke Alarm Presence and Operation in Home Structure Fires Reported in Version 5.0 of NFIRS 1999-2001 Annual Averages**

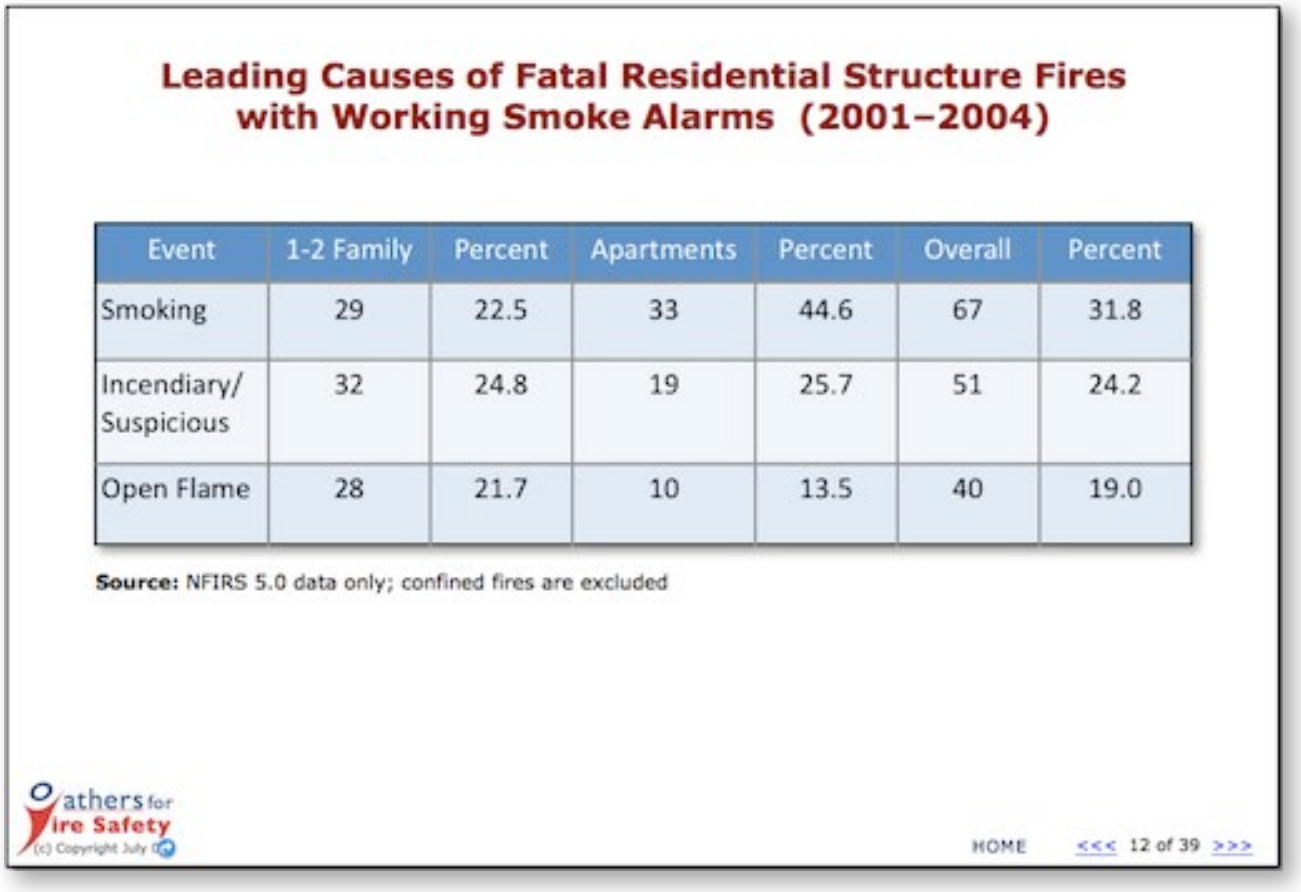
| Activity | Present and Operated | Present but Didn't Operate | None Present |
|---|---|---|---|
| Sleeping | 38% | 57% | 49% |
| Escaping | 21% | 20% | 27% |
| Unable to Act | 10% | 14% | 11% |
| Fire Control | 9% | 2% | 1% |
| Rescue Attempt | 7% | 2% | 4% |
| Irrational Act | 7% | 0% | 5% |
| Unclassified Activity | 5% | 4% | 1% |
| Returning to Fire Vicinity before Control | 4% | 0% | 2% |
| Total | 100% | 100% | 100% |

**Note:** Percentages were calculated on known data only
**Source:** National estimates based on NFIRS and NFPA survey



This slide will show that the majority of people die while sleeping (Andrea and Julie died sleeping from smoke inhalation). The second cause is trying to escape. Overwhelming people die from smoke inhalation.

As you know very few people die from getting burned alive. We should be able to reason that sometimes people are intimate with the fire and no smoke alarm can protect them. When we need a smoke detector the most is when we are sleeping.



## Leading Causes of Fatal Residential Structure Fires with Working Smoke Alarms (2001–2004)

| Event | 1-2 Family | Percent | Apartments | Percent | Overall | Percent |
|---|---|---|---|---|---|---|
| Smoking | 29 | 22.5 | 33 | 44.6 | 67 | 31.8 |
| Incendiary/ Suspicious | 32 | 24.8 | 19 | 25.7 | 51 | 24.2 |
| Open Flame | 28 | 21.7 | 10 | 13.5 | 40 | 19.0 |

**Source:** NFIRS 5.0 data only; confined fires are excluded



On a percentage basis, smoking is still the leading cause of death.

Remember that these are usually smoldering fires and photoelectric alarms have a significant advantage in these types of fires.

## NIST Smoke Detector History

**SMOKE DETECTORS**

**"The Greatest Success Story in Fire Safety in the Last Part of the 20th Century"**

according to the National Institute of Standards and Technology (NIST)

- ". . .US home usage of smoke alarms rose from less than 10% in 1975 to at least 95% in 2000, while the number of home fire deaths was cut nearly in half."
- "Thus the home smoke alarm is credited as the greatest success story in fire safety in the last part of the 20th century, because **it alone** represented a highly effective fire safety technology with leverage on most of the fire death problem that went from only token usage to nearly universal usage in a remarkably short time."

**Source:** NIST Technical Note 1455, 'Performance of Home Smoke Alarms', Executive Summary, page xix, para 1

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One of the most overused clichés is that smoke alarms have cut fire deaths in half. This claim is still promoted, and it has led to blind acceptance of the ionization detectors poor performance. Let's look at past NIST claims and then examine the facts.

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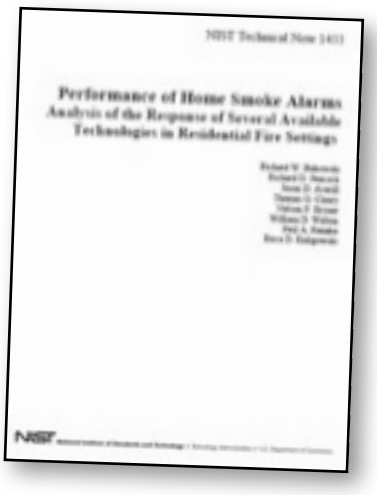
**NIST Performance on Home Smoke Alarms - July 2004**



**Download:** 14.7M
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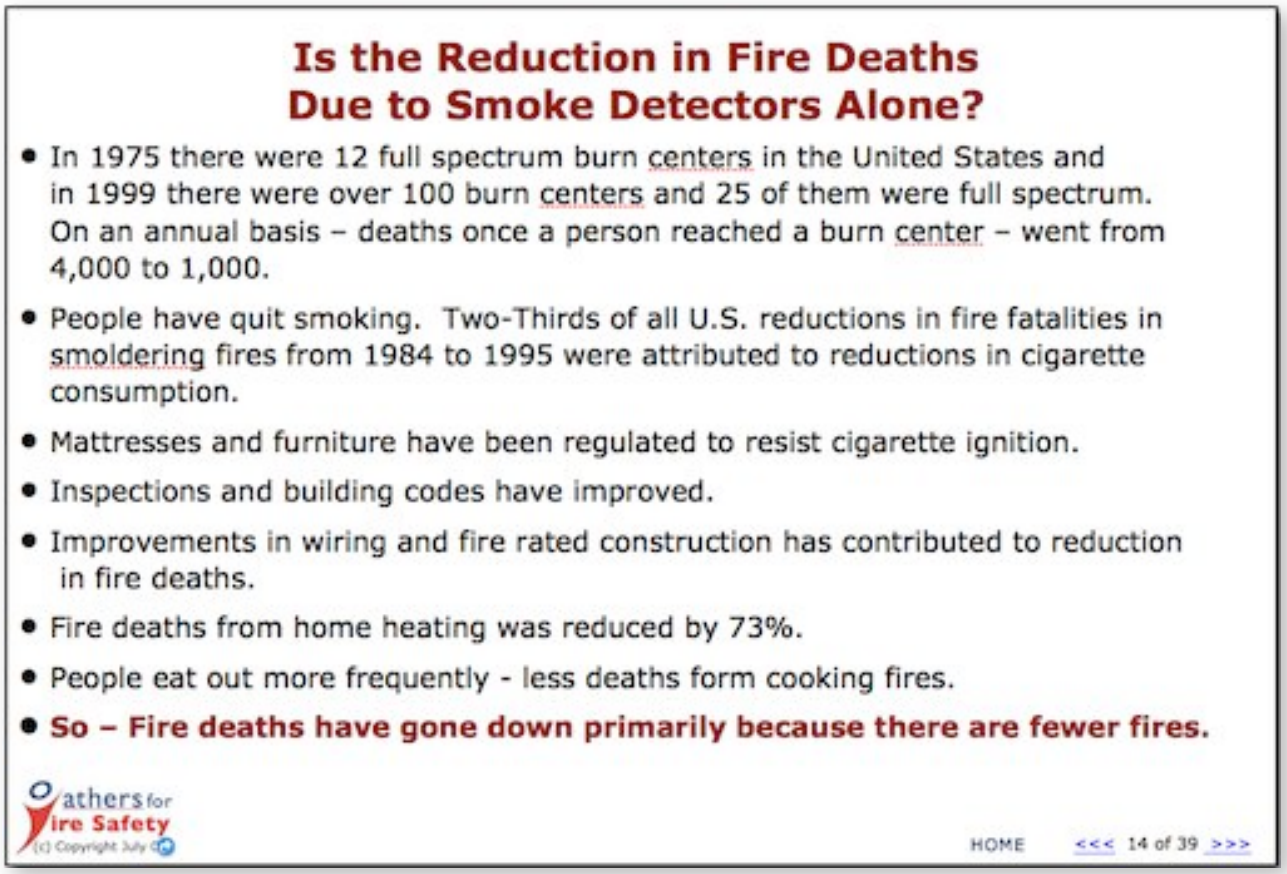
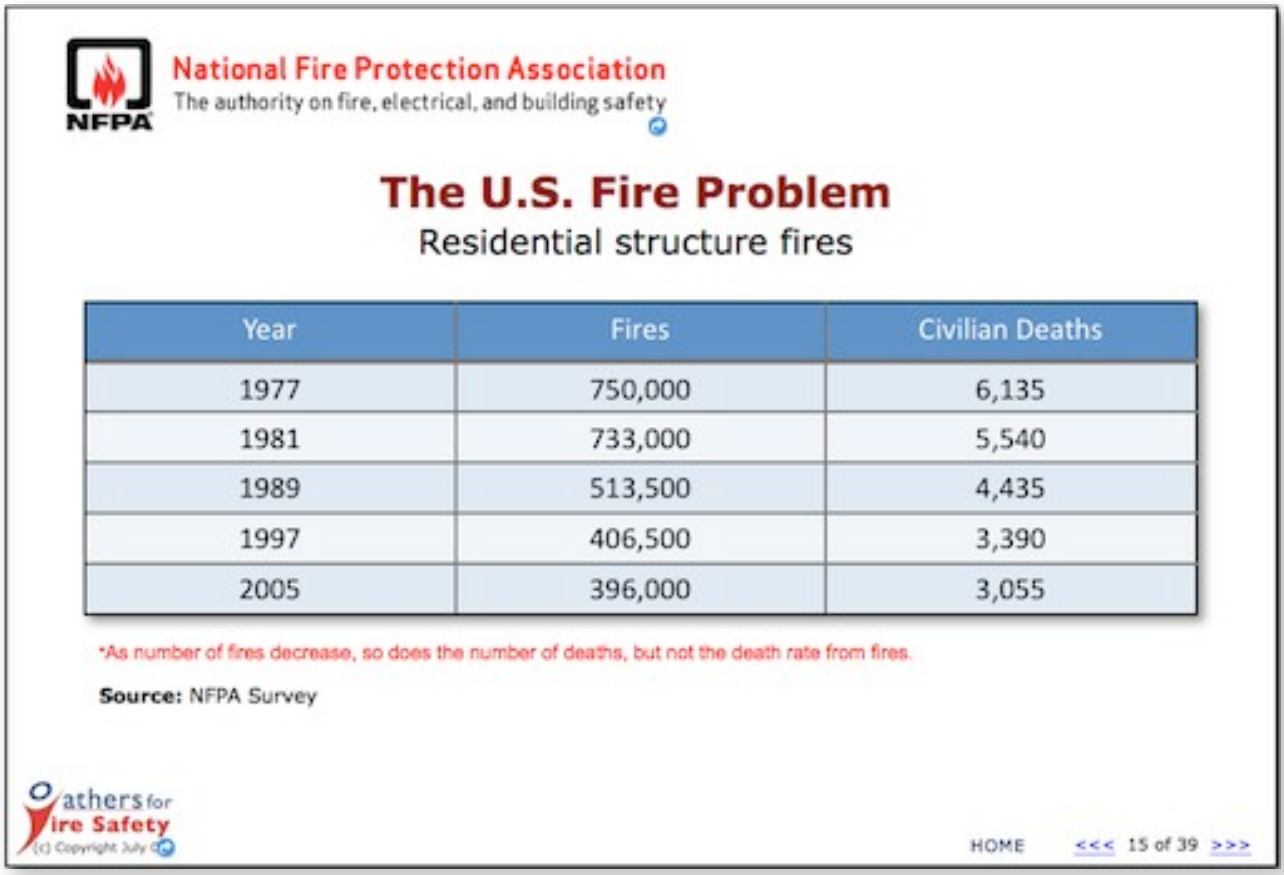



Here are some factors completely separate from smoke detectors usage and combined these factors have been the real contributors to the reduction in fire deaths over the past few decades.

