Editor Fusible Link:
Brad Hart &
Ana Crisostomo
Tel: 646-572-3920
Fax: 646-871-3920

Society of
Fire Protection Engineers
New Jersey Chapter

FUSIBLE LINK

NOVEMBER 2010

President's Message...

Our October field trip to Victaulic was a great success. We observed new technology in operation and got a very interesting tour of their large manufacturing facility in PA. I would like to thank all Victaulic personnel for their hospitality and for taking the time to treat all of us like VIP's. I especially want to thanks Stanley Funk for setting the tours up and for having us as his guests. Our November meeting fast approaches. Please mark your calendars and attend the next meeting. Good food, expert speakers and interaction with your peers awaits. Don't let the opportunity slip by. See you all in November.

Rich Reitberger
Chapter President

NJ-SFPE October 14, 2010 Meeting Minutes

On October 14 the Chapter held a field trip to Victaulic in Easton PA. We had about 20 attendees. No chapter business was conducted during this trip. Our hosts, Stanley Funk, Marco Harris and Mike Polidori made a three part presentation. There was a classroom discussion of Victaulic's Vortex product, a factory tour of their Easton site where they manufacture fittings, valves and other equipment and a visit to their test site in Phillipsburg for a walk through and live, medium scale fire demonstrations of the Vortex system.

Vortex is a hybrid, total flooding, Special Hazards Extinguishing system using nitrogen and water mist. The hybrid technology uses an emitter to create a homogenous nitrogen water mix. Nitrogen leaves the emitter at about 750mph and creates a shock wave as it passes a foil, atomizing the surrounding water stream. The resultant sub micron (10 micron) water mist is one of the reasons the system is an effective extinguishant. The agents are discharged at approximately a 1:1 ratio in a high momentum, low flow delivery. Nitrogen is 25psi and water 5psi entering the emitter. Emitter flow is approximately 150scfm nitrogen (water can vary from .25gpm to 1.06 gpm per emitter depending on design concentration) and one emitter can cover 1500 to 2500 cf. Base design discharge time is typically 3 or 10 minutes depending on the hazard. There was further detailed discussion of system components and operation, much of this is on the on the literature and CD Victaulic provided to each attendee.

At their Edison site we got a close up look at the system and witnessed several operations including extinguishment of a pan fire. We saw how fine the water mist actually is and how little if any moisture residue collects on surfaces. Interesting to note; their test room has several pieces of energized electronic equipment, including a desktop PC and a server, subject to every test they conduct, and which are still operating after numerous (assumed) tests.

The factory tour was an enjoyable look at a Victaulic's forges and machine shop. Including discussion of their Just in Time manufacturing procedures and modern coatings technology.

There were many comments afterward about how much we learned and how worthwhile and enjoyable the day was. Sincere thanks to our hosts; Stanley and his colleagues at Victaulic.

SFPE NJ Chapter Field Trip to Victaulic

On October 15, the Chapter sponsored a field trip for its members to the Corporate and research offices of Victaulic. Those that attended learned in detail about Victaulic's new " Vortex" fire suppression system (not a gas suppression, not a water suppression, not a water mist system but a hybrid) which offers many significant advantages over various types of gas suppression or water mist technology. A new technology that could be a game changer in the near future. We also toured one of their manufacturing plants and learned about their extensive quality control protocols on their products that play an important part on fire protections system components that they manufacture. Our fields of fire, property and business continuity protection is constantly changing. The chapter meetings and events offer an easy and enjoyable way to keep up with these changes so that we can be better at what we do. The following is but one testimonial from one member that attended the field trip:

Colleagues:

I fully agree with both Paul and Joe. The field trip was "OUTSTANDING". The monthly meetings are also EXCELLENT. I am sure a lot of planning and effort goes into organizing this.

My sincere thanks to the NJSFPE Chapter officers. Thank You.

Thanks
Chandra C. Patel
Roche
340 Kingsland Street
Nutley, NJ 07110-1199
Manager, EH&S Safety Operations
Roche Toastmasters VP of Public Relations
Tel: 973-235-3520
Fax: 973-235-7710
Email: chandra_c.patel@roche.com

TOPICAL FIRE REPORT SERIES Volume 11, Issue 2 / August 2010

Fatal Fires in Residential Buildings

These topical reports are designed to explore facets of the U.S. fire problem as depicted through data collected in the U.S. Fire Administration's (USFA's) National Fire Incident Reporting System (NFIRS). Each topical report briefly addresses the nature of the specific fire or fire-related topic, highlights important findings from the data, and may suggest other resources to consider for further information. Also included are recent examples of fire incidents that demonstrate some of the issues addressed in the report or that put the report topic in context.

