Ionization Smoke Alarms

A Substantial Product Hazard

Consumer Product Safety Commission
June 24, 2015 Public Notice Hearing
Data Sources and Consumer Product-Related Incident Information

Presentation by NEOPFA
Presentation by Dean Dennis

NEOFPA

About NEOFPA

The NEOFPA's mission is to reduce the burden of fire and other hazards on the quality of life by providing training and education for fire officials and advocating and supporting scientifically-based consensus codes and standards.

The NEOFPA is not only a local non-profit organization but, more importantly, it is an organization advocating fire prevention throughout Northeast Ohio and is an authoritative source on public safety. The NEOFPA participates in the process of codes and standards development and have helped to protect both people and property throughout Northeast Ohio.

AUGUST 1, 2011

POSTS COMMENTS

NEOFPA

North Eastern Ohio
Fire Prevention Association

Home | News | Events | Education | Public Fire Safety | Contact | RFA

Search this website ... Search

Pet Oxygen Masks Save Pets in NE Ohio

In April, Invisible Fence® Brand will celebrate Project Breathe Month by donating more than 1,300 masks ... [more]

Announcements

New page: Products That Promote Fire Prevention

JUNE 5, 2011 BY NEOFPA ADMIN

The North Eastern Ohio Fire Prevention Association will periodically display items that promote fire safety for the community on our fire safety products page.

Modification to OFC to I-2 Occupancies for Hand Sanitizers

JUNE 5, 2011 BY NEOFPA ADMIN • LEAVE A COMMENT

The State Fire Marshal has issued a modification of the Ohio Fire Code to all hospitals that are members of the Ohio Hospital Association regarding the use of alcohol based hand sanitizers in corridors of I-2 occupancies. Full details can be

Fire Safety Tip of the Month

Plan your escape

Make a home escape plan and hold regular fire drills so everyone in your household knows what to do in an emergency. When escaping a fire, feel the cracks around doors with the back of your hand before opening them. If they are warm, try another escape route.

previous safety tips →

Membership Meetings

September Membership Meeting

09/12/2011 - 12:00 » Beachwood Ohio

The speaker for this meeting will be from Dominion Gas; the topic is to be announced.

details →

Hazards & Violations

Links

Galleries

Member Resources

About NEOFPA

The NEOFPA's mission is to reduce the burden of fire and other hazards on the quality of life by providing training and education for fire officials and advocating and supporting scientifically-based consensus codes and standards.

The NEOFPA is not only a local non-profit organization but, more importantly, it is an organization advocating fire prevention throught Northeast Ohio and is an authoritative source on public safety. The NEOFPA participates in the process of codes and

Photoelectric Smoke Alarms

Need'em!
Get'em!
Check'em!

GetSafeAlarms.com

neofpa.org

NEOFPA
North Eastern Ohio
Fire Prevention Association

The Euclid Test

January 10 & 11, 2013

Test 1	Kidde	(PE)	7m:53
	First Alert	(PE)	8m:24
	First Alert	(Ion)	22m:43
	Kidde	(Ion)	27m28
Test 2	Kidde	(PE)	4m:31
	First Alert	(PE)	5m:20
	Kidde	(Ion)	13m:43
	First Alert	(Ion)	13m:59

Two story house slated for demolition, used love seat and couch (polyester/synthetic cover, wood frame), SA approximate twelve feet from new SA's mounted per code in hallway, ignition Weller soldering iron max temperature of 750 degrees

UNDER 30 MINUTES

Mayfield Village Tests
May 12 & 13, 2014

Test 1	Kidde	(PE)	21m:30
	First Alert	(Ion)	21m:35
	First Alert	(Ion)	44m* and 51m:28
	Kidde	(Ion)	(DNT, testing ended at 70m)
Test 2	First Alert(	PE)	22m:30
	First Alert	(Ion)	(DNT, testing ended at 65m)
	Kidde	(Ion)	(DNT, testing ended at 65m)
Test 5	Kidde	(PE)	12m:09
	First Alert	(PE)	13m:33
	Kidde	(Ion)	(DNT, testing ended at 73m)
	First Alert	(Ion)	(DNT, testing ended at 73m)