**Not** the increase in smoke detectors.



National Fire Protection Association
The authority on fire, electrical, and building safety

## The U.S. Fire Problem

Residential structure fires

| Year | Fires | Civilian Deaths |
|---|---|---|
| 1977 | 750,000 | 6,135 |
| 1981 | 733,000 | 5,540 |
| 1989 | 513,500 | 4,435 |
| 1997 | 406,500 | 3,390 |
| 2005 | 396,000 | 3,055 |

*As number of fires decrease, so does the number of deaths, but not the death rate from fires.

**Source:** NFPA Survey

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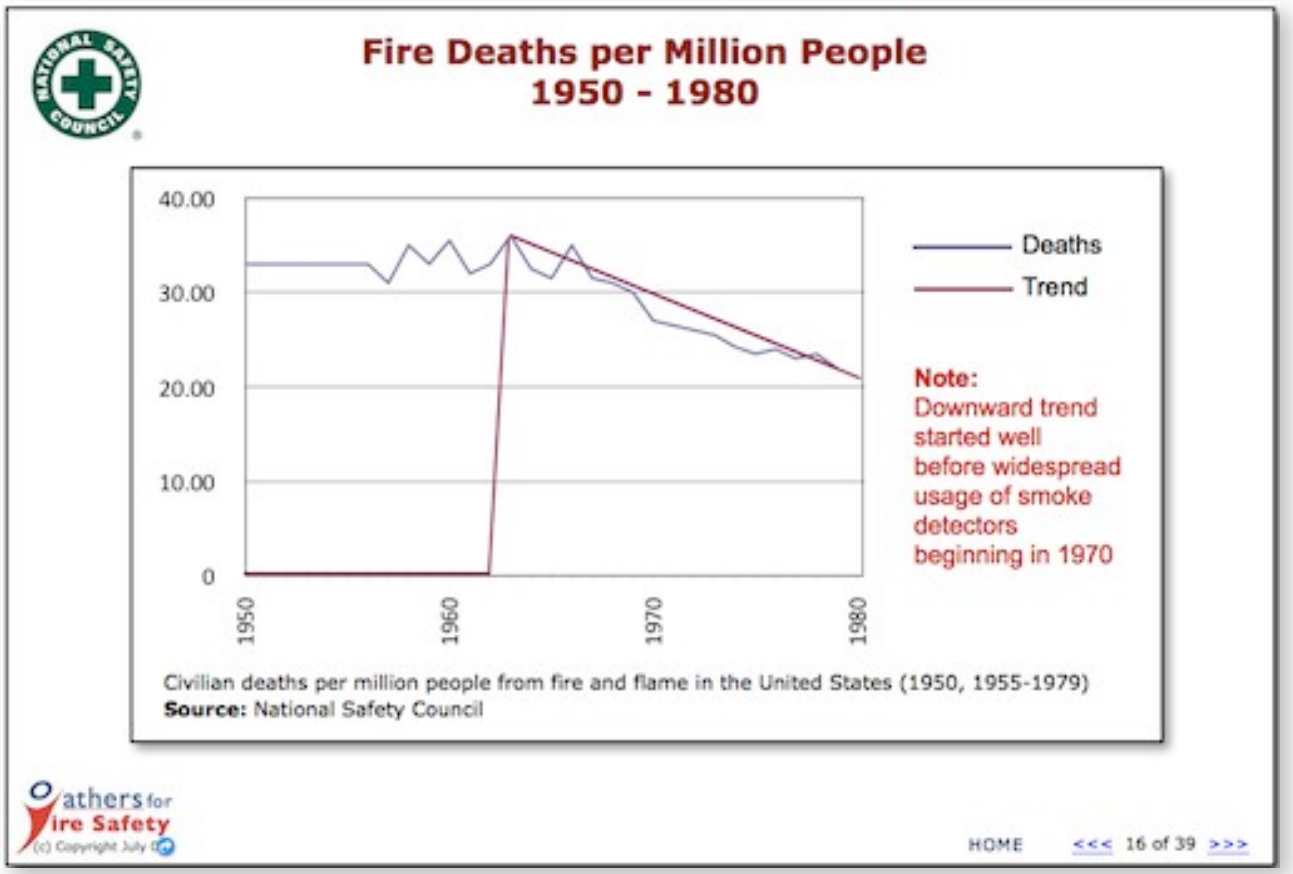
As you can see from these statistics offered by the NFPA, residential fire deaths have been cut in half over the past 30 years, only because fires have been cut in half.

The increased popularity of the ionization detector wasn't a valid factor.

Remember how these statistics get reported - after a fire department makes a run.

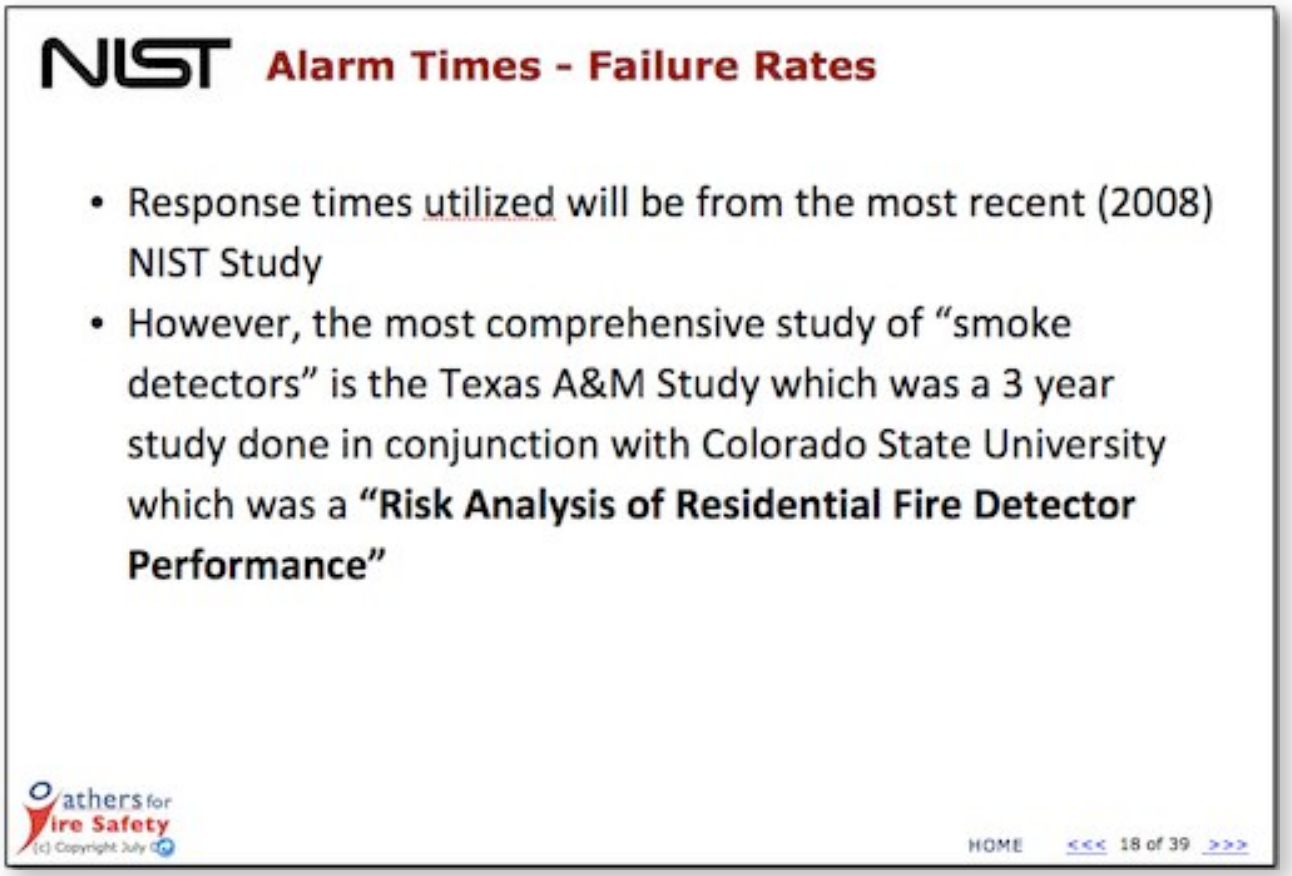



As you can see from this chart the downward slope of decreased fire deaths began a decade before ionization smoke alarms were installed into homes.
Despite the introduction of ionization smoke alarms the rate of fire deaths did not decrease.


This chart is the most telling and it is simply a plot of the NFPA's own information. Recall, in the mid 1970's ionization alarms were only in roughly 15% of American's homes. By 2005, nearly all Americans, approximately 95%, had an ionization detector.
One would think if we went from 15% to 95% over a thirty year period then the death rate in residential fires would decrease significantly.

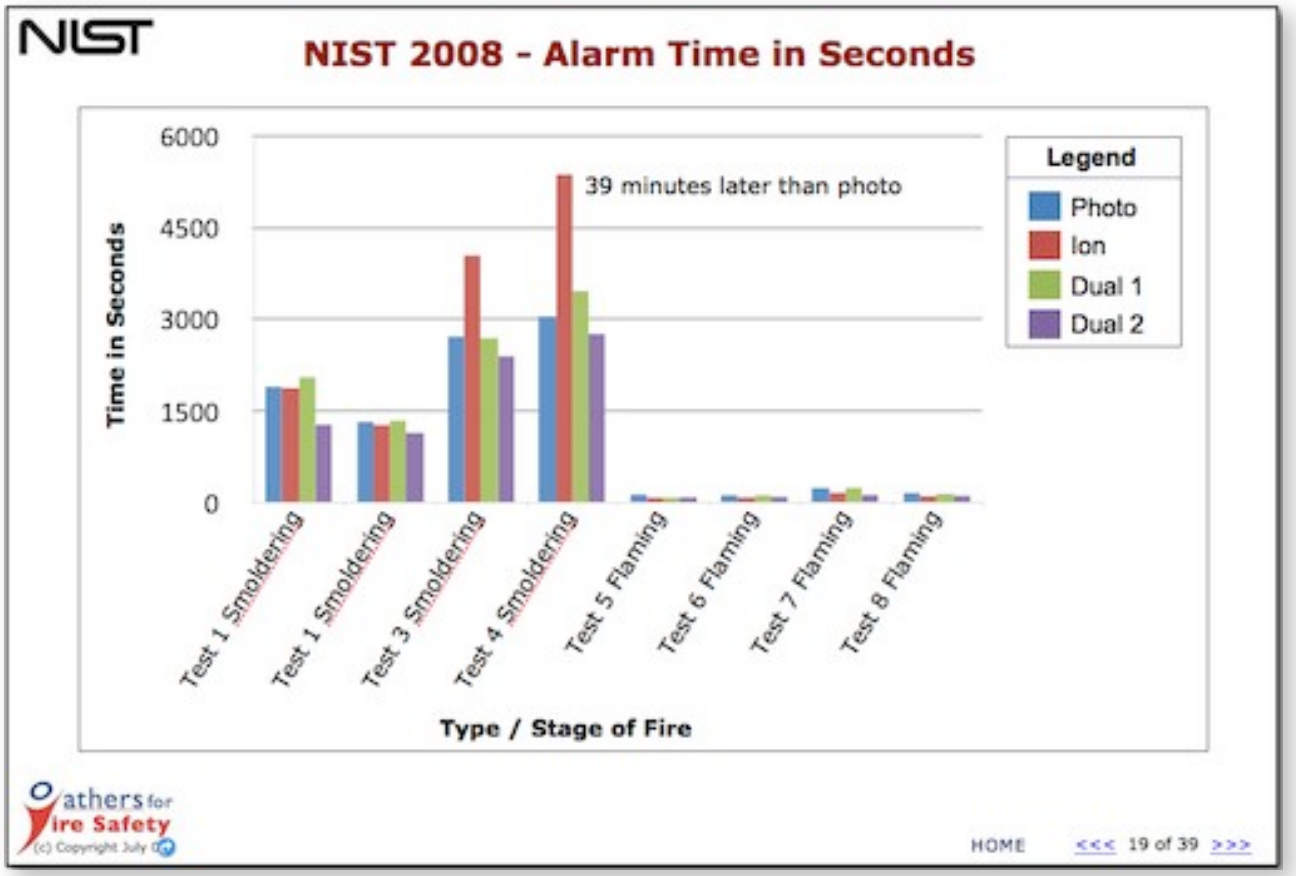
**WRONG! For 30 years the rate has remained around 8 deaths for every 1,000 fires.**

The 2006 White Paper Report, which is a 60 page report on home smoke alarms, actually acknowledges this fact on page 11 of the report. For some reason it has gotten very little attention.




Next we are going to examine smoke alarm response times and fail rates. We will look at what most people look to first, the tests by NIST, including their most recent tests.

However we will also look at what many people think is the most thorough testing - that done by some Universities.

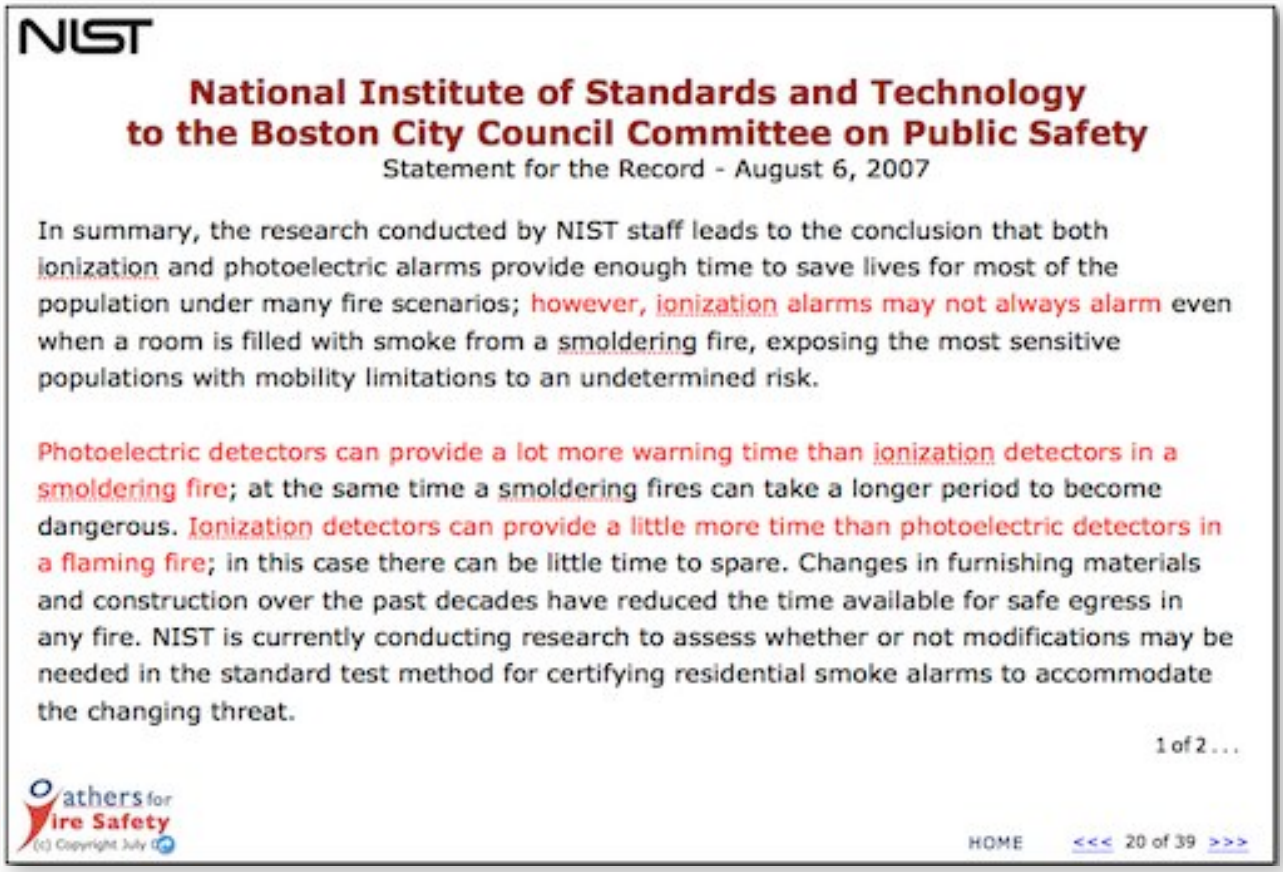



Here is a chart of the 2008 NIST testing of smoke alarms. NIST tested two dual sensor alarms, an ionization and a photoelectric.