Findings

- An estimated 1,800 fatal residential building fires are reported to U.S. fire departments each year and cause an estimated 2,635 deaths, 725 injuries, and $196 million in property loss.
- Fatal residential building fires tend to be larger, cause more damage, and have higher injury rates than nonfatal residential fires.
- Smoking is the leading cause of fatal residential building fires (19 percent).
- The leading areas of fire origin in fatal residential building fires are bedrooms (27 percent) and common areas such as living and family rooms (23 percent).
- Fatal residential building fires are more prevalent in the cooler months, peaking in January (13 percent).
- Fatal residential building fires occur most frequently in the late evening and early morning hours, peaking from midnight to 5 a.m. One-third (33 percent) of fatal residential fires occur during these 5 hours.
- About two-thirds (66 percent) of fatal residential building fires are confined to the building of origin or extend beyond the building of origin.

The U.S. fire death rate has gone down dramatically over the past three decades since the creation of the U.S. Fire Administration (USFA), from over 30 deaths per million population to 11 deaths per million population. The United States, however, continues to have one of the highest fire death rates per capita among Western Nations.[1,2] The original goal for USFA was to help lead a reduction in fire deaths by 50 percent in a generation. With annual fire deaths dropping from over 9,000 to less than 3,500 in that period of time, USFA's goal has been achieved. Nevertheless, fire deaths are still high.

Approximately 1,800 fatal residential building fires occurred annually in recent years (2006 to 2008).3,4 These fires resulted in an annual average of approximately 2,635 deaths, 725 injuries, and $196 million in property loss.

This report is one of a continuing series of topical reports issued by the USFA's National Fire Data Center and addresses the characteristics of fatal residential building fires reported to the National Fire Incident Reporting System (NFIRS) from 2006 to 2008, the most recent data available at the time of the analysis. Because 79 percent of fire deaths occur in residential buildings, they are the focus of this
report. The information in this report about fatal residential fires can be used not only to assess progress but also to understand the nature of the fatal fire problem and its implications for targeting of prevention programs.

For the purpose of this report, the terms "residential fires" and "fatal residential fires" are synonymous with "residential building fires" and "fatal residential building fires," respectively. "Fatal residential fires" is used throughout the body of this report; the findings, tables, charts, headings, and footnotes reflect the full category, "fatal residential building fires."

Loss Measures

Fatal residential fires do not account for many fires in the overall residential fire profile, but they have tremendous and devastating outcomes. Table 1 presents losses, averaged over the 3-year-period, for fatal and nonfatal residential fires.5 Fatal residential fires reported to NFIRS have 6 times the dollar loss per fire and 13 times the injury rate of nonfatal residential fires. These statistics reflect the destructive nature of the fires that result in fatalities.

Table 1. Loss Measures for Fatal and Nonfatal Residential Building Fires (3-year average, 2006–2008)

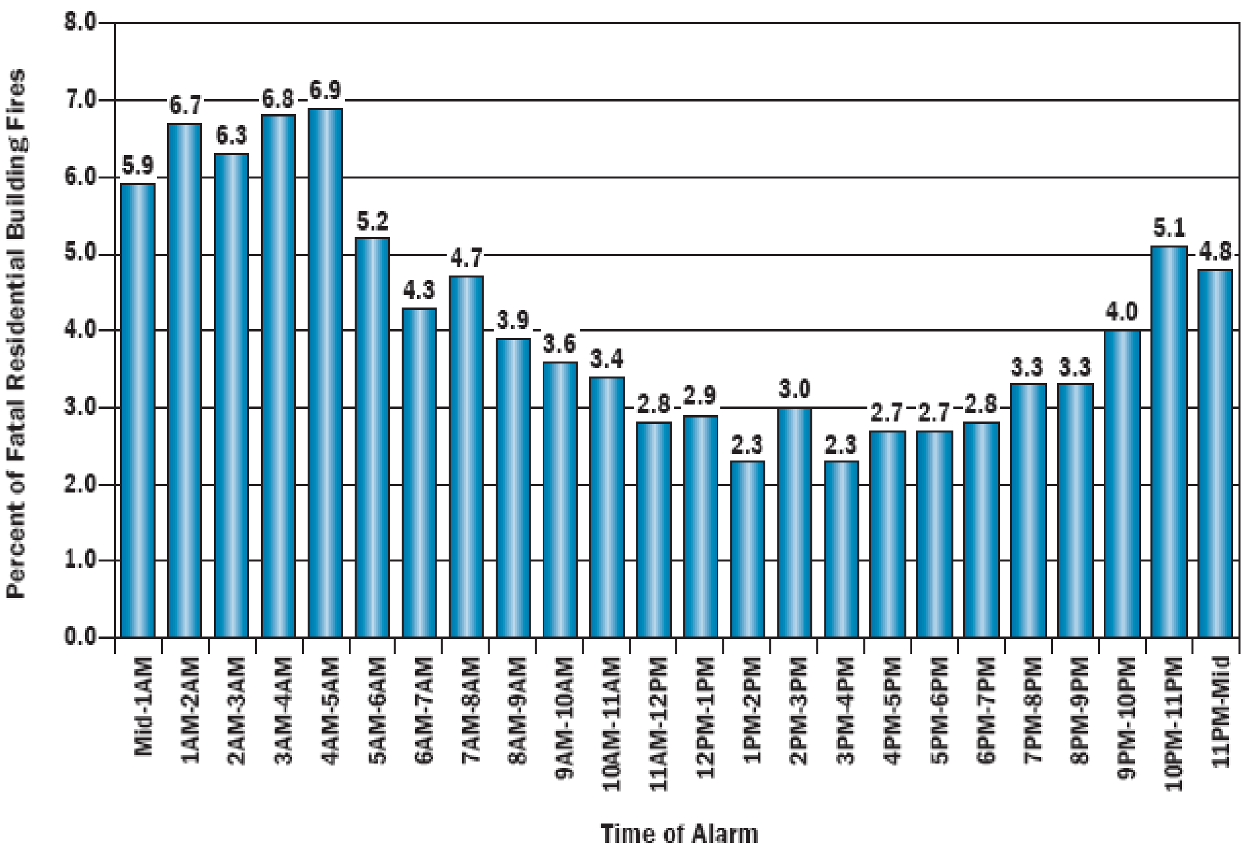
Measure	Fatal Residential Building Fires	Nonfatal Residential Building Fires
Average Loss:		
Fatalities/1,000 fires	1,199.5	0.0
Injuries/1,000 fires	344.2	26.7
Dollar loss/fire	$95,080	$15,710