One story 3bedroom house slated for demolition, new love seat and couch (body: textile waste fiber, resinated polyester fiber, polyurethane foam pad, seating: polyurethane foam pad batting wood frame), SA approximate twelve feet from new SA's mounted per code in hallway, ignition Weller soldering iron max temperature of 750 degrees

MAYFIELD TEST WAS FILMED BY GOOD MORNING AMERICA

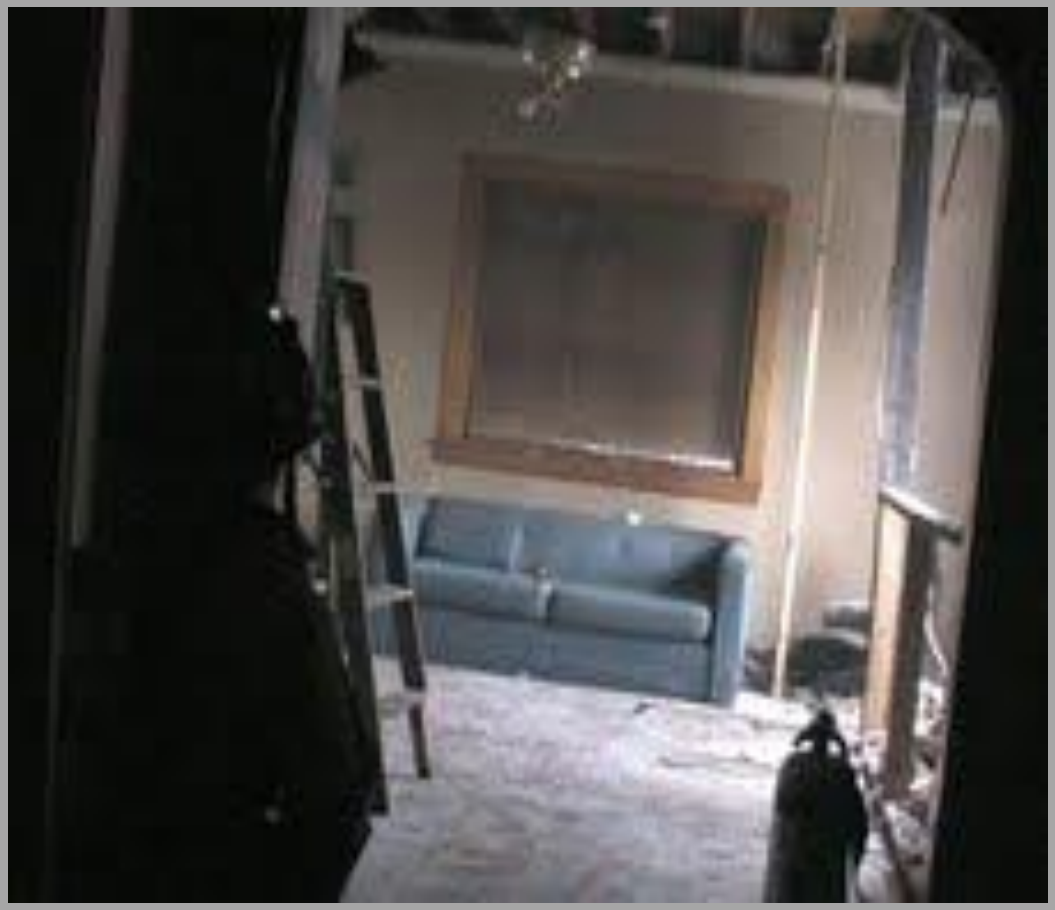
Barre City, Vermont

In Barre City, Vermont on December 17, 2005, a fire took the lives of four children and their mother (relatives of fire chief).

The fire department was perplexed after the alarms were found to be working after the fire; yet never sounded during the fire.

As a result, the fire department started researching smoke alarm technology. They concluded that ionization alarms have problems. They conducted their own testing and discovered that photoelectric alarms sounded significantly faster than ionization alarms in many types of fires that often lead to fatalities.

BARRE VERMONT FD TESTING OF SMOKE ALARMS



> PICTURE TAKEN WHEN PHOTOELECTRIC SOUNDED
> VISIBILITY WOULD BE ACCEPTABLE (TEST CONDUCTED DURING DAY)
> FAMILY WOULD SURVIVE.