Here is a clear visual of how the alarms performedin the individual tests. You can see in the flaming tests the alarms were within seconds of one another. The ionization actually was almost 30 seconds faster than the photoelectric. HOWEVER, you can see in the smoldering tests, that leading cause of residential fire deaths, the photoelectric was 39 minutes faster in one of the tests and was significantly faster than the ionization all the time. Interestingly in a NIST test four years earlier, the photoelectric beat the ionization by 55 minutes.

The Barre City Fire Department tests also demonstrated these same differences. Iso, in case some of you are looking at the dual sensor in this chart, notice how consistently Dual #2 beat Dual #1. This is because manufacturers can manipulate the sensitivity levels. The problem is when the ionization gets paired with the photoelectric technology you have them running off the same battery and you have to live with the 20% disabling due to nuisance alarms factor.

It appears that when manufacturers sent their alarms to NIST for testing, they increase the sensitivity levels to get them to perform better. However at this increased sensitivity level they probably would not be acceptable in a home because of increased false alarms . . . We'll address the false alarm issue shortly.


NIST

National Institute of Standards and Technology
to the Boston City Council Committee on Public Safety

Statement for the Record - August 6, 2007

In summary, the research conducted by NIST staff leads to the conclusion that both ionization and photoelectric alarms provide enough time to save lives for most of the population under many fire scenarios; however, ionization alarms may not always alarm even when a room is filled with smoke from a smoldering fire, exposing the most sensitive populations with mobility limitations to an undetermined risk.

Photoelectric detectors can provide a lot more warning time than ionization detectors in a smoldering fire; at the same time a smoldering fires can take a longer period to become dangerous. Ionization detectors can provide a little more time than photoelectric detectors in a flaming fire; in this case there can be little time to spare. Changes in furnishing materials and construction over the past decades have reduced the time available for safe egress in any fire. NIST is currently conducting research to assess whether or not modifications may be needed in the standard test method for certifying residential smoke alarms to accommodate the changing threat.

1 of 2 . . .

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Slides 20 and 21

Here is an interesting piece of information. Here is what NIST disclosed to the Boston City Council during the period when the state of Massachusetts was examining photoelectric legislation. NIST testified that,

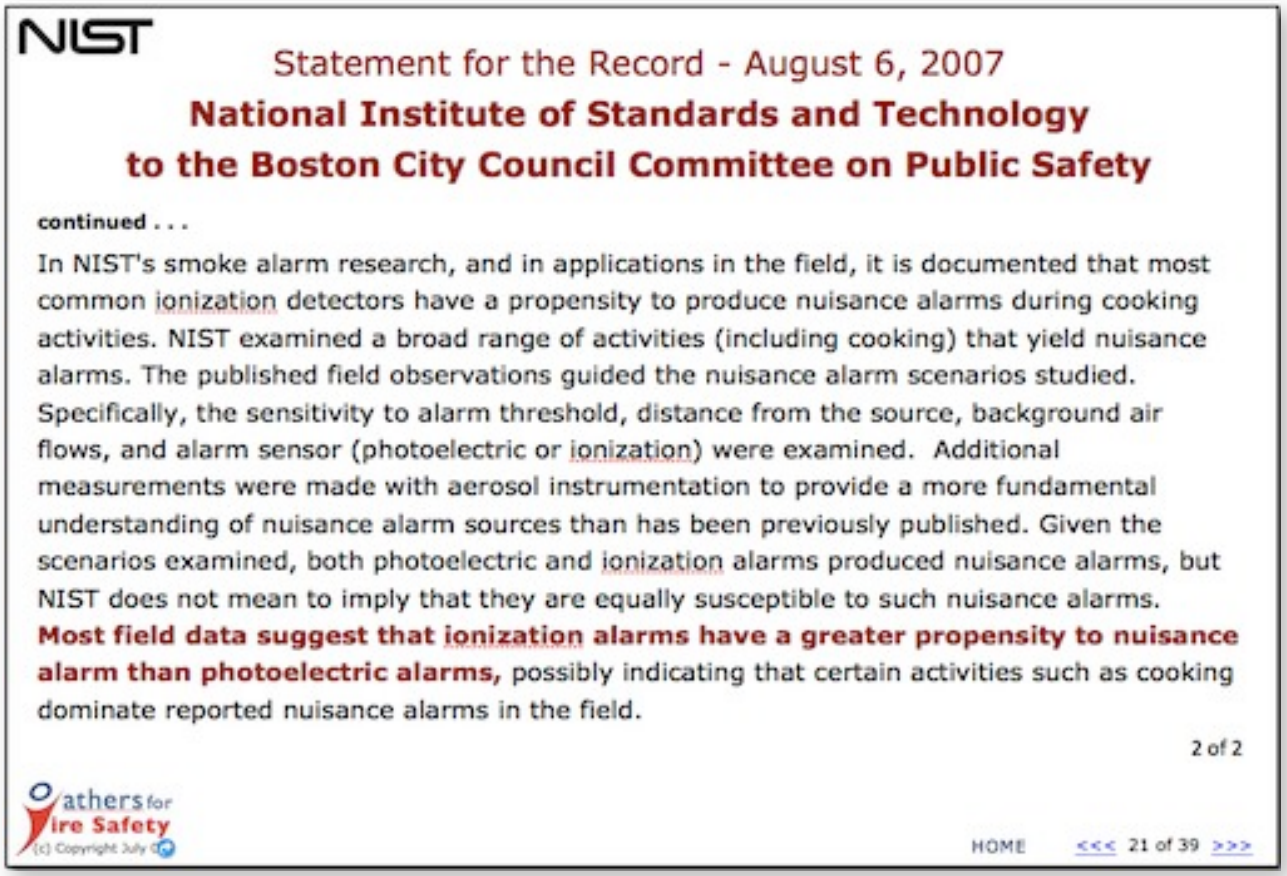
**"ionization alarms may not always alarm,**
**when a room is filled with smoke from smoldering fire"**

and that ionization alarms are a little faster (i.e. up to 30 seconds) in a flaming fire and that photoelectric provide a lot more time in a smoldering fire (i.e. over a half of an hour).

Also remember which fire kills the most people.

NIST went on to also point out the problems of with the ionization's nuisance alarm problems.

So why doesn't NIST make this information readily available to Fire Chiefs/the fire industry?



NIST

Statement for the Record - August 6, 2007

**National Institute of Standards and Technology**
**to the Boston City Council Committee on Public Safety**

**continued . . .**

In NIST's smoke alarm research, and in applications in the field, it is documented that most common ionization detectors have a propensity to produce nuisance alarms during cooking activities. NIST examined a broad range of activities (including cooking) that yield nuisance alarms. The published field observations guided the nuisance alarm scenarios studied. Specifically, the sensitivity to alarm threshold, distance from the source, background air flows, and alarm sensor (photoelectric or ionization) were examined. Additional measurements were made with aerosol instrumentation to provide a more fundamental understanding of nuisance alarm sources than has been previously published. Given the scenarios examined, both photoelectric and ionization alarms produced nuisance alarms, but NIST does not mean to imply that they are equally susceptible to such nuisance alarms. **Most field data suggest that ionization alarms have a greater propensity to nuisance alarm than photoelectric alarms,** possibly indicating that certain activities such as cooking dominate reported nuisance alarms in the field.

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Slides 20 and 21

Here is an interesting piece of information. Here is what NIST disclosed to the Boston City Council during the period when the state of Massachusetts was examining photoelectric legislation. NIST testified that,

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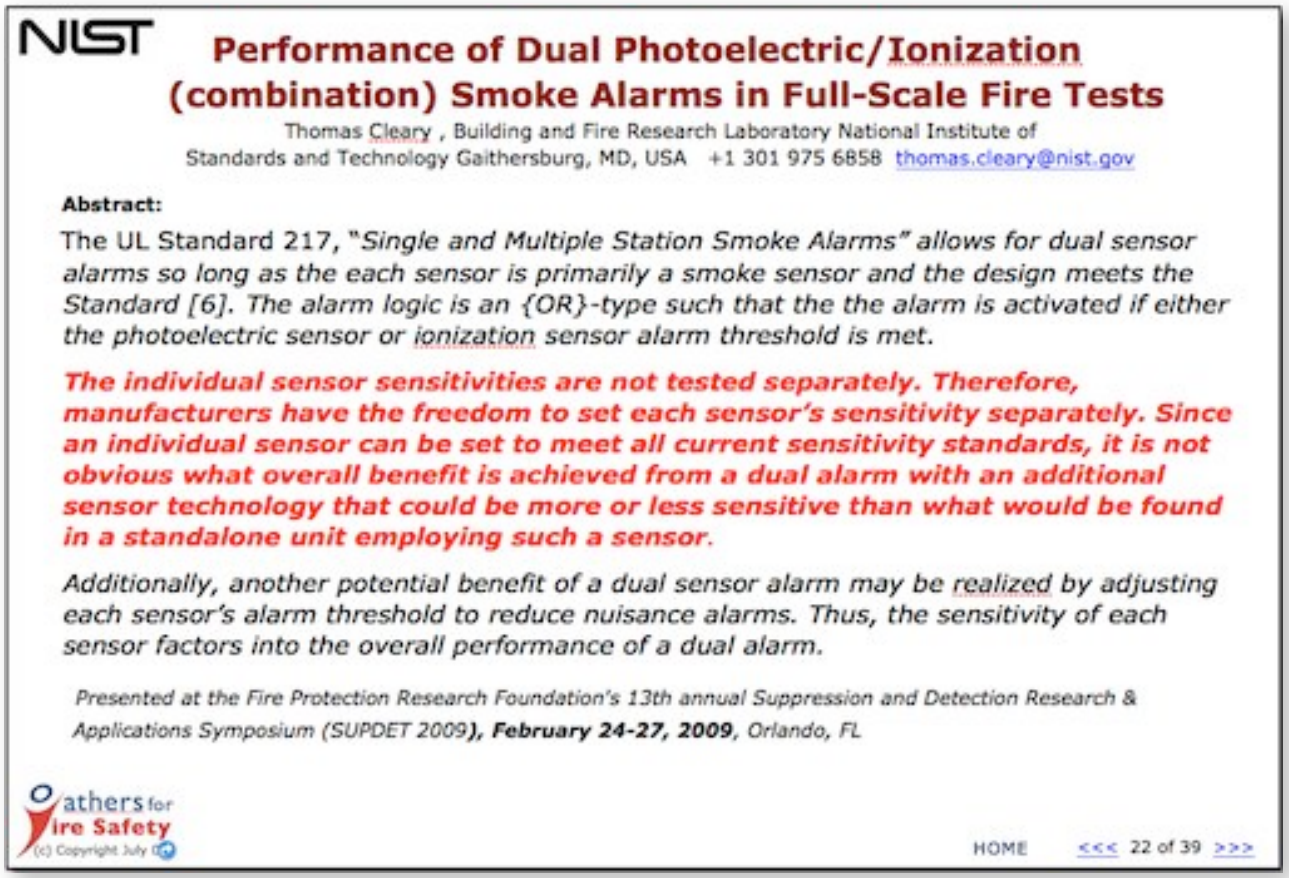

NIST

**Performance of Dual Photoelectric/Ionization (combination) Smoke Alarms in Full-Scale Fire Tests**

Thomas Cleary , Building and Fire Research Laboratory National Institute of Standards and Technology Gaithersburg, MD, USA +1 301 975 6858 thomas.cleary@nist.gov

**Abstract:**

The UL Standard 217, "*Single and Multiple Station Smoke Alarms*" allows for dual sensor alarms so long as the each sensor is primarily a smoke sensor and the design meets the Standard [6]. The alarm logic is an {OR}-type such that the the alarm is activated if either the photoelectric sensor or ionization sensor alarm threshold is met.