Source: NFIRS 5.0.
Note: Average loss for fatalities and injuries is computed per 1,000 fires; average dollar loss is computed per fire and is rounded to the nearest $10.

When Fatal Residential Building Fires Occur

As shown in Figure 1, fatal residential fires occur most frequently in the late evening and early morning hours, peaking from midnight to 5 a.m. One-third (33 percent) of fatal residential fires occur during these 5 hours. They then decline throughout the day, reaching the lowest point during the early afternoon hours.[6] There are a few possible reasons for this. First, many people are sleeping and less on guard in the middle of the night. If smoke alarms are not present, these individuals may die before waking up to a fire. Second, and related, cigarette and other smoldering fires started by careless actions before people retire for the night may go unnoticed and grow to rapidly progressing fires while they are sleeping.

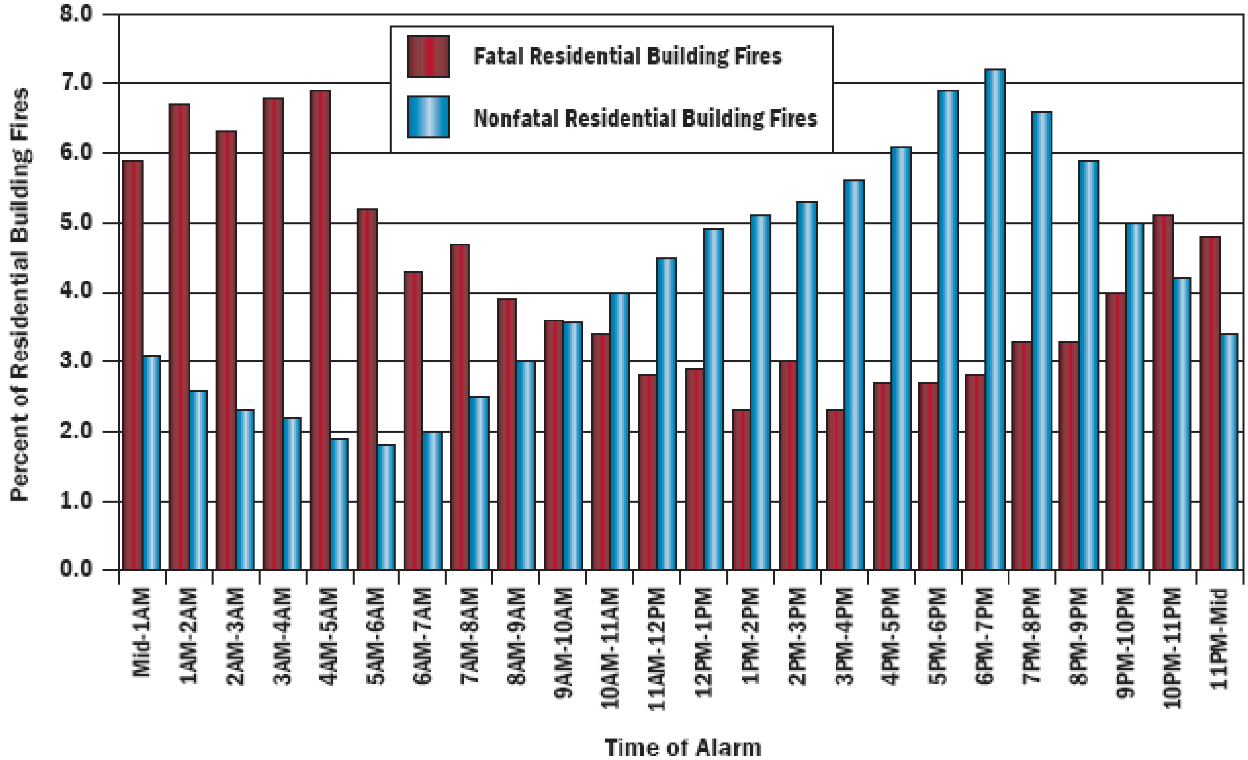
Figure 1. Fatal Residential Building Fires by Time of Alarm (2006–2008)