BARRE VERMONT FD TESTING OF SMOKE ALARMS

> PICTURE TAKEN WHEN IONIZATION SOUNDED (TEST CONDUCTED DURING DAY)
> CONDITIONS ARE TOXIC
> FAMILY WOULD BE AT GREAT RISK

Statement for the Record
National Institute of Standards and Technology
to the
Boston City Council Committee on Public Safety
August 6, 2007

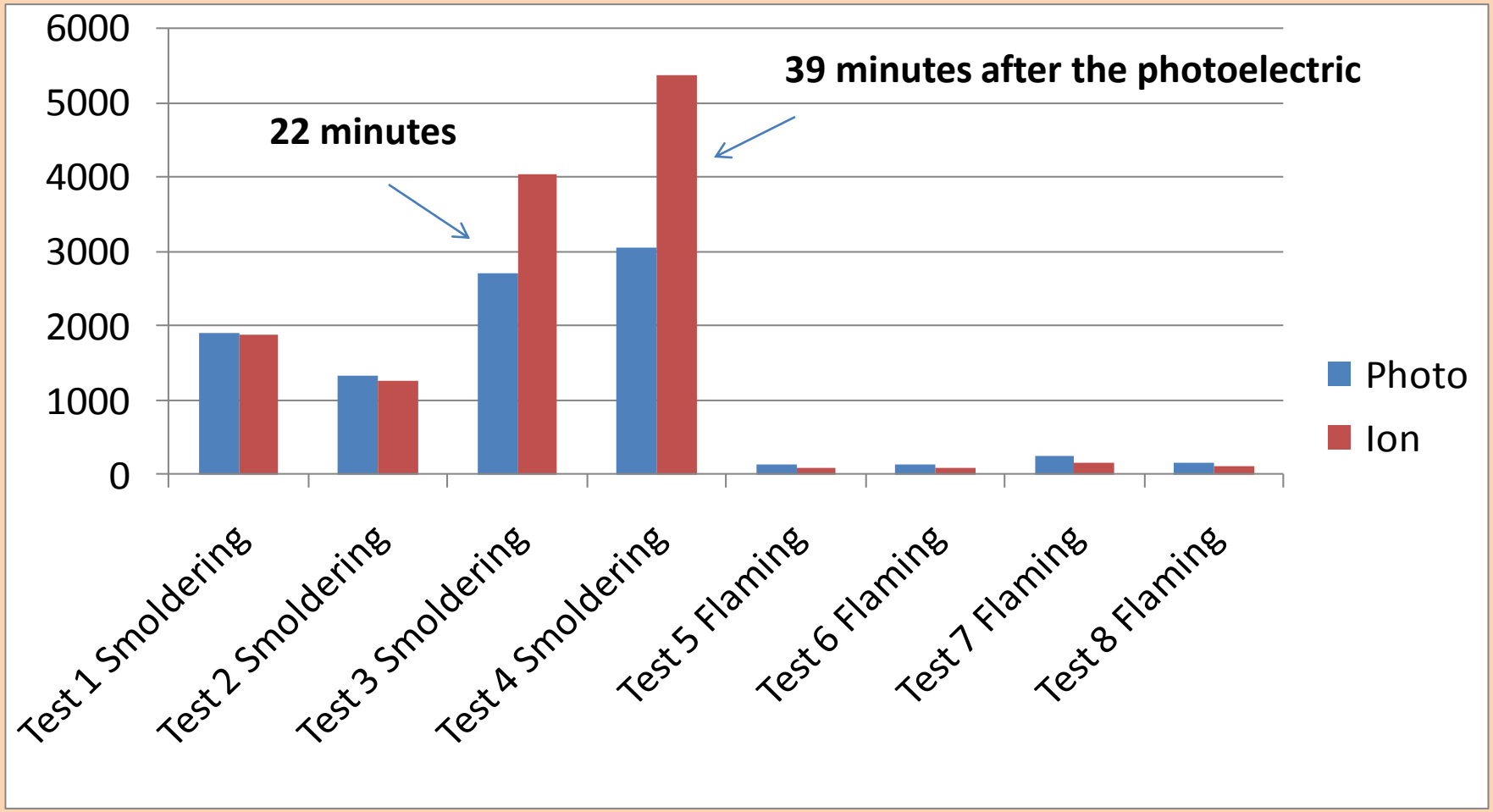
The general trends from a 2004 NIST experimental study into the behavior of smoke alarms are consistent with several previous scientific studies showing that properly installed and maintained ionization and photoelectric alarms provide enough time to save lives for most of the population under many fire scenarios. ***However, ionization detectors have been shown to sometimes fail to alarm in a smoldering fire even when visibility in the room is significantly degraded by smoke.*** Most photoelectric detectors alarm substantially sooner in these situations.