***The individual sensor sensitivities are not tested separately. Therefore, manufacturers have the freedom to set each sensor's sensitivity separately. Since an individual sensor can be set to meet all current sensitivity standards, it is not obvious what overall benefit is achieved from a dual alarm with an additional sensor technology that could be more or less sensitive than what would be found in a standalone unit employing such a sensor.***

*Additionally, another potential benefit of a dual sensor alarm may be realized by adjusting each sensor's alarm threshold to reduce nuisance alarms. Thus, the sensitivity of each sensor factors into the overall performance of a dual alarm.*

*Presented at the Fire Protection Research Foundation's 13th annual Suppression and Detection Research & Applications Symposium (SUPDET 2009)*, ***February 24-27, 2009***, *Orlando, FL*

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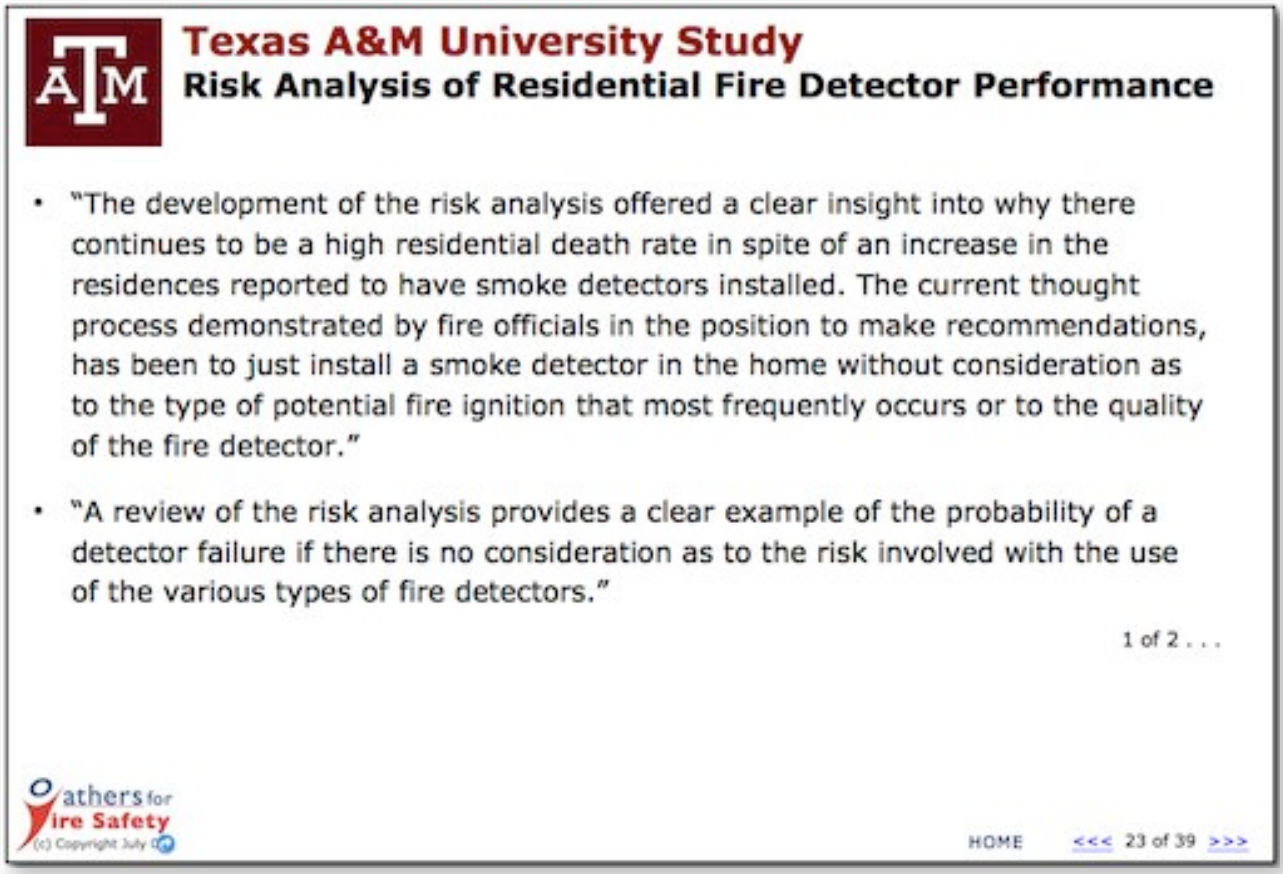
Getting back to the discrepancies between Dual sensor #1 and Dual sensor #2.

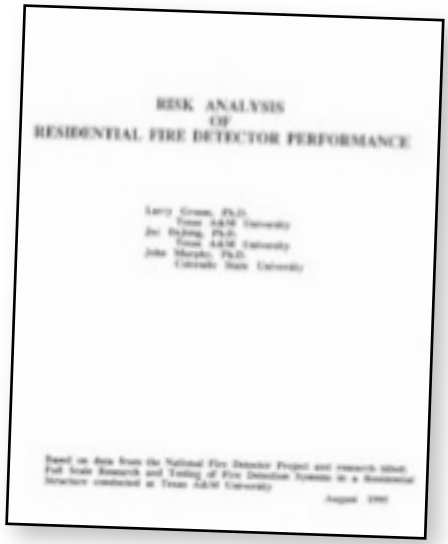
Interestingly NIST, in an abstract, also noted that manufacturers have the freedom to set sensors separately and noted that they could not find any real benefit to standalone models.




Slides 23 and 24

Now what I think should be the Gold Standard study. Researchers at Texas A&M University, along with support from the University of Colorado and Iowa, did a three year smoke alarm study in the 1990's. They were concerned that UL's testing of smoke alarms, by putting a smoke detector in a wooden box and then by forcing smoke through it, was not as good as open field testing. Texas A&M's testing was a fault-tree-analysis model designed by Bell Laboratories for the United States military. After three years here is what their research concluded:

- **In a Smoldering fire** the ionization detector had a 55.8% failure rate (this means the person died) to the photoelectric detectors 4.06% failure rate.
- **In a Flaming fire**, where the ionization supposedly has a few seconds advantage, the ionization had a 19.8% failure rate, to the photoelectric detectors 3.99% failure rate.




**Texas A&M Study**
Risk Analysis of
Fire Detector Performance

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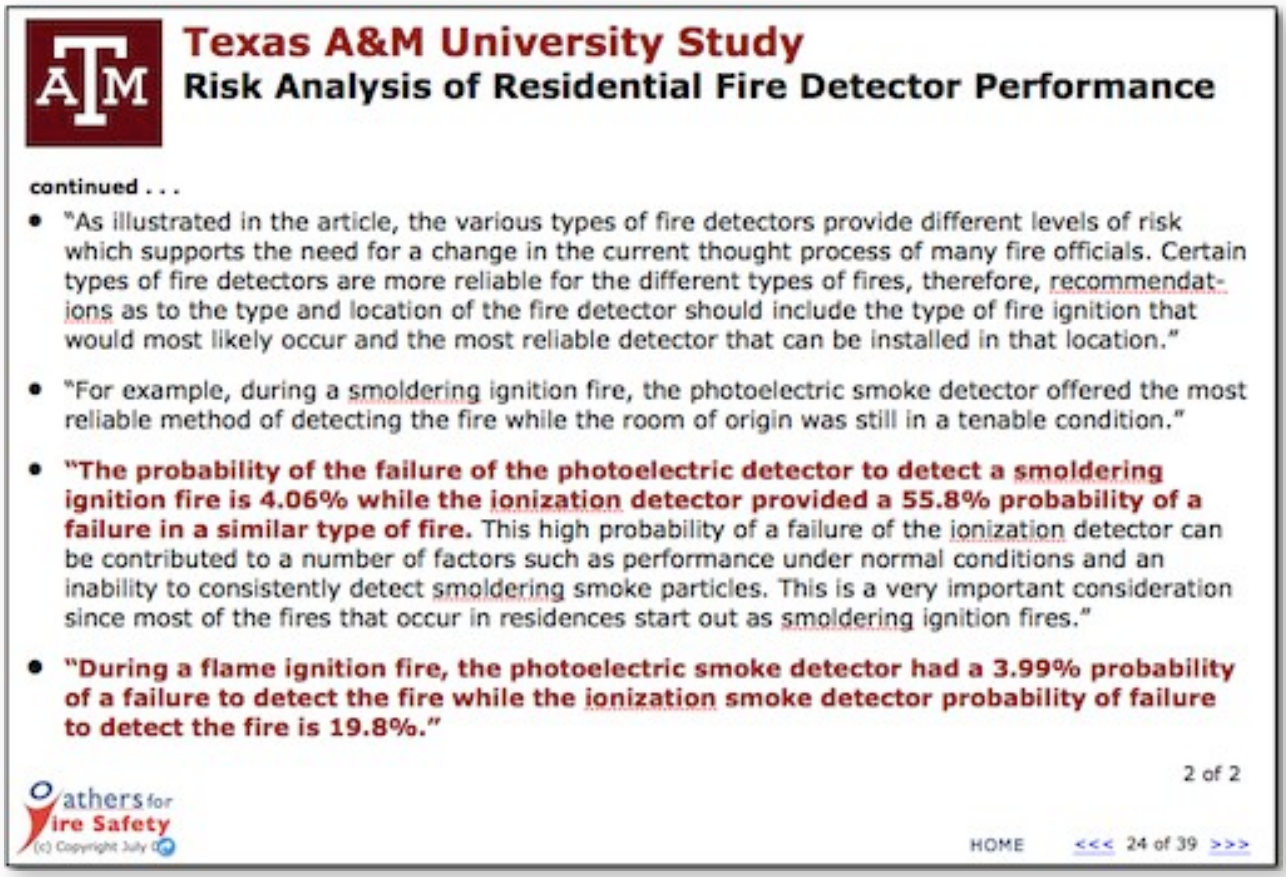

## Texas A&M University Study
### Risk Analysis of Residential Fire Detector Performance

**continued . . .**

- "As illustrated in the article, the various types of fire detectors provide different levels of risk which supports the need for a change in the current thought process of many fire officials. Certain types of fire detectors are more reliable for the different types of fires, therefore, recommendations as to the type and location of the fire detector should include the type of fire ignition that would most likely occur and the most reliable detector that can be installed in that location."
- "For example, during a smoldering ignition fire, the photoelectric smoke detector offered the most reliable method of detecting the fire while the room of origin was still in a tenable condition."
- **"The probability of the failure of the photoelectric detector to detect a smoldering ignition fire is 4.06% while the ionization detector provided a 55.8% probability of a failure in a similar type of fire.** This high probability of a failure of the ionization detector can be contributed to a number of factors such as performance under normal conditions and an inability to consistently detect smoldering smoke particles. This is a very important consideration since most of the fires that occur in residences start out as smoldering ignition fires."
- **"During a flame ignition fire, the photoelectric smoke detector had a 3.99% probability of a failure to detect the fire while the ionization smoke detector probability of failure to detect the fire is 19.8%."**

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Slides 23 and 24

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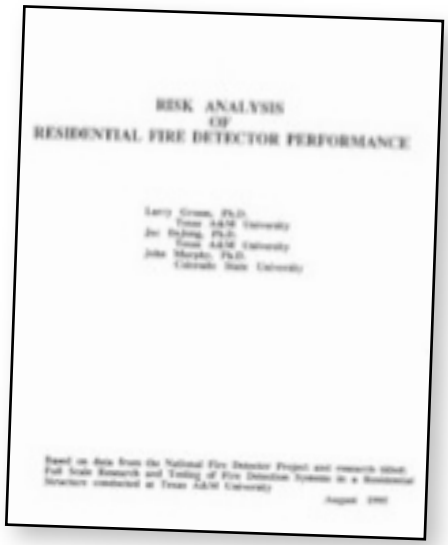

RISK ANALYSIS
OF
RESIDENTIAL FIRE DETECTOR PERFORMANCE

**Texas A&M Study**
Risk Analysis of
Fire Detector Performance

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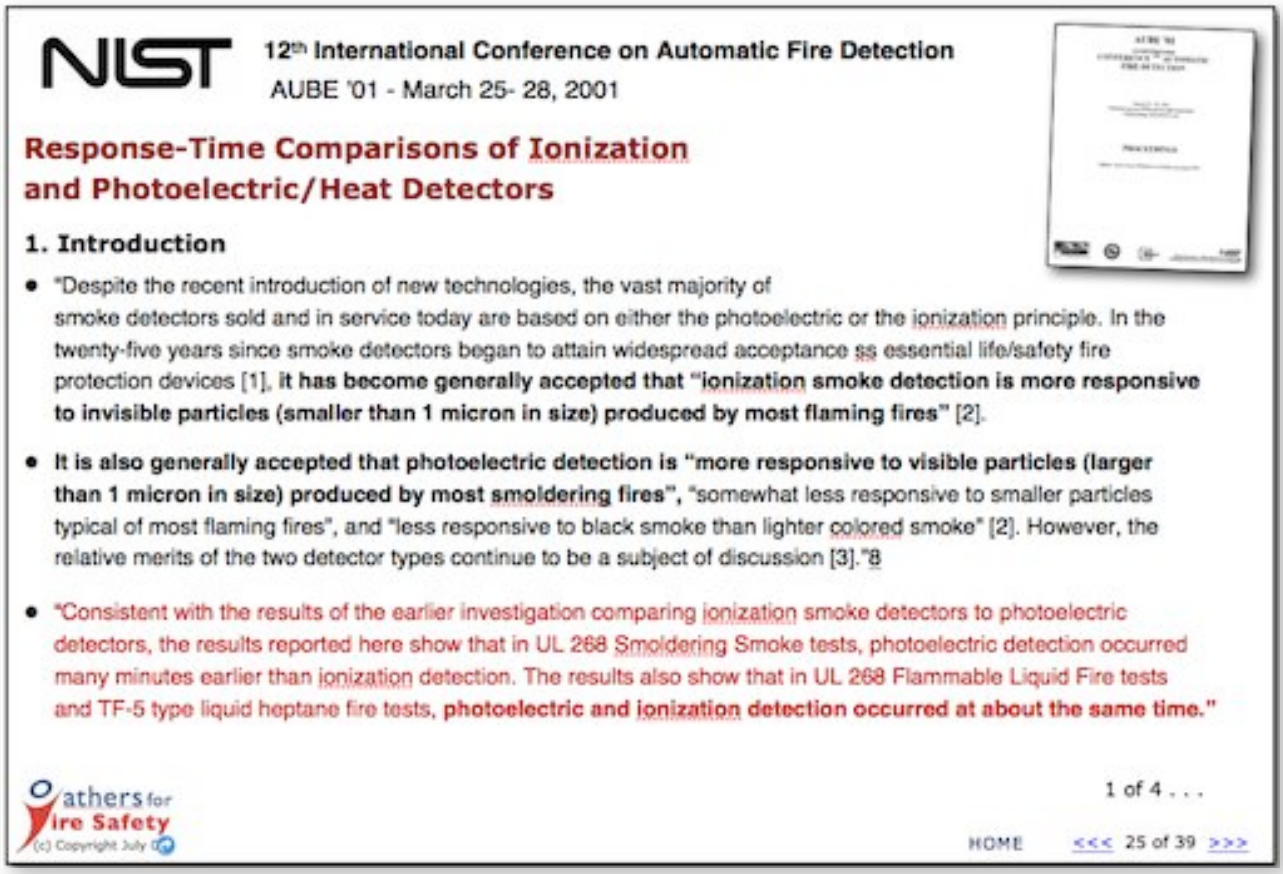


Slides: 25, 26, 27 and 28:
These slides will show you not all testing demonstrates that the ionization is fast during a flaming fire. In a conference sponsored by NIST in 2001, a UL test was presented.
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**Note:**

The Photoelectric in this test also was faster by literally a few seconds than the ionization in the flaming tests as well.