Source: NFIRS 5.0.

The time of alarm profile for fatal residential fires is in contrast to the alarm time profile for nonfatal residential fires as shown in Figure 2. Nonfatal residential fires have the reverse daily cycle, with fires, predominately cooking fires, occurring during the late afternoon and evening.

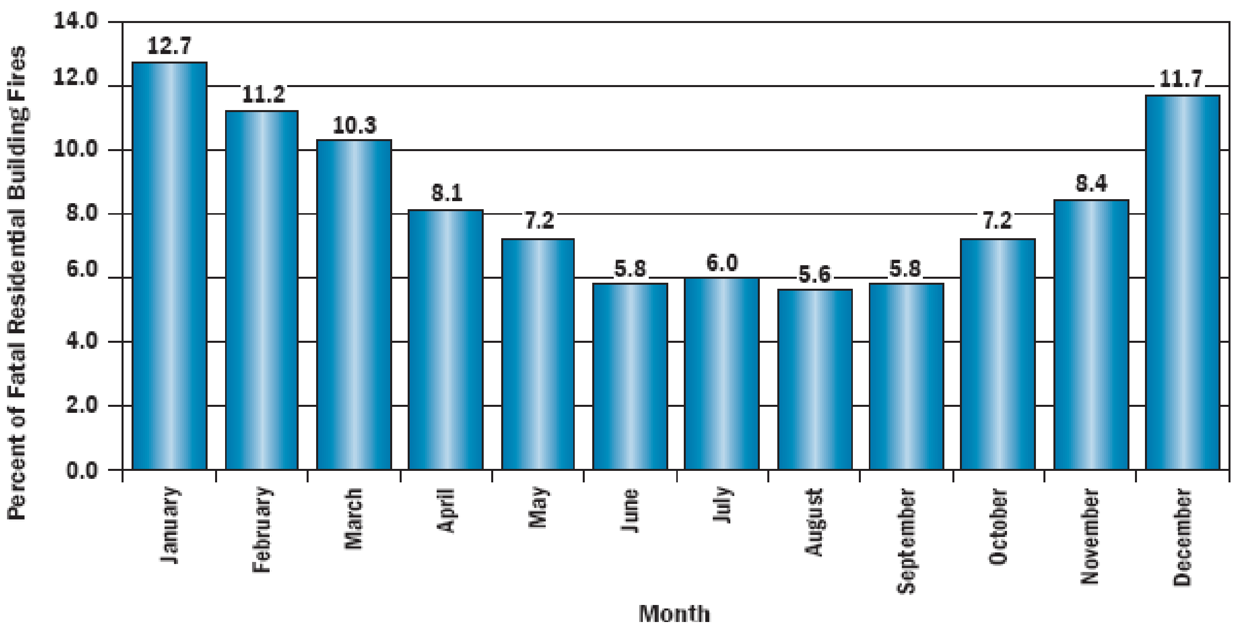
Figure 2. Time of Alarm for Fatal and Nonfatal Residential Building Fires (2006–2008)



Source: NFIRS 5.0.

Fatal residential fires have much higher incidence in the cooler months—twice that of the summer months, perhaps as a result of increased activities indoors. Fatal residential fires peak in January at 13 percent (Figure 3). Fire incidence declines steadily after January, reaching the lowest incidence during the summer months.

Figure 3. Fatal Residential Building Fires by Month (2006–2008)



Source: NFIRS 5.0.