In the NIST experiments the photoelectric detectors sensed smoldering fires on average 30 minutes earlier than the ionization detectors. The same study demonstrated that ionization detectors responded, on average, 50 seconds earlier than photoelectric detectors during flaming fire experiments. The relative margins of safety associated with a 30 minute earlier warning in a slow growing smoldering fire compared to a 50 second earlier warning for a fast growing flaming fire is difficult to determine.

NIST 2008

ALARM TIMES IN SECONDS

*Results from a Full-Scale Smoke Alarm Sensitivity Study



The photoelectric is blue

The ionization is red

ASET

Available time you have to escape a fire (in seconds)

	PHOTOELECTRIC	IONIZATION	DUAL ION/PHOTO
FLAMING	**FLAMING**	**FLAMING**	
Living Room	108	152	
Living Room (Rep)	134	172	
Living Room (FF)	144	172	
Bedroom	350	374	
Bedroom (Closed)	3416	3438	
SMOLDERING	**SMOLDERING**	**SMOLDERING**	**SMOLDERING**
*Living Room	3298 (55 min.)	16	3332
***Living Room (AC)**	**2773 (46 min.)**	**(-54)**	2108

NIST Technical Note 1455-1 (page 243 and is two story, alarm on each level, ASET in seconds) February 2008 Revision.
Performance of Home Smoke Alarms Analysis of the Response of Several Available Technologies in Residential Fire Settings

WHITE PAPER
HOME SMOKE ALARMS
AND OTHER FIRE DETECTION
AND ALARM EQUIPMENT
Public/Private Fire Safety Council
April, 2006