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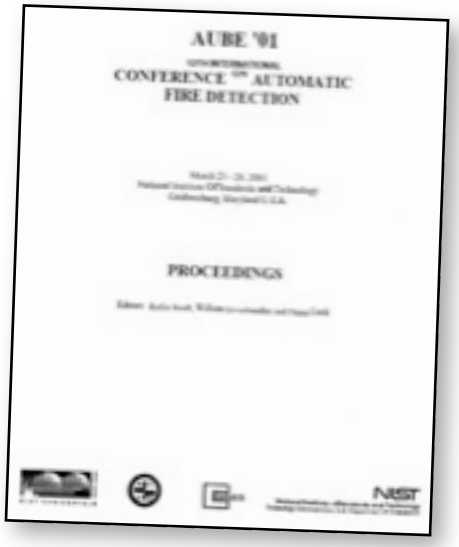


**NIST 12th Conference on Automatic Fire Detection March 2001**

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NIST

| UL 268 Tests<br>Ionization 1.3%<br>Photoelectric 2.5% | | Distance From Test Fire<br>(Ceiling Position #) | | | | | |
|---|---|---|---|---|---|---|---|
| | | 8.0 ft | | 17.7 ft. | | 19.2 ft. | |
| Test | Device | (2) | (3) | (5) | (6) | (1) | (2) |
| **UL 268<br>Smold. Smoke** | Ion | 3,459 | 3,317 | 3,843 | 3,614 | 3,864 | 3,591 |
| | Photo | 2,421 | 2,253 | 2,916 | 2,916 | 2,726 | 2,823 |
| Diff. of Avg. Time (Ion – Photo) | | **1,038** | **1,064** | **927** | **698** | **1,138** | **768** |
| **UL 268 Flamm. Liquid** | Ion | 31 | 36 | 61 | 56 | 65 | 65 |
| | Photo | 26 | 29 | 55 | 55 | 57 | 57 |
| Diff. Avg. Time (Ion – Photo) | | **5** | **7** | **6** | **1** | **8** | **8** |

[4] 'Fire Test Comparisons of Ion and Photoelectric Smoke Detector Response Times',
Fire Suppression and Detection Research Application Symposium, Orlando, Florida, USA
J Qualey, L Desmarais and J Pratt; February 7 - 9, 2001

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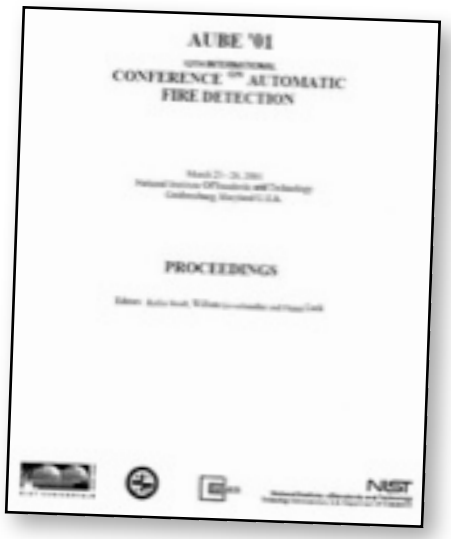


**NIST 12th Conference on Automatic Fire Detection March 2001**

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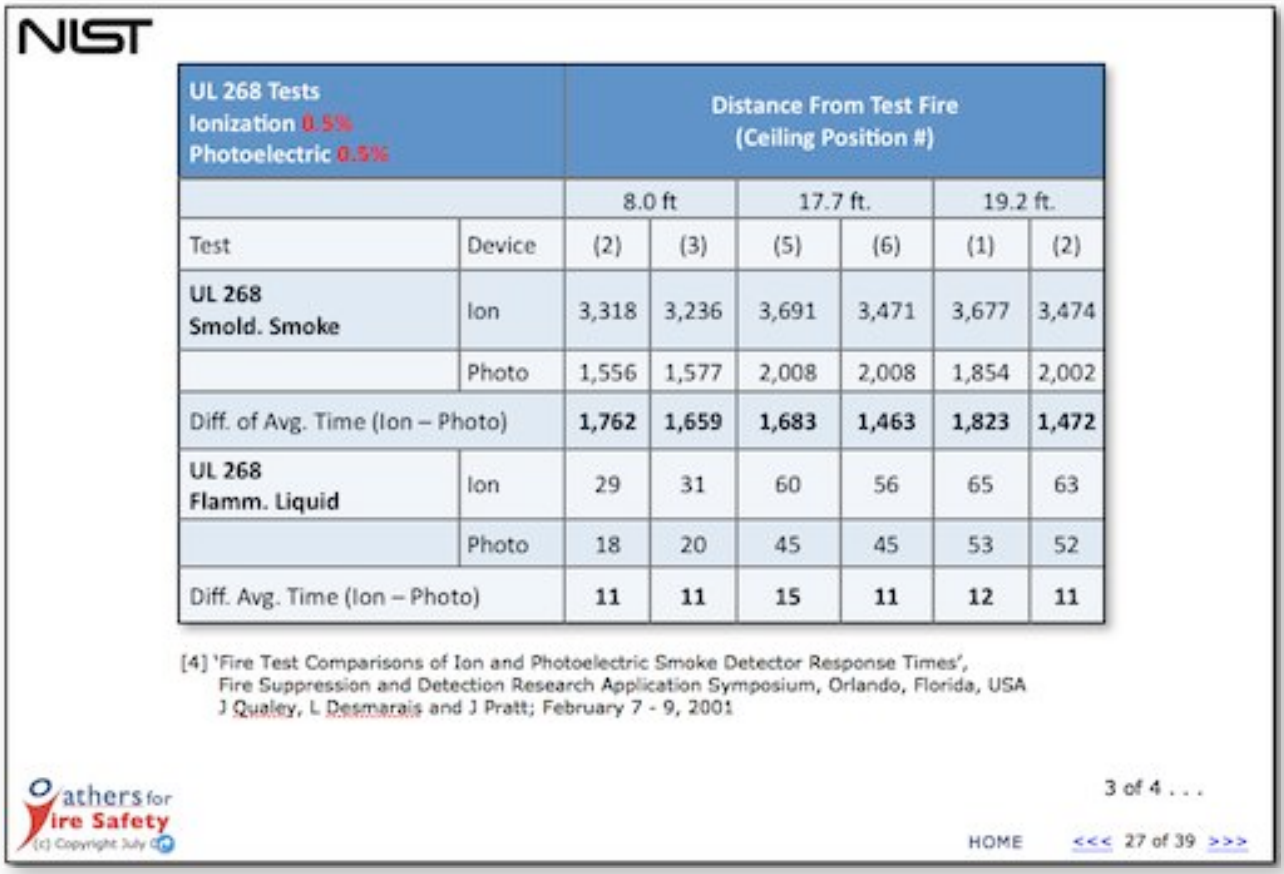

NIST

| UL 268 Tests<br>Ionization 0.5%<br>Photoelectric 0.5% | | Distance From Test Fire (Ceiling Position #) | | | | | |
|---|---|---|---|---|---|---|---|
| | | 8.0 ft | | 17.7 ft. | | 19.2 ft. | |
| Test | Device | (2) | (3) | (5) | (6) | (1) | (2) |
| UL 268 Smold. Smoke | Ion | 3,318 | 3,236 | 3,691 | 3,471 | 3,677 | 3,474 |
| | Photo | 1,556 | 1,577 | 2,008 | 2,008 | 1,854 | 2,002 |
| Diff. of Avg. Time (Ion – Photo) | | **1,762** | **1,659** | **1,683** | **1,463** | **1,823** | **1,472** |
| UL 268 Flamm. Liquid | Ion | 29 | 31 | 60 | 56 | 65 | 63 |
| | Photo | 18 | 20 | 45 | 45 | 53 | 52 |
| Diff. Avg. Time (Ion – Photo) | | **11** | **11** | **15** | **11** | **12** | **11** |

[4] 'Fire Test Comparisons of Ion and Photoelectric Smoke Detector Response Times', Fire Suppression and Detection Research Application Symposium, Orlando, Florida, USA J Qualey, L Desmarais and J Pratt; February 7 - 9, 2001

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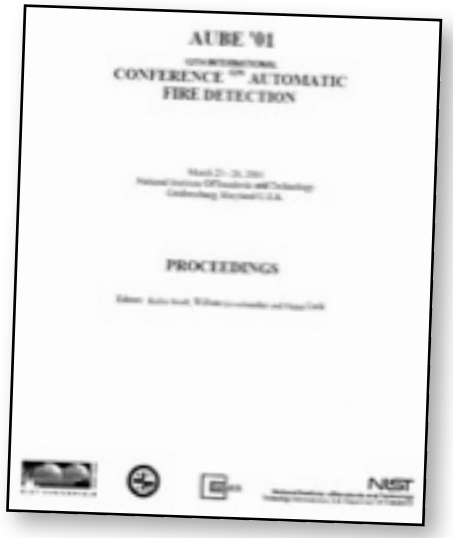


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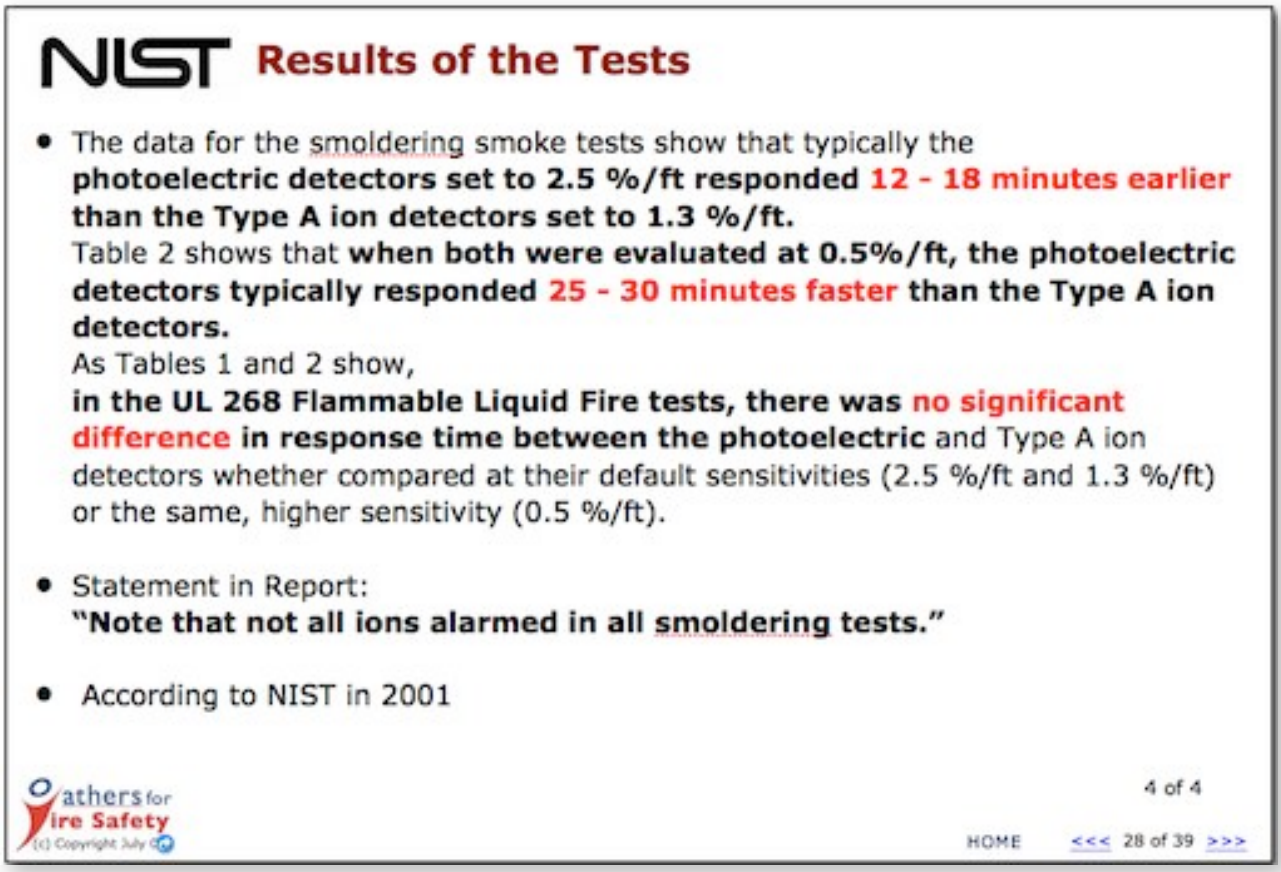


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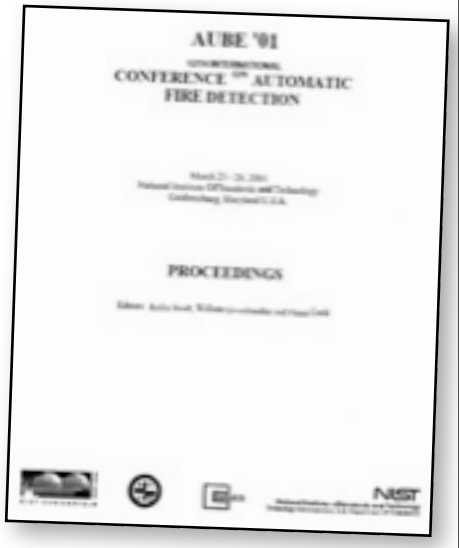