Causes of Fatal Residential Building Fires

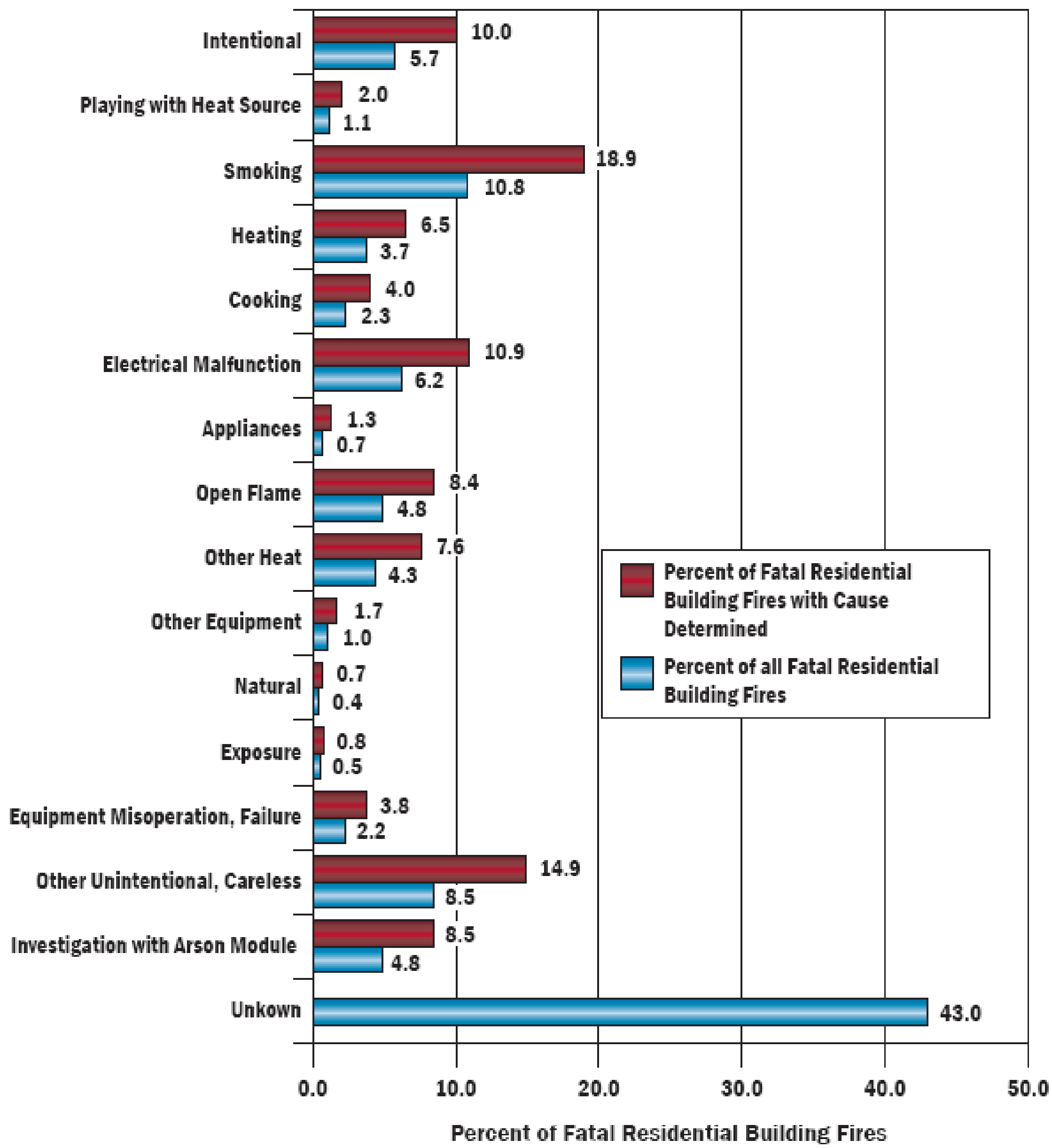
The causes of fires are often a complex chain of events. To determine the cause of a fire, analysts rely on the data collected. Heat source, equipment involved, factors (human or otherwise) contributing to the ignition, incident type, and the cause of ignition are the primary data elements used. A large percentage of fatal residential fire incidents reported to NFIRS (43 percent) do not have sufficient information to determine the cause of the fire. The cause analyses that follow reflect only the 57 percent of incidents where enough information and enough detail were reported to determine the cause of the fatal fire.[7]

Nineteen percent of all fatal residential fires are smoking-related[8] as shown in Figure 4. Although not as prominent as it once was, smoking (with rare exceptions) has been the leading cause of fatal residential fires since NFIRS's inception. Fires caused by electrical malfunctions (11 percent) and intentionally set fires (10 percent) are the next leading specific causes.

Multiple fatality fires, those fires resulting in two or more deaths, in residential buildings were most often caused by electrical malfunctions (16 percent) followed by intentionally set fires (14 percent). In contrast, smoking is the leading cause of single fatality fires (20 percent).

Fires caused by other unintentional or careless actions play a larger role in fatal residential fires (15 percent) than in nonfatal residential fires (6 percent).

Figure 4. Causes of Fatal Residential Building Fires (2006–2008)



Source: NFIRS 5.0.

