President’s Message…

Welcome to Fall! Change your smoke detector batteries if you are on the Fire Prevention Week Schedule. Our October meeting speaker was John Whaling, President of Protectowire Fire Systems. John gave a great presentation on the latest technology in the area of digital linear heat detection. Keeping up with the newest fire protection and detection equipment is a must to stay current in our chosen professional fields so look to the Chapter for continuing education. Thanks to John for his participation in our technical program. On November 3rd we have our annual Bus Trip to places of interest. This year we are motoring to the University of Maryland, Fire Protection Engineering Department, College Park, MD. The Bus Trip is open to all Chapter Members. Fee is FREE. We encourage Chapter Members to bring along a High School student or local High School Guidance Counselor as a guest so they can learn about the great FPE program Maryland offers. Hot buffet lunch is included. We still have room on the bus. Call Vicki at 973-541-6771 to reserve your seat(s) now. Our Spring Symposium and Trade Show will be held on May 18th at the Hanover Manor, our usual venue. Mark your calendars. The Program outline is being developed so stay tuned.

I hope to see you on the bus to Maryland. Take a break, enjoy the scenery and leave the driving to us!

Rich Reitberger
President
President Rich Reitberger convened the meeting at 6:15 PM with a salute to the flag and customary introductions.

The minutes from the September meeting are posted in the Fusible Link which will be distributed shortly.

A motion was made and carried to accept the treasurer’s report.

Our November 3rd bus trip is all set and the flyer went out. This year’s outing will be to the University of Maryland, Fire Protection Engineering Department, College Park, MD. The Bus Trip is open to all Chapter Members. Fee is $30. We encourage Chapter Members to bring along for FREE a High School student or local High School Guidance Counselor as a guest so they can learn about the great FPE program Maryland offers. The FPE program staff will brief on all aspects of the degree program and we will tour the hands on labs.

December’s meeting will be our usual holiday event.

We plan on holding out annual NJ SFPE/AFAA joint symposium in April or May, 2017.

Four NJ chapter members attended the SFPE National annual meeting in Denver last week. Hot topics presented included cannabis oil extraction and lithium ion batteries.

It was mentioned that the Chubb fire lab in Warren was closing and hopefully ACE will be building another one.

Door prizes were awarded before the presentation.

Our speaker was John Whaling, President of Protectowire Fire Systems who briefed us on the latest technology in the area of digital linear heat detection and give an overview of what is new in the industry. Topics he discussed in depth were:

- Types of linear heat detectors
- What is an LHD and how they work
- Applications where frequently used

Additional information is available at: http://www.protectowire.com/

The meeting was adjourned at 8:00 PM.
Outdoor Yard Storage Fire

LOSS DETAIL

A fire started in outdoor storage of baled wastepaper—and spread rapidly.

This location is a containerboard mill making packaging material from recycled wastepaper. The raw material is received as baled wastepaper and is stored in a dedicated 85,000-ft.² (8,000-m²) outdoor storage area. The bales of paper are placed in limited-sized piles, ranging from 3,000 to 8,000 ft.² (300 to 730 m²) and separated by aisles 16 to 26 ft. (5 to 8 m) wide. The piles are stored up to 15 ft. (4.5 m) high.

Late one afternoon, an operator noted smoke rising from the middle of a pile and immediately initiated a fire alarm. The mill fire brigade responded, followed by the public fire department (PFD), and both attacked the fire. As the fire continued to spread across the tops of the bales, additional equipment was brought in from neighboring fire departments. Of particular value was the use of several water cannons capable of discharging water into the center of the piles, and a ‘cherry-picker’ unit that dispenses water and foam from an elevated position.

After three hours the fire was generally controlled, and after eight hours it was declared extinguished. However, water continued to be applied for several days due to various ‘hot spots’ reigniting the bales—a typical occurrence for this kind of storage.

Approximately 1,100 tons (997.9 tonnes) of paper was burned and another 800 tons (726 tonnes) was wetted. There was no damage to adjacent buildings and no interruption to production.

This loss demonstrates the positive impact of good planning, prompt detection and effective manual firefighting on outdoor fires:

1. Mill personnel had considered a potential fire—as they arranged the storage area to allow access for manual firefighting efforts and maintained suitable distance from important operations.
2. The storage area was equipped with a complement of hose stations and hydrants to readily supply hose streams.
3. The fire was detected in the early stages and the local PFD responded quickly with special equipment to effectively attack the fire.

Mill personnel and the PFD continued to monitor the area for flare-ups and reignition commonly occurring with such fires.

LOSS HISTORY

Wastepaper fires in this type of facility average about US$2.6 million in gross loss.
Fire Loss in the United States during 2015

More than half of all structure fires occurred in one-and two-family homes, while a spike in highway vehicle fires presents a cause for concern

BY HYLTON HAYNES

EVERY YEAR, NFPA surveys a sample of public fire departments in the United States, stratified by the size of the community they protect, to project national estimates of the country’s fire problem. Based upon the data we received in response to our 2015 National Fire Experience Survey, we estimate that public fire departments in the U.S. responded to 1,345,500 fires last year, a highly significant increase of 3.7 percent from 2014.