**NIST 12th Conference on Automatic Fire Detection March 2001**

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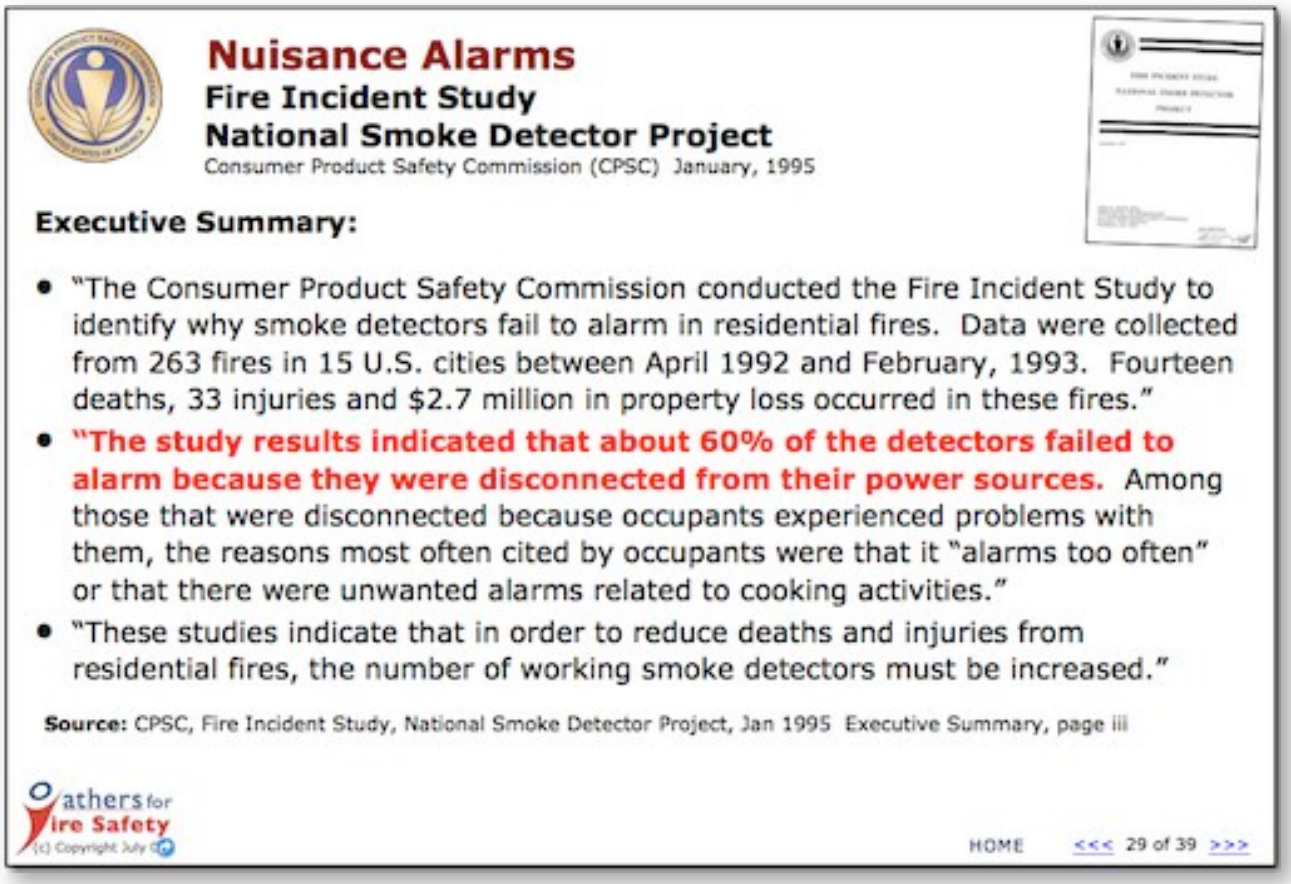



**Let's examine the Nuisance Alarm Problem.**

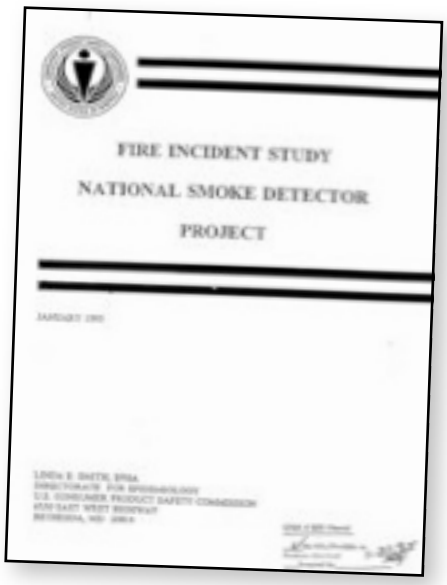
This report was conducted by the Consumer Product and Safety Commission.

It states that 60% of detectors fail to alarm because they end up being disconnected due to unwanted alarms. In other words, nuisance alarms. Again remember that over 90% of alarms in our homes are caused by ionization alarms.

By the way, if you get on the Internet you will find numerous studies state that over 20% of all ionization detectors are disabled within the first year due to nuisance alarms.

The photoelectric disabling rate is around 4%. This means if you gave everyone an ionization detector, in one years time, 20% of the population would be unprotected due to the nuisance alarm problem.

**Why accept a 20% failure rate when there is a safe, affordable and available alternative?**




**CPSC Fire Incident Study National Smoke Detector Project**

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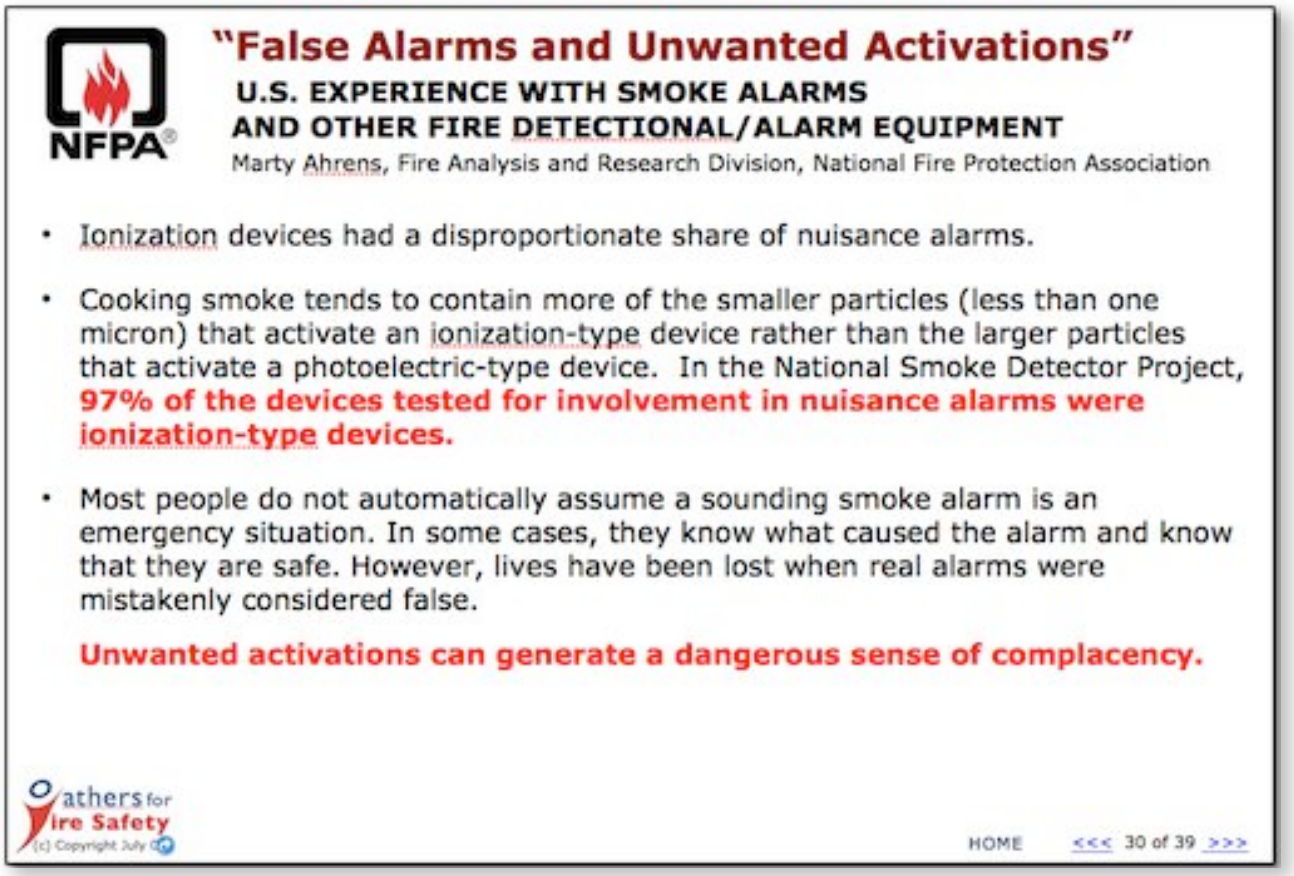
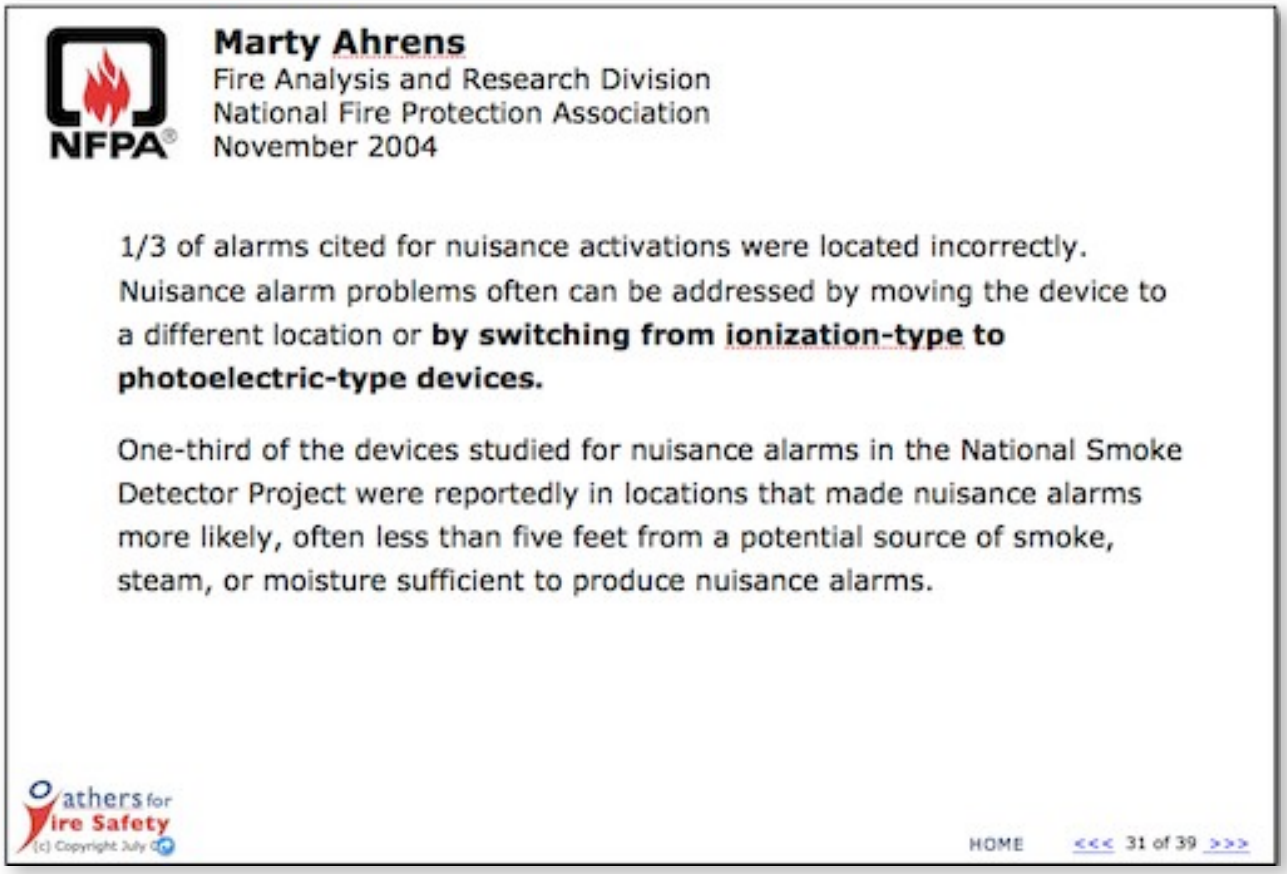
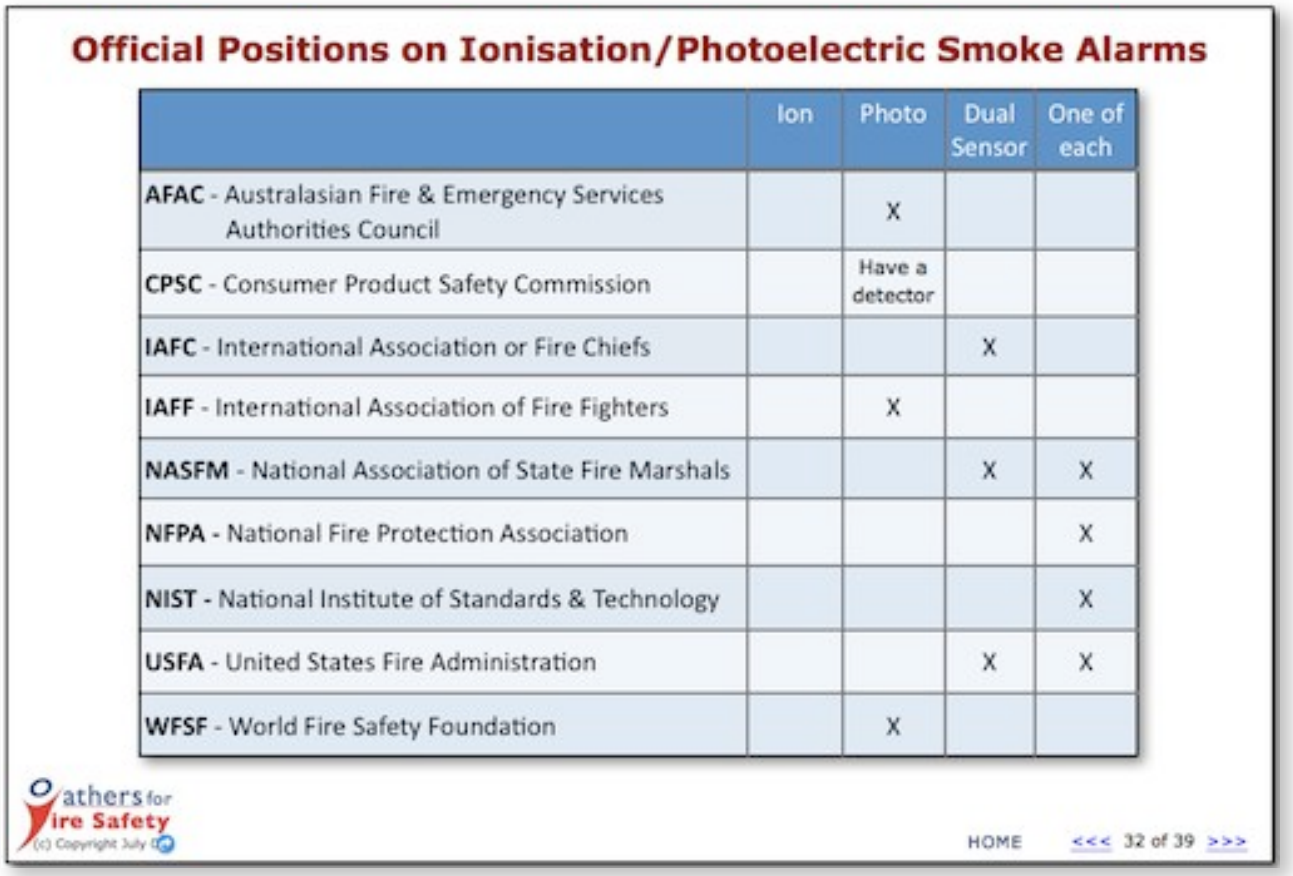



This NFPA report states that 97% of nuisance alarms were caused by ionization detectors.