Note: Causes are listed in order of the USFA Cause Hierarchy for ease of comparison of fire causes across different aspects of the fire problem. Fires are assigned to 1 of 16 cause groupings using a hierarchy of definitions, approximately as shown in the chart above. A fire is included in the highest category into which it fits. If it does not fit the top category, then the second one is considered, and if not that one, the third, and so on. For example, if the fire is judged to be intentionally set and a match was used to ignite it, it is classified as intentional and not open flame because intentional is higher in the hierarchy.

Winter and Summer Fatal Residential Fire Causes

As shown in Figure 3, fatal residential fires have much higher incidence in the cooler months. While the addition of heating helps account for the increase in overall residential fires in the cooler winter months, heating is not a primary cause of these winter fatal residential fires. Nearly half of all fatal residential fires in December through March are the result of three causes: smoking (20 percent); other unintentional or careless actions (17 percent); or electrical malfunctions (12 percent). Heating, the fourth leading cause, is the cause of 9 percent of these fatal winter fires (Table 2).

Half as many fatal fires occur in the warmer months, June through September (also Figure 3). As shown in Table 2, with the exception of intentionally caused fires, the causes of these summer fires are not remarkably different from fatal winter fires. Three of the four leading causes remain the same: smoking (18 percent); electrical malfunctions (12 percent); and other unintentional or careless actions (11 percent). The increase in fatal fires in the winter months is more likely to be related to the increase in indoor activities, as noted earlier, rather than the type of fire.

Table 2. Relative Proportion of Leading Causes of Fatal Residential Building Fires: Winter and Summer (3-year average, 2006–2008)

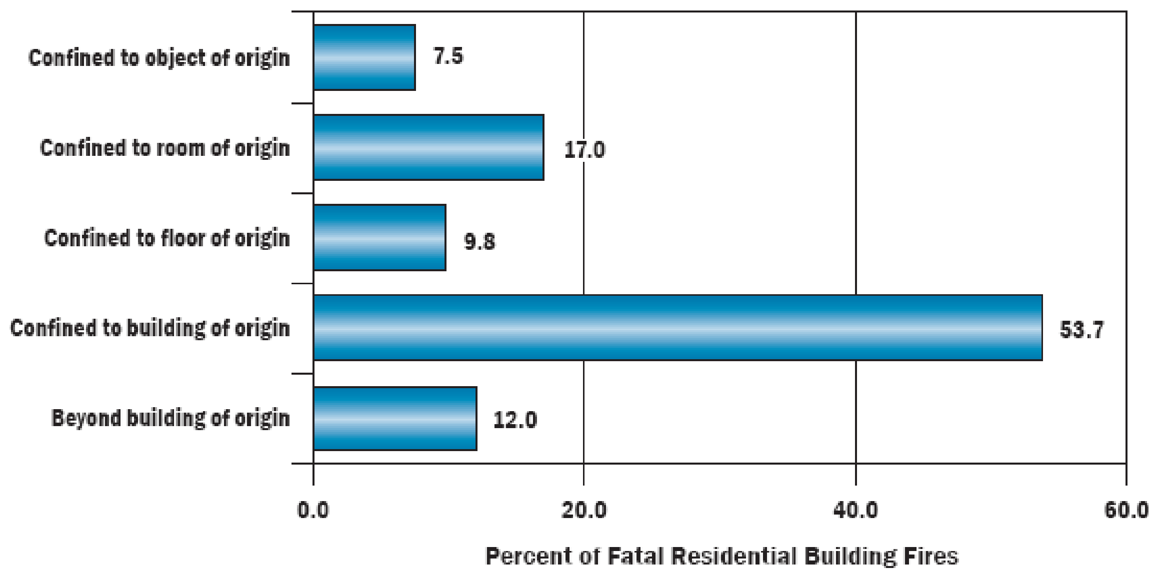
Leading Cause of Fire	Percent (Unknowns Apportioned)	
	December–March	June–September
Smoking	19.5	17.7
Intentional		14.7
Other Unintentional, Careless	17.1	11.4
Electrical Malfunction	11.5	12.1
Heating	8.5	

Source: NFIRS 5.0.

Fire Spread in Fatal Residential Building Fires

Seventy-six percent of fatal residential fires extend beyond the room of origin. These fires often occur in the middle of the night when residents are generally asleep and unaware of the fire. In addition, a quarter of fatal residential building fires are confined to the room or object of origin (Figure 5). Many people do not realize that a fire does not have to be large to be deadly.

Figure 5. Extent of Fire Spread in Fatal Residential Building Fires (2006–2008)



Source: NFIRS 5.0.

Where Fatal Residential Building Fires Start

Table 3 shows the leading areas of fire origin in fatal residential building fires. These fires start most frequently in bedrooms (27 percent) and common rooms including dens, family rooms, living rooms, and lounges (23 percent). Fires starting in cooking areas or kitchens account for 15 percent of fires.

Table 3. Leading Areas of Origin for Fatal Residential Building Fires (2006–2008)

Area of Origin	Percent (Unknowns Apportioned)
Bedrooms	27.4
Common room, den, family room, living room, lounge	22.5
Cooking area, kitchen	15.3

Source: NFIRS 5.0.