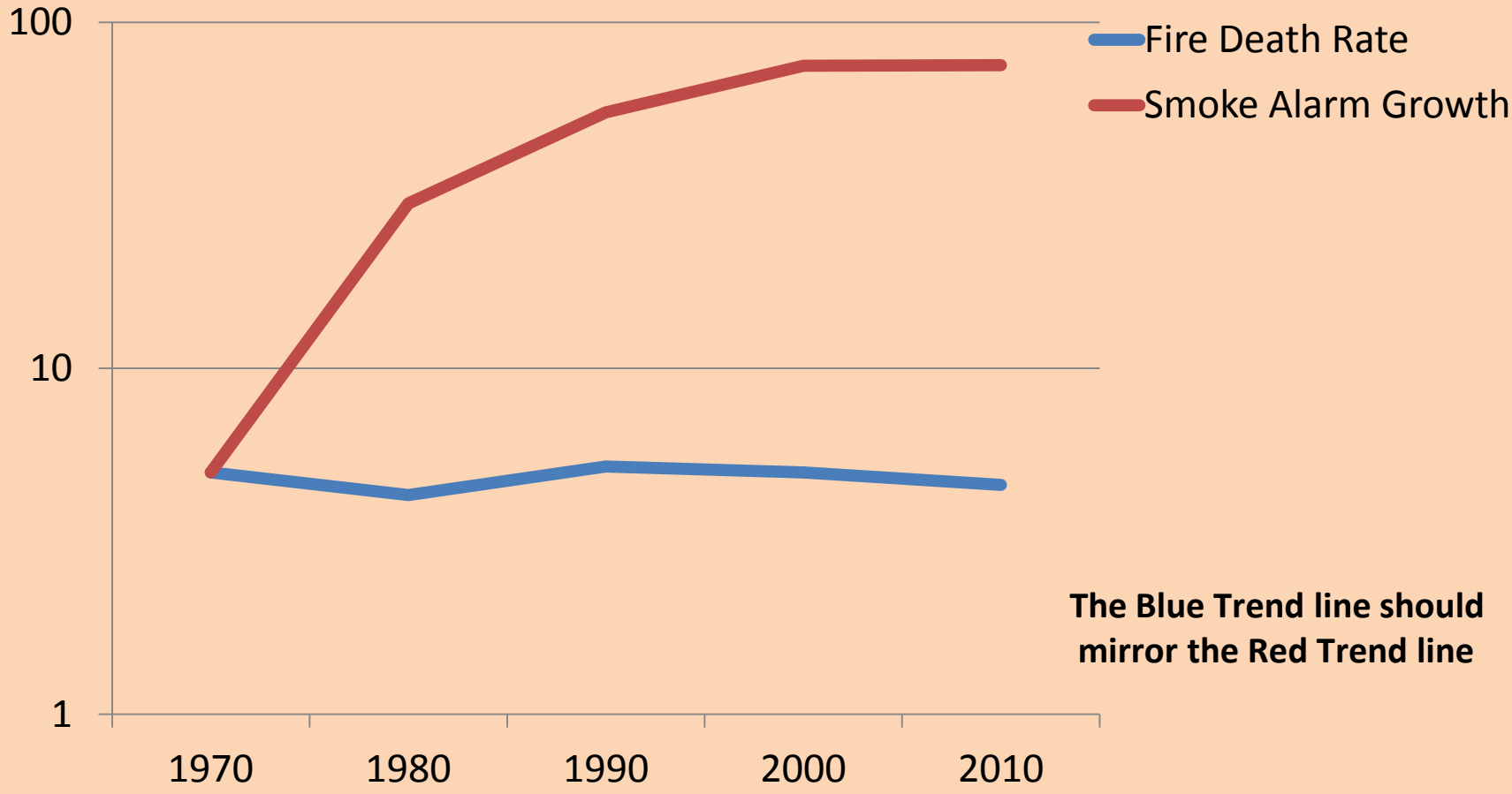
"However, more than one-fourth of home fire deaths (all or nearly all of those involving smoking materials and some others) involve an extended initial smoldering phase. [16] A recent study found **unsatisfactory performance** (available escape time was less than estimated required escape time) **by ionization-mode smoke alarms against fire scenarios that involved 30 to 120 minutes of initial smoldering.**[15] **There is insufficient data to determine whether the fires that smolder long enough to defeat ionization-mode smoke alarms are closer to 3% or 25% of the total."**

"White Paper"
Home Smoke Alarms

Public/Private Fire Safety Council
April, 2006

- **Council Members**
- In addition to **CDC, CPSC and USFA**, the Public-Private Fire Safety Council consists of the following organizations:
- American Burn Association
- American Insurance Association
- American Red Cross
- Congressional Fire Services Institute
- Home Safety Council
- ***International Association of Fire Chiefs**
- ***International Fire Marshals Association**
- ***National Association of State Fire Marshals**
- ***National Fire Protection Association**
- National SAFE KIDS Campaign
- ***Underwriters Laboratory**
- U.S. Department of Health and Human Services/Indian Health Service
- U.S. Department of Housing and Urban Development

Fire Deaths per 1,000 Fires compared to the Increased Usage of Smoke Alarms over 30 years



WHITE PAPER

HOME SMOKE ALARMS
AND OTHER FIRE DETECTION
AND ALARM EQUIPMENT
Public/Private Fire Safety Council
April, 2006

"The home fire death rate relative to number of fires is essentially unchanged from 1977 to 2003.[3]"

3. Rates are calculated using fire statistics from reference [1] and previous reports in series, and population data from *Statistical Abstract of the United States 2004-2005, U.S. Census Bureau, Washington, DC, 2004.*

COLUCCI · COLUCCI MARCUS & FLAVIN P.C.

Massachusetts Smoke Alarm Law Lawyers

Diligently Gathering Information Regarding Defective Smoke Alarms and Presenting It in Court

When you tell a judge or insurance representative that a smoke alarm "just didn't go off," you will likely not get very far or obtain much compensation. You need persuasive **evidence**.