Of these fires, an estimated 501,500 were structure fires, an increase of 1.5 percent from the year before. The number of structure fires decreased steadily from 1977, when NFPA began gathering this data, to 2015. Structure fires were at their peak in 1977, with 1,098,000, then fell throughout the 1980s, dipping below 600,000 for the first time in 1995. From 1998 to 2008, the number of structure fires fluctuated between 505,000 and 530,500 annually before decreasing to 480,500 in 2009. Since then, structure fire levels have ranged between 480,000 and 501,500.

We categorize structure fires as residential and nonresidential. Residential properties include one- and two-family homes including manufactured homes, apartments or other multi-family housing, hotels and motels, dormitories, and boarding houses. The term “home” encompasses one or two-family homes, including manufactured housing, and apartments or other multi-family homes. Homes are the places people normally live and are much less regulated than other residential properties. Nonresidential structure properties include public assembly buildings, schools and colleges, health care and penal institutions, stores and offices, industrial facilities, storage facilities, and other structures such as outbuildings and bridges.

In 2015, there were 388,000 residential structure fires, accounting for 77.4 percent of all structure fires. This was an increase of 1,500 fires from the year before. Of these fires, 270,500 occurred in one- and two-family homes, including manufactured homes, accounting for 53.9 percent of all structure fires. Another 95,000 fires occurred in apartments, accounting for 18.9 percent of all structure fires. There were also 113,500 nonresidential structure fires in 2015, an increase of 5.6 percent from the year before.
The 639,500 outside fires or other nonstructure, nonvehicle fires accounted for almost half (47.5 percent) of all reported fires in 2015. These included 297,000 brush, grass, and forest fires (22.1 percent of total fires); 163,000 outside rubbish fires (12 percent of total fires); 76,000 outside fires involving property of value (5.6 percent); and 103,500 (7.7 percent of total fires) other nonstructure, nonvehicle fires.

From 2014 to 2015, outside or other fires increased 4.8 percent. Outside and other fires peaked in 1977 at 1,658,500. The number of such fires then decreased steadily to 1,011,000 in 1983 then remained relatively flat through the 1980s. By 1993, the number of outside fires dropped to 910,500, and stayed near the 1 million level for the next three years. In 2013, outside and other fires dropped to a record low of 564,500 fires, the only year these fires have dropped below 600,000.

From 2014 to 2015, brush, grass, or forest fires increased 2.2 percent; outside rubbish fires increased 3.5 percent; fires involving property of value increased significantly by 16.9 percent; and other nonstructure, nonvehicle fires increased 6.2 percent.

In addition to residential, nonresidential, and outside fires, there were an estimated 174,000 highway vehicle fires in 2015, an increase of 3.9 percent from the year before, and 30,500 other vehicle fires, a highly significant increase of 17.3 percent.

**Civilian fire deaths**

The 1,345,500 fires reported by fire departments in 2015 resulted in an estimated 3,280 civilian deaths, a very slight increase (0.2 percent) over the 2014 civilian death toll and the highest number of deaths since 2008, when 3,320 civilians died in fires. We can better understand the nature of this increase by examining the types of properties in which the deaths occurred.

In one category, highway vehicle fires, the number of deaths increased from an estimated 310 in 2014 to an estimated 445 civilians in 2015. These numbers exclude deaths due to trauma if the fire was not a factor in the death. Between 1980 and 2009, the number of highway vehicle deaths has decreased 60 percent. Since the low of an estimated 260 deaths in 2009, the number of deaths from highway vehicle fires has steadily increased to an estimated 445 deaths in 2015, an increase of 71.2 percent over that period. The median number of vehicle deaths of over the last decade is 305 deaths. The number of deaths in 2015 represents a 31.5 percent increase over this median estimate and is a cause for concern.

The 365,500 home structure fires (which includes one- and two-family dwellings and apartments) caused 2,560 civilian deaths, a decrease of 6.7 percent from 2014. This includes 2,155 deaths (66 percent of the total number of civilian deaths) in one- and two-family homes and 405 in apartments or other multi-family housing including condominiums. Deaths in one- or two-family homes fell 8.1 percent, while apartment deaths actually increased by a slight 1.3 percent from 2014. Seventy-eight percent of civilian fire deaths resulted from home fires. This is the first time the percentage of home fire deaths has fallen below 80 percent since 2003.

Home fire deaths were at their peak in 1978, when 6,015 people died in such fires. The number decreased fairly steadily until recent years, falling and staying below 5,000 per year since 1982, and, except for 1996, remaining below 4,000 per year since 1991. Since 2006, home fire deaths have stayed below 3,000 per year. The 2,560 in 2015 is the third-lowest home fire death toll since NFPA began collecting data in 1977.