Eighty percent of fatal residential fires occur in one- and two-family houses as seen in Table 4. This is not surprising since the majority of the population lives in these types of residences.[9] Multifamily houses account for 16 percent of all fatal residential fires. Other residential occupancies, including boarding and rooming houses, and hotels and motels, are a very small portion, accounting for only 4 percent of fatal residential fires.

Table 4. Property Use for Fatal Residential Building Fires (2006–2008)

Property Use	Percent (Unknowns Apportioned)
One- and two-family houses	80.2
Multifamily houses	16.1
Other residential buildings	2.8
Boarding, rooming houses	0.4
Hotels and motels	0.4
Total	100.0

Source: NFIRS 5.0.
Note: Total may not add to 100 percent due to rounding.

Factors Contributing to Ignition

Table 5 shows the categories of factors contributing to ignition for fatal residential fires. The "misuse of material or product" is the leading category contributing (59 percent) to the ignition of fatal residential fires. Factors in the "electrical failure or malfunction" category contribute to the ignition of the fire in 15 percent of fatal residential fires. The "other (unspecified) factors" and "operational deficiency" categories account for 13 percent and 12 percent, respectively, of fatal residential fires. These four categories play a role in nearly all fatal residential fires where a contributing factor is reported.

Placing a heat source too close to combustible objects, part of the "misuse of material or product" category, is the leading specific contributing factor (21 percent). Also a part of the "misuse of material or product" category, abandoned or discarded materials, primarily cigarettes, is the second leading specific contributing factor in 17 percent of fatal residential fires.

Table 5. Factors Contributing to Ignition for Fatal Residential Building Fires by Major Category (Where Factor Contributing Specified, 2006–2008)

Factor Contributing to Ignition Category	Percent of Fatal Residential Fires (Unknowns Apportioned)
Misuse of material or product	59.3
Electrical failure, malfunction	15.1
Other factors contributing to ignition	13.2
Operational deficiency	12.0
Mechanical failure, malfunction	4.8
Fire spread or control	2.7
Design, manufacture, installation deficiency	1.4
Natural condition	1.1

Source: NFIRS 5.0.
Notes: 1) Includes only incidents where factors that contributed to the ignition of the fire were specified.
2) Multiple factors contributing to fire ignition may be noted for each incident; total will exceed 100 percent.

Human Factors Contributing to Ignition

Human factors—the human condition or situation that allowed the heat source and combustible material to combine to ignite the fire—play an important role in fatal residential fires. The leading human factor contributing to the ignition of the fire is being asleep. This finding is not unexpected as 48 percent of fatal fires occur during the 8-hour period, 10 p.m. to 6 a.m. (Figure 1). When being asleep was reported as a contributing factor to the fire, it was most often reported as a factor in smoking-related and other unintentional or careless caused fires.

Possibly impaired by alcohol or drugs is the second leading human factor contributing to the ignition of the fire (24 percent). When possible alcohol or drug impairment was reported as a factor, it was most often reported as a factor in smoking-related and intentionally set fires.

To be continued in the next issue of the Fusible Link

RENEWAL APPLICATION & 2010- 2011 DUES NOTICE

Name: ______________________________

Title: ______________________________

Company: ______________________________

Business Address:

Fax: ______________________ **Phone:** ______________________

Home Address: ______________________________

Phone: ______________________________

Email Address* : ______________________________

- *** PLEASE PROVIDE US WITH YOUR E-MAIL ADDRESS EVEN IF WE HAVE IT ALREADY SO WE MAY UPDATE OUR RECORDS. THIS WILL ENABLE US TO PROVIDE YOU WITH IMPORTANT AND TIMELY NOTICES SUCH AS MEETING CANCELLATIONS DUE TO INCLEMENT WEATHER.**
- **Hurricanes are not considered inclemency's of the season here! Just normal circumstance that is not insured against in a normal homeowner's policy.**

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1. Are you a current member of the International SFPE?

   If not, would you like a membership application?

2. Are you interested in NJ Chapter Committee Participation?

****

PLEASE REMIT BY - ***ASAP***

MAKE YOUR CHECK PAYABLE TO **- "NJ CHAPTER SFPE"**

MAIL YOUR CHECK TODAY WITH THIS APPLICATION TO:

Vicki Lynn Serafin
C/O NJ Chapter SFPE
P.O. Box 8268
Parsippany, NJ 07054-1196

Email: vicki.serafin@affiliatedfm.com

Dues - 2010-2011: $20.00 **E-mail copies** of Fusible Link and Meeting Notices

Still need application Filed out **$ 0.00 Retired member**

Thank you for your continued support!