We are experienced in investigating accidents and defective products. In a recent defective smoke detector case, we presented a **film** in which an operating **ionization smoke alarm failed to go off even, though it was placed above a smoldering sofa**. By proving that smoldering fires don't generate sufficient heat to set off ionization smoke alarms in some instances, we were able to successfully advocate for our injured client's rights. For more information, please contact our office.

UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

SUMMARY ORDER

Our review of the record reveals sufficient evidence to support the jury's determinations

(i) that the smoke detector was defectively designed under New York law; (ii) that Defendants-Appellants were negligent with respect to the smoke detector; (iii) **that the smoke detector's failure was a legal cause of the deaths of William and Christine Hackert**; and (iv) that an award of punitive damages was appropriate.

"**Every single family in America, if they have a smoke detector in their house, they're affected by this. The proof showed that sometimes the ionization detectors wouldn't even go off at all, and yet they continue to manufacture them, continue to sell them, continue to stand by them."**
(Jim Hacker, Hacker & Murphy LLP, in an interview for the 'Deadly Delay' TV Series)

*** In the case there were 355 written complaints about First Alert/BRK's ionization smoke alarms failing to activate in a timely manner in real-world fires.**

AVERYANA DALE, AUBURN, NY

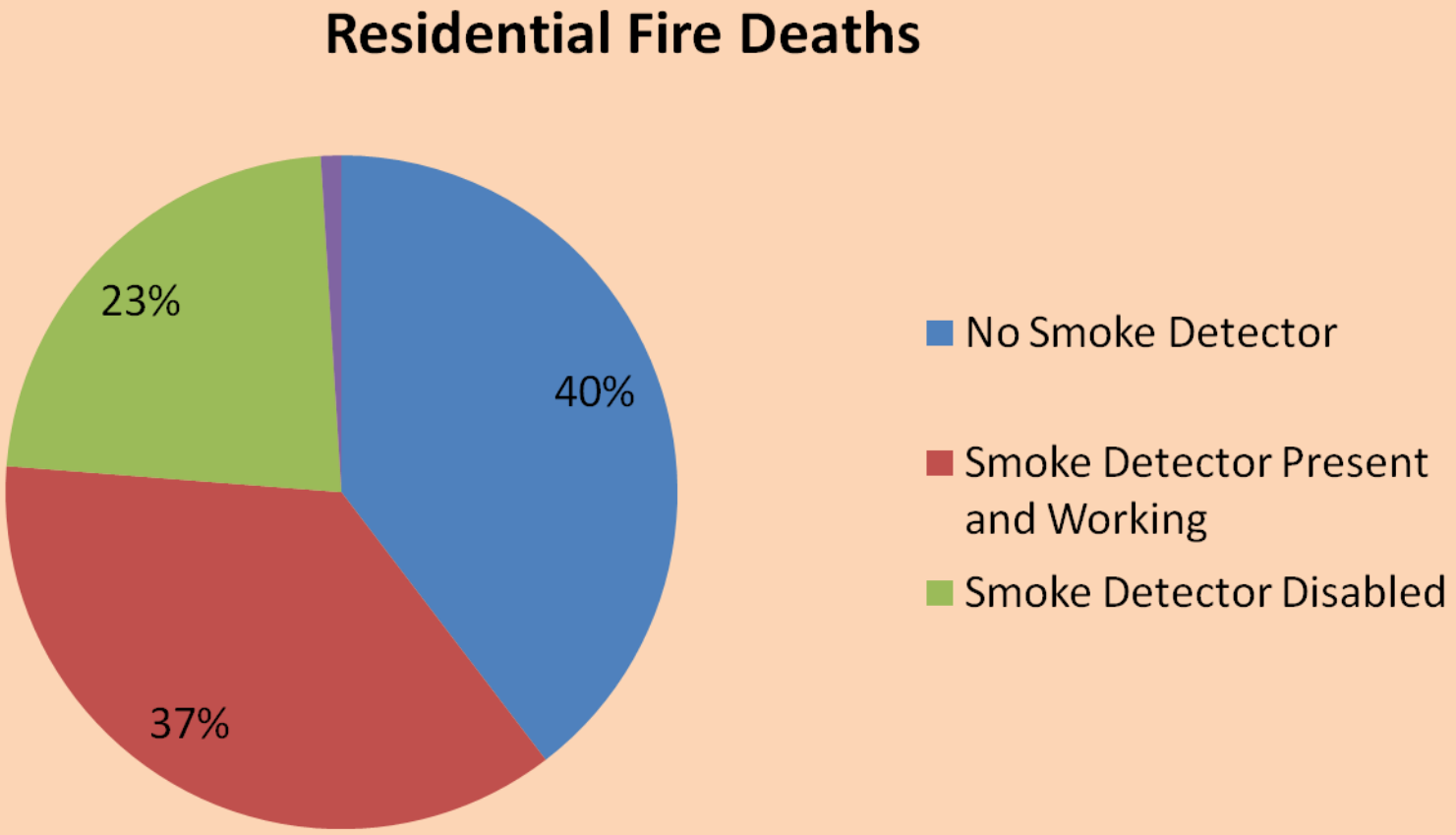
On March 11, 2012 Averyana Dale (2) and her godmother, Rachel Harris-Curione (38), were killed in a house fire in Auburn New York.