In a study by Marty Ahrens of the NFPA a suggestion was made for eliminating nuisance alarms . . .

**SWITCH TO A PHOTOELECTRIC DETECTOR.**



## Official Positions on Ionisation/Photoelectric Smoke Alarms

| | Ion | Photo | Dual Sensor | One of each |
|---|---|---|---|---|
| **AFAC** - Australasian Fire & Emergency Services Authorities Council | | X | | |
| **CPSC** - Consumer Product Safety Commission | | Have a detector | | |
| **IAFC** - International Association or Fire Chiefs | | | X | |
| **IAFF** - International Association of Fire Fighters | | X | | |
| **NASFM** - National Association of State Fire Marshals | | | X | X |
| **NFPA** - National Fire Protection Association | | | | X |
| **NIST** - National Institute of Standards & Technology | | | | X |
| **USFA** - United States Fire Administration | | | X | X |
| **WFSF** - World Fire Safety Foundation | | X | | |

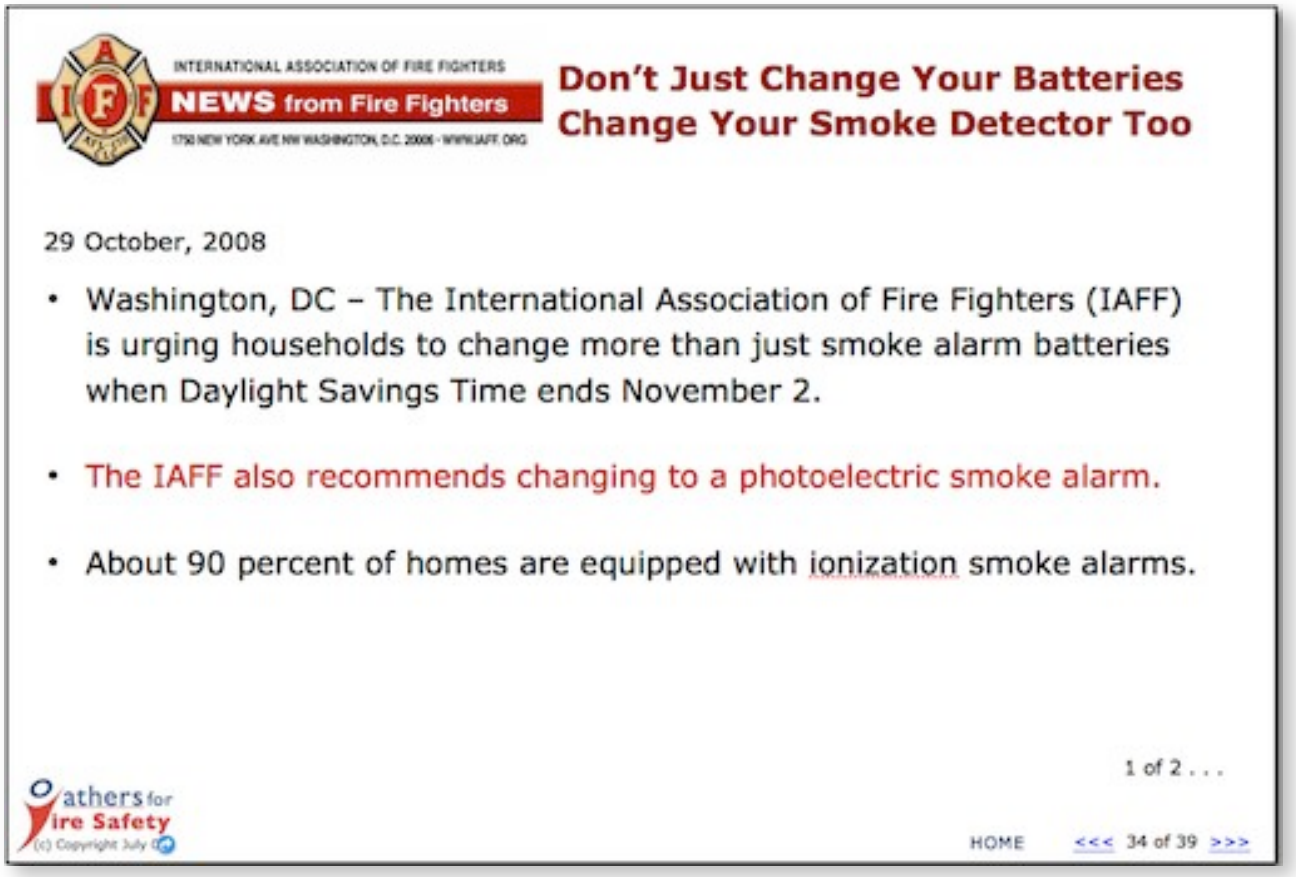


Let's look at major agencies and see what they endorse. You'll note that no one, absolutely no one, endorses ionization smoke detectors. Ask yourself this question,

> **"Why are businesses and commercial properties being protected with photoelectric detectors, but our homes, where we sleep at night, are protected with ionization detectors?"**

Why as a society, are we tolerating ionization detectors in our homes when nobody endorses them and their are safe and affordable alternatives?


I think a statement from Ontario's Fire Marshal says it best.
IONIZATION detectors are for rooms that contain highly combustible materials (like maybe your garage).
PHOTOELECTRIC detectors are best suited for LIVING ROOMS, BEDROOMS and KITCHENS.
In other words, best for putting in your house.



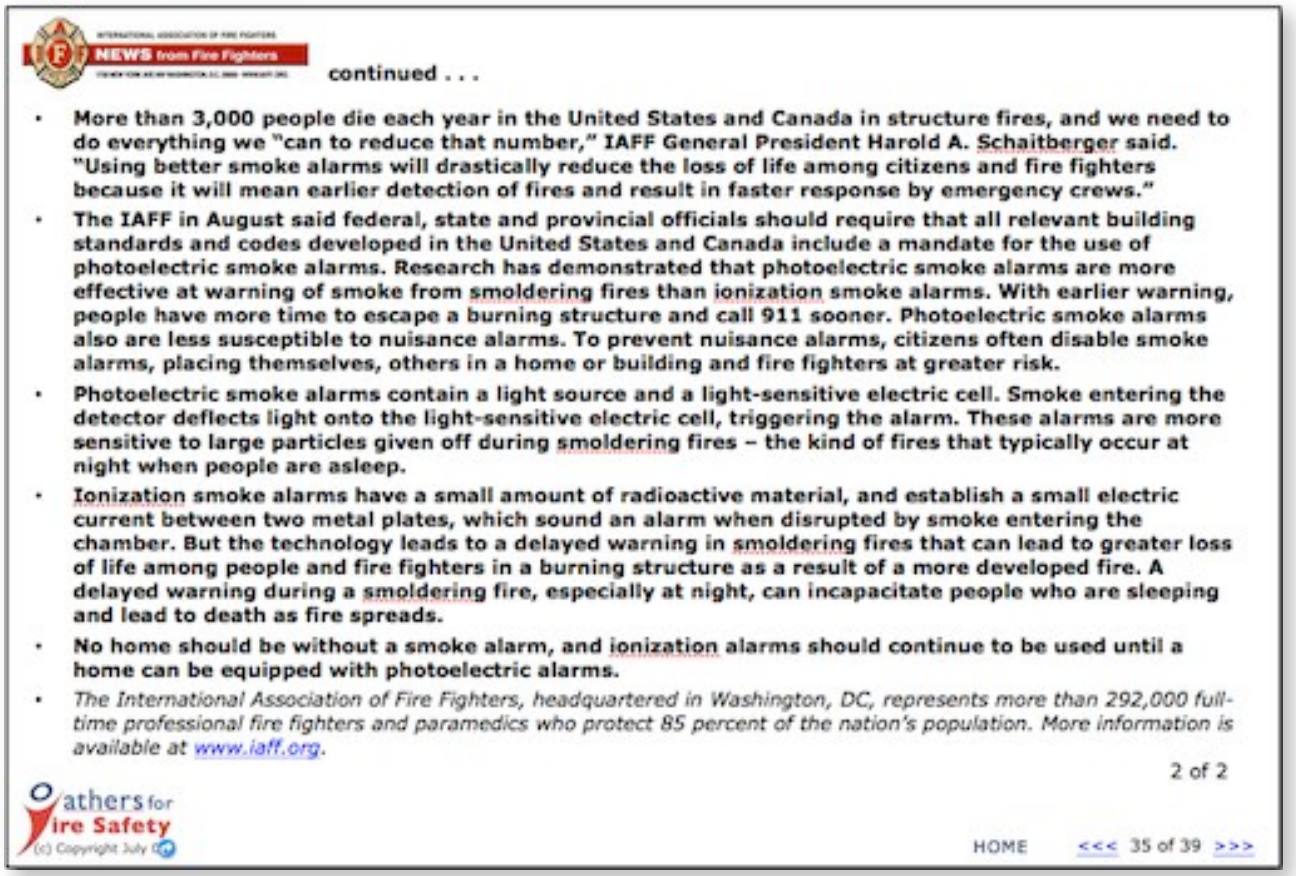

Did everyone catch the advice from the World's largest fire organization the International Association of Fire Fighters (IAFF)? The IAFF stated,

**"Don't just change your batteries, change your smoke detector [to a photoelectric] too!"**

and that,

**"using better smoke alarms will drastically reduce the loss of life among citizens and firefighters"**

Let's look at their reasoning . . .



NEWS from Fire Fighters

continued . . .

- More than 3,000 people die each year in the United States and Canada in structure fires, and we need to do everything we "can to reduce that number," IAFF General President Harold A. Schaitberger said. "Using better smoke alarms will drastically reduce the loss of life among citizens and fire fighters because it will mean earlier detection of fires and result in faster response by emergency crews."
- The IAFF in August said federal, state and provincial officials should require that all relevant building standards and codes developed in the United States and Canada include a mandate for the use of photoelectric smoke alarms. Research has demonstrated that photoelectric smoke alarms are more effective at warning of smoke from smoldering fires than ionization smoke alarms. With earlier warning, people have more time to escape a burning structure and call 911 sooner. Photoelectric smoke alarms also are less susceptible to nuisance alarms. To prevent nuisance alarms, citizens often disable smoke alarms, placing themselves, others in a home or building and fire fighters at greater risk.
- Photoelectric smoke alarms contain a light source and a light-sensitive electric cell. Smoke entering the detector deflects light onto the light-sensitive electric cell, triggering the alarm. These alarms are more sensitive to large particles given off during smoldering fires – the kind of fires that typically occur at night when people are asleep.
- Ionization smoke alarms have a small amount of radioactive material, and establish a small electric current between two metal plates, which sound an alarm when disrupted by smoke entering the chamber. But the technology leads to a delayed warning in smoldering fires that can lead to greater loss of life among people and fire fighters in a burning structure as a result of a more developed fire. A delayed warning during a smoldering fire, especially at night, can incapacitate people who are sleeping and lead to death as fire spreads.
- No home should be without a smoke alarm, and ionization alarms should continue to be used until a home can be equipped with photoelectric alarms.
- *The International Association of Fire Fighters, headquartered in Washington, DC, represents more than 292,000 full-time professional fire fighters and paramedics who protect 85 percent of the nation's population. More information is available at www.iaff.org.*

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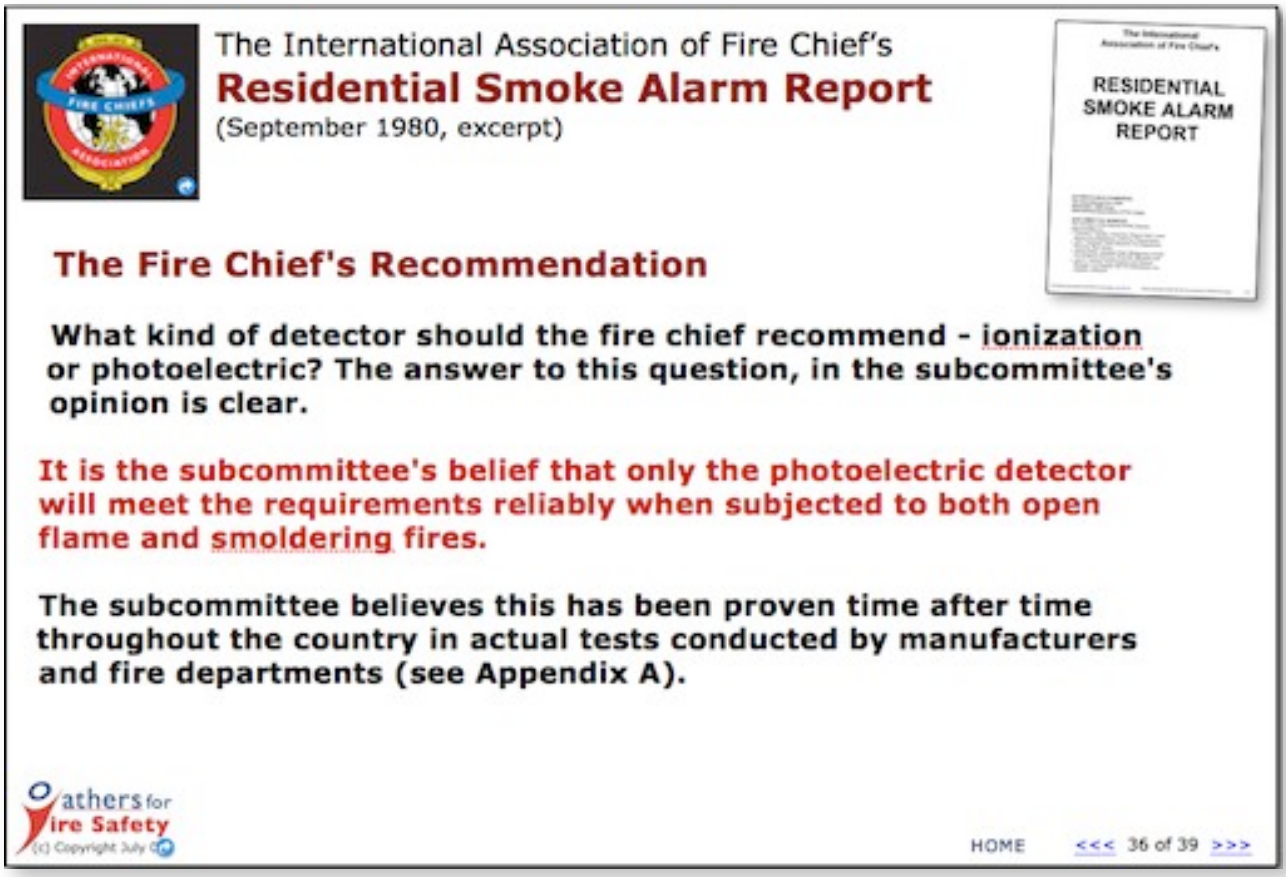
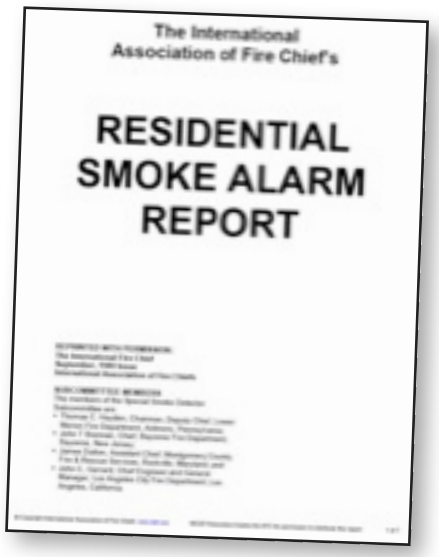
Discuss the above reasons.