Meeting Dates/Programs 2010-2011

Nov. 1	Antifreeze in Residential and Industrial Sprinkler Piping—Russ Flemming
Dec. 6	Kelly award recipient to be speaker.
Jan. 3	Career day speakers from Maryland, Oklahoma and Worcester
Feb. 7	Dust Update—John Cholin
March 7	Insurance Industry Update
April 22	Joint Symposium/Seminar—International Codes and Standards
May 2	Green Power Hazards, FM speaker.
June 13	Annual Meeting—The Changing View of Protection for Date Centers.

Vicki Serafin
Affiliated FM
400 Interpace Parkway, Bldg C
3rd Floor
Parsippany, NJ 07054-1196
Phone: (973) 541-6771
Fax: (973) 541-6909

MEETING NOTICE

Date: November 1, 2010

Place: Hanover Manor
16 Eagle Rock Avenue
East Hanover, NJ

Price: $30.00

Dinner: 5:00-6:00 (Cash bar for mixed drinks)
Dinner at 6 PM

Topic: Antifreeze in Residential and Industrial Sprinkler Piping—Russ Flemming

Please note for this meeting:
All officers, directors and committee chairman are requested to attend a meeting at 4:00 p.m. at the Hanover
Manor.

PLEASE COMPLETE AND RETURN WITH YOUR CHECK PAYABLE TO "SFPE NJ CHAPTER" TO:

Vicki Serafin
Affiliated FM
400 Interpace Parkway, Bldg C - 3rd Floor
Parsippany, NJ 07054-1196
vicki.serafin@affiliatedfm.com

OR PAY AT THE DOOR

NAME: ____

COMPANY:______________________TELEPHONE:__________________

2008-2009 Chapter Committees

STANDING COMMITTEES

Program
Ed Armm, Chairman
Consulting - Peter Rullo
Richard Ravaioli
Arrangements
Vicki Serafin, Chairperson

Membership
John Cholin, Chairman

Nominating
Dave Gluckman, Chairman
Glenn Dietz
Chuck Gandy

Scholarship Fund
Chuck Gandy, Chairman
Ed Armm
Mike Machette
Alternates: Rich Reitberger, Jim Tolos

Auditing
Joe Janiga, Chairman
John Warnet

Archivist
Rich Reitberger, Chairman
Nicole Smith

Historian
Jim Tolos

Communications
Fusible Link—Brad Hart
Ana Crisostomo—Coordinator
Mailing/Automation/e-mail—Vicki Serafin, Chairperson
Website—Joe Janiga
Facebook & Twitter Coordinator—Todd Vazquez

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Jim Tolos, Chairman
Joe Janiga - Co-Chairman

Career Recruitment
Al Dopart, Chairman
Glenn Deitz
Dave Gluckman
Glen Buser

Golf Outing
Richard Reitberger, Chairman
Joe Janiga

Awards
Rich Reitberger, Chairman

PE Examination
John Cholin, Chairman
Joe Janiga
Mike Newman
Chuck Gandy

Chapter Seminar/Field Trip
Richard Reitberger, Chairman
Dave Gluckman
Joe Janiga

Legislative
Rich Reitberger, Chairman
Vinnie Fichera
Jerry Naylis
Dave Kurasz

Finance
Rich Reitberger - Chairman
John Cholin
Bob Murray

HELPFUL LINKS

ADAAG http://www.access-board.gov/adaag/about/index.htm
AFAA National http://www.afaa.org/
AFSA http://www.firesprinkler.org/
ANSI http://web.ansi.org/
ASHRAE http://www.ashrae.org/
Campus-Firewatch http://www.campus-firewatch.com/
Coffee Break Training http://www.usfa.dhs.gov/nfa/coffee-break/
CPSC http://www.cpsc.gov/
CSAA http://www.csaaul.org/
Municipal Codes (E Codes) http://www.generalcode.com/Webcode2.html
F**DNY** http://nyc.gov/html/fdny/html/home2.shtml
FM Global http://www.fmglobal.com/
FSDANY http://www.fsdany.org/regs.htm
FSI http://www.firesprinklerinitiative.org/
FSSA http://www.fssa.net/
Fire Tech Productions—Nicet Training (FTP) http://www.firetech.com/
Home Fire Spklr Coalition http://www.homefiresprinkler.org/
HVAC Bld. Control Fire Safety http://www.iklimnet.com/hotelfires/hotelfiresmain.html
AFAA-NJ http://www.afaanj.org/
International Code Council - http://www.iccsafe.org/
International Code Council Residential Sprinkler Exam - http://www.iccsafe.org/news/nr/2009/0709_ResidentialSprinklerExam.pdf
The Joint Commission (JCAHO) - http://www.jointcommission.org/www.JointCommission.org/
Material safety data Sheets (MSDS-OSHA Site) - http://www.osha.gov/SLTC/hazardcommunications/index.html
National of Fire Equipment Distributors (NAFED) - http://www.nafed.org/index.cfm