When Averyana's aunt, Valerie Rivett, visited the scene of the fire the following morning, she was stunned to find there was no fire damage.

Despite brand new, hard-wired ionization smoke alarms, Averyana and Rachel had died from smoke inhalation.

Smoke Alarm Presence and Performance

September 2009 NFPA Report by Marty Ahrens



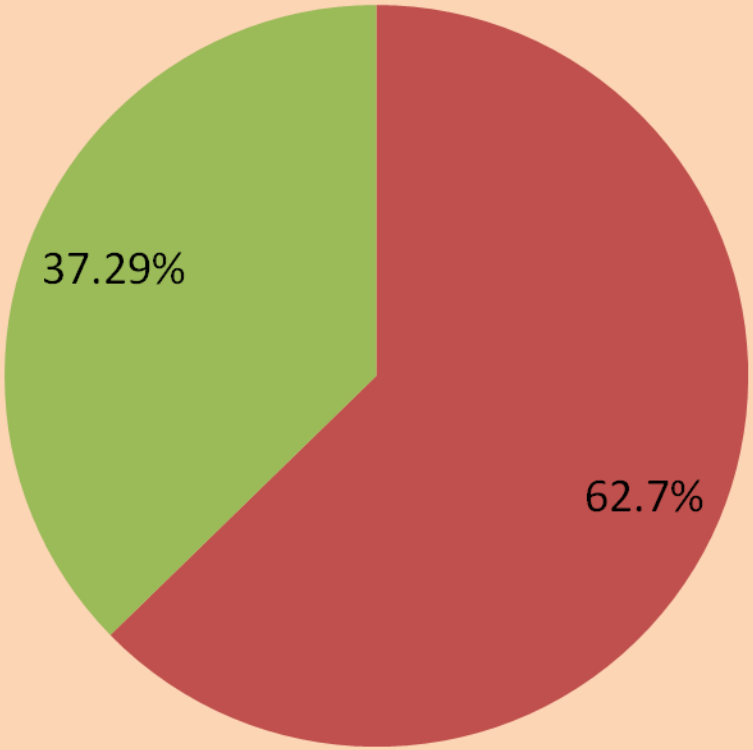
Fatalities of people that purchased a smoke alarm and died