What is truly amazing is that right back in the 1980's the International Association of Fire Chief's had it right. After extensive research they released this advice to the public.

We have come full circle on the data again.




**IAFC Residential Smoke Alarm Report - Sept 1980**

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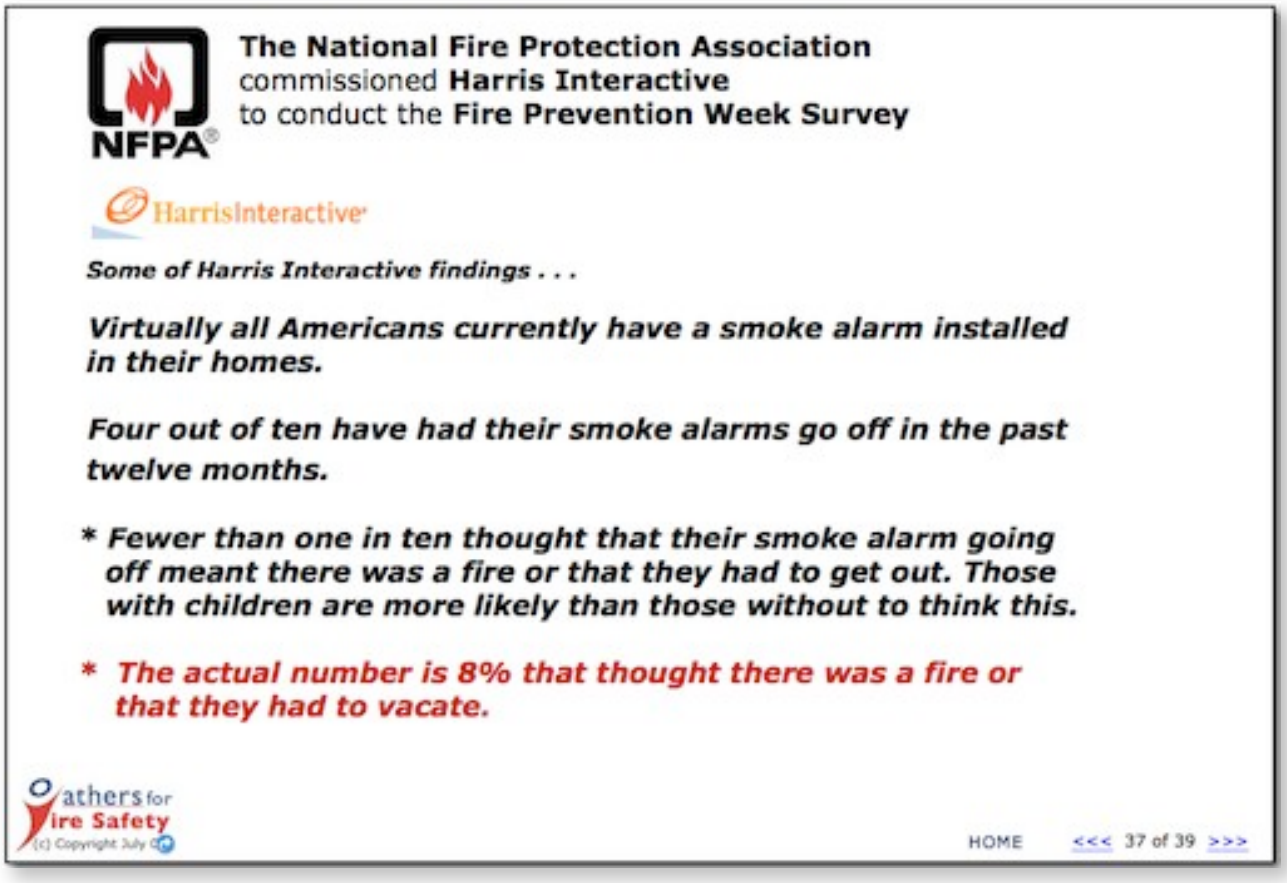



The most shocking piece of information is saved for last.

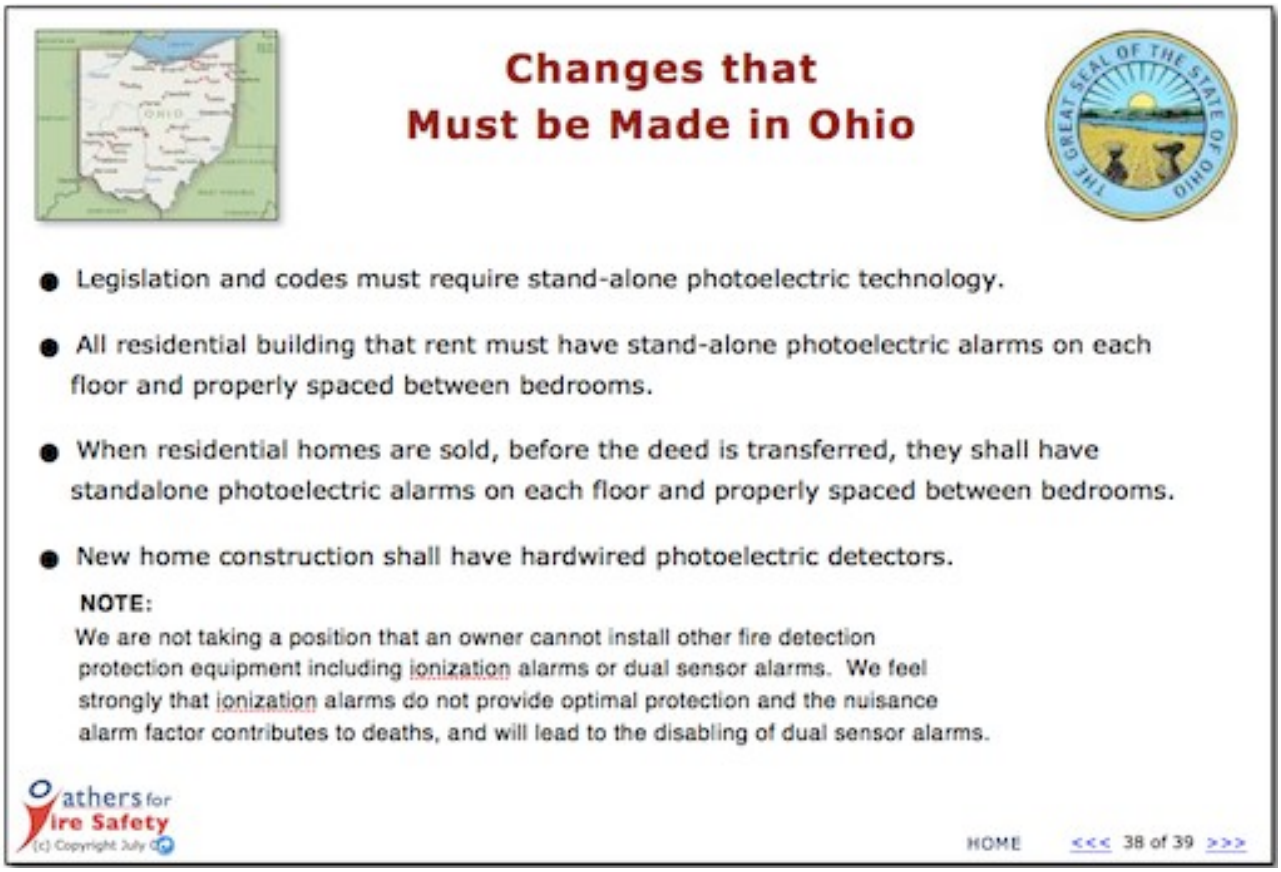
This is a by-product of not critically looking at the facts.

A couple of years ago the NFPA commissioned a survey by Harris Interactive.

Here is their disturbing findings,

**When a smoke alarm goes off fewer than one in ten people**

**thought there was a fire and they had to get out of the house!**




**Father for Fire Safety Statement**

**What we want for Ohio**

We strongly feel fire officials need the right information to educate the public and that everyone needs stand-alone, photoelectric smoke alarms. It is clear most people die from smoke inhalation and most people die while asleep or when they were asleep and tried to escape when they were awoken too late in the fire. It is clear that test after test has established a significant time advantage for the photoelectric in the types of fires that kill most people. It is also clear that we cannot afford smoke alarms that are flawed by failing to alarm in smoke, or through unacceptably high nuisance alarms. We also have to recognize that smoke detectors are not needed and can not save a person from a fire they just lit/were intimate with.

What is not clear is the advantage of the ionization alarm.

In most cases they MAY alarm seconds faster in a flaming fire (if they have not been disconnected due to false alarms). However, many, if not most flaming fires, are caused by an event and the person is likely near the fire and awake. The nuisance alarm problem is very disturbing. Continued . . .

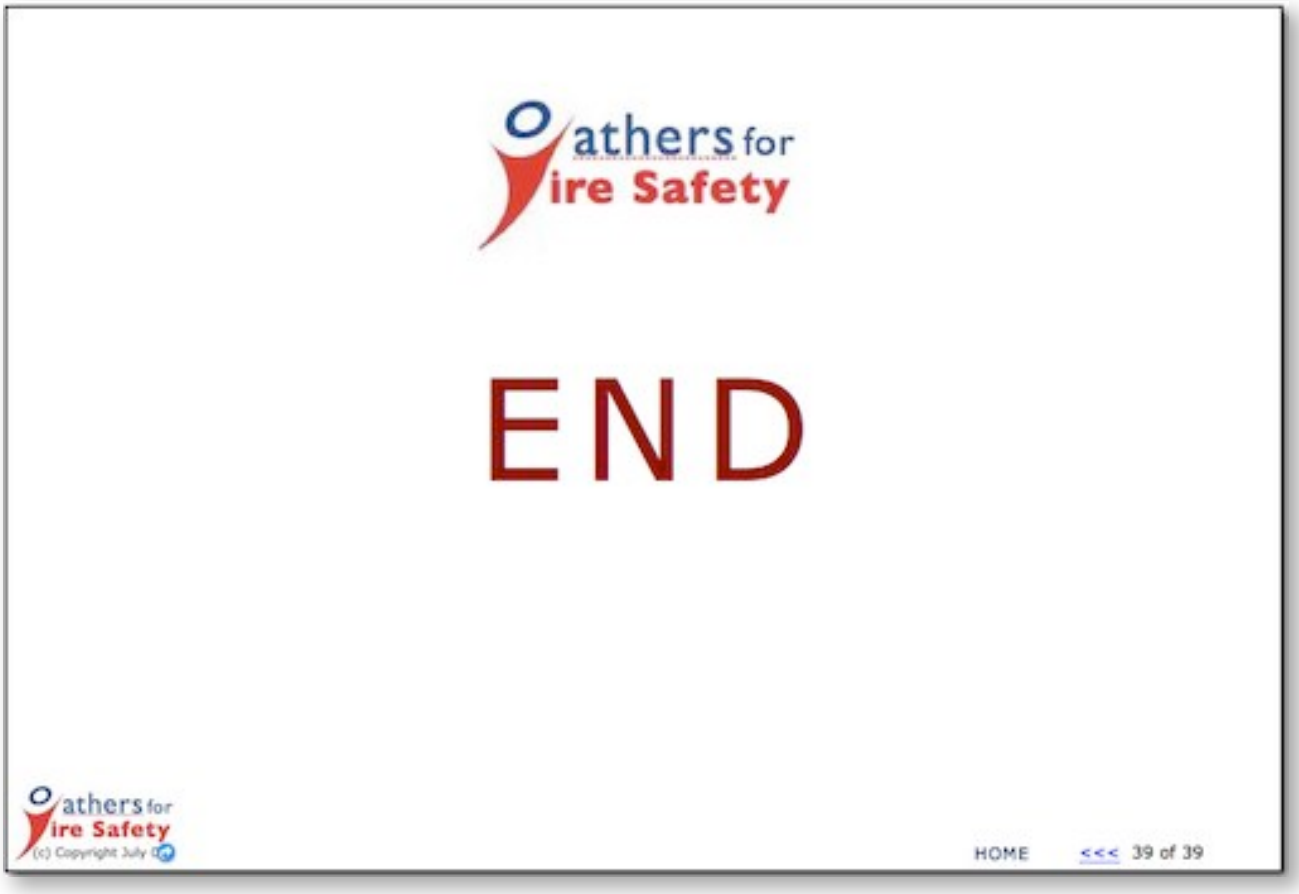
. . . continued

It is also disturbing that manufacturers of dual sensor alarms attempt to combine superior technology with inferior technology and have them run off the same battery.

If any fire official still feels a home truly needs both types of detectors, then they should make sure everyone has a photoelectric and then suggest a stand-alone ionization as well. Children should never sleep in a home that has a product that is likely to be disabled, or ignored, and have their lives needlessly put at risk.

We also feel that photoelectric detectors vast time advantage will save citizens lives and property because fire fighters can be alerted considerably earlier. Photoelectric technology will save fire fighters lives because it is easier to put out a smolder fire than a full fledge fire.

To us the choice is clear - Recommend only stand-alone Photoelectric Smoke Detectors.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