Non-Working Alarm

Dead Battery

Removal of Battery

Nuisance alarm problems leading reason for removal of batteries



Working Alarm

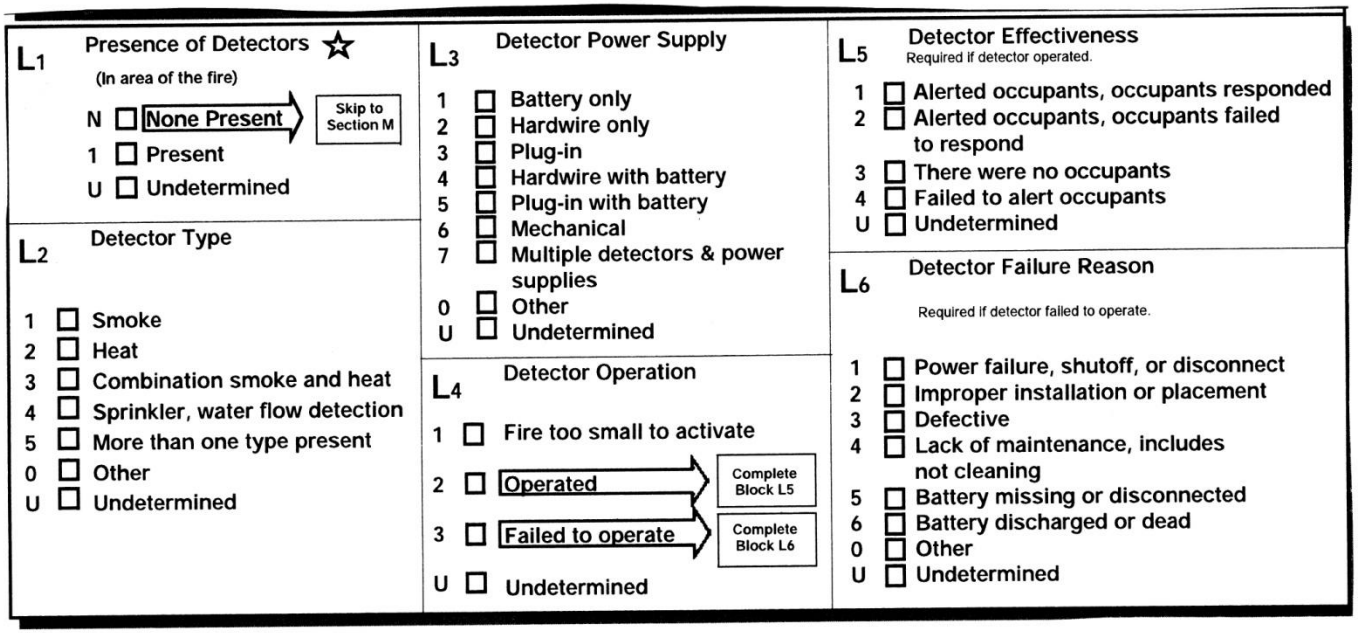
Victim Intimate with fire

Behavioral /Physical Factors

Technology Failure (Alarm didn't operate or signaled too late)

"NFIRS is not asking the questions that are needed to determine how smoke alarm technology is affecting occupant death/injury outcomes in residential fires in America."

…Devon Paullin, Fire Inspector, Shaker Heights Fire Department, Retired. Secretary, NEOFPA



L1 Presence of Detectors ☆
(In area of the fire)
N ☐ None Present → Skip to Section M
1 ☐ Present
U ☐ Undetermined

L2 Detector Type
1 ☐ Smoke
2 ☐ Heat
3 ☐ Combination smoke and heat
4 ☐ Sprinkler, water flow detection
5 ☐ More than one type present
0 ☐ Other
U ☐ Undetermined

L3 Detector Power Supply
1 ☐ Battery only
2 ☐ Hardwire only
3 ☐ Plug-in
4 ☐ Hardwire with battery
5 ☐ Plug-in with battery
6 ☐ Mechanical
7 ☐ Multiple detectors & power supplies
0 ☐ Other
U ☐ Undetermined

L4 Detector Operation
1 ☐ Fire too small to activate
2 ☐ Operated → Complete Block L5
3 ☐ Failed to operate → Complete Block L6
U ☐ Undetermined

L5 Detector Effectiveness
Required if detector operated.
1 ☐ Alerted occupants, occupants responded
2 ☐ Alerted occupants, occupants failed to respond
3 ☐ There were no occupants
4 ☐ Failed to alert occupants
U ☐ Undetermined

L6 Detector Failure Reason
Required if detector failed to operate.
1 ☐ Power failure, shutoff, or disconnect
2 ☐ Improper installation or placement
3 ☐ Defective
4 ☐ Lack of maintenance, includes not cleaning
5 ☐ Battery missing or disconnected
6 ☐ Battery discharged or dead
0 ☐ Other
U ☐ Undetermined

Thank You For The Opportunity To Present

Dean Dennis