Overall, home fire deaths over the period 1977 to 2015 declined from 5,865 to 2,560, a drop of 56.4 percent. The number of home fires also dropped steadily over the same period for an overall decrease of 49.5 percent. However, the death rate per 1,000 home fires fluctuated considerably during that period, from 8.1 in 1977 to a high of 9.7 in 1996 and a low of 6.5 in 2006 to 7.0 in 2015, for an overall decrease during that period of 13.6 percent. This suggests that, even though the number of home fires and home fire deaths declined similarly during the period, the fire death rate risk has not changed much.

Of the 2,685 civilians that died in structure fires in all properties, fires in other residential occupancies, and fires in nonresidential structures, 205, or 7.6 percent, died in fires that were intentionally set.
In 2015, there were also 45 civilian fire deaths in other residential occupancies, such as hotels, motels, dormitories, and boarding houses, with a decrease of 10 percent. In addition, 80 civilians died in nonresidential structure fires, an increase of 23.1 percent from the year before.

With 2,560 home fire deaths accounting for 78 percent of all civilian fire deaths, fire-safety initiatives targeted at the home remain the key to any reductions in the overall fire death toll. There are five major strategies for reducing the death toll in home fires. First, more widespread public fire safety education is needed on how to prevent fires and how to avoid serious injury or death if a fire occurs. Information on the common causes of fatal home fires should be used in the design of fire safety education messages. Second, people need to install and maintain smoke alarms and to develop and practice escape plans. Third, wider use of residential sprinklers must be aggressively pursued. Fourth, additional ways must be sought to make home products safer from fire. The regulations requiring more child-resistant lighters are a good example, as are fire-safe cigarettes. Finally, the special fire safety needs of high-risk groups such as young children, older adults, the poor, and people with disabilities need to be addressed.

Civilian fire injuries

In addition to the 3,280 civilians who died in fires in 2015, there were an estimated 15,700 civilian fire injuries. This is a decrease of 0.5 percent from the year before, and is the lowest the number has been since we started using our current survey methodology in 1977. Since civilian fire injuries are not always reported to the fire service, estimates of civilian fire injuries may be lower than actual levels. For example, many injuries occur at small fires to which fire departments do not respond, and even when fire departments do respond, they may be unaware of injured persons they did not transport to medical facilities themselves.

Of the 15,700 civilians injured last year, we estimate that 13,000 civilians were injured in structure fires, and of those, we estimate that 11,075 were injured in home structure fires, a decrease of 6.3 percent from the previous year. Of these injuries, 8,050 occurred in one- and two-family homes and manufactured homes, and 3,025 occurred in apartments. An additional 1,425 civilians were injured in nonresidential structure fires in 2015, an increase of 14 percent from the year before. Additionally, 1,550 civilians were injured in highway vehicle fires, a 21.6 percent increase from 2014. Injuries associated with other vehicle fires (including planes, trains, ships, construction, and farm vehicles) rose from 175 in 2014 to 325 in 2015, a highly significant increase of 85.7 percent. This large increase is due in part to the District of Columbia Metro train fire incident where 84 civilians were injured and one person killed.

Between 1977 and 2015, the number of civilian injuries ranged from a peak of 31,325 in 1979 to a low of 15,700 in 2015, a decrease of 50 percent. Since 1997, civilian injuries have remained below 35,000 per year, below 19,000 since 2002, and below 16,000 since 2013.

Property loss

NFPA estimates that the 1,345,500 fires to which the fire service responded in 2015 caused $14.3 billion in property damage, 23.2 percent more than the year before. Two major California wildfires—the Valley Fire, with $1.5 billion in property damage, and the Butte Fire, with $450 million in property damage—contributed to this highly significant increase.

Fires in structures not related to wildfires resulted in $10.3 billion in property damage, an increase of 4.4 percent from 2014. Each structure fire resulted in an average property loss of $20,499, an increase of 2.8 percent from the previous year.

From 1977 to 2015, excluding the events of September 11, 2001, the average loss per structure fire was $3,757 in 1977 and $20,499 in 2015, for an overall increase of 446 percent. When property loss is adjusted for inflation in 2015 dollars, however, the increase in the average structure fire loss between 1977 and 2015 is 39.5 percent.

Of the 2015 property loss in structures, $7 billion occurred in home structures, a decrease of 2 percent from the previous year. An estimated $5.8 billion of this loss occurred in one- and two-family homes, a decrease of 0.8 percent. An estimated loss of $1.2 billion occurred in apartments or other multi-family housing like condominiums. While apartment property loss increased significantly, by 18.2 percent, from the previous year, the number of fires in apartments increased at a lower rate, for a 1 percent year-over-year decrease.
Other property damage results for 2015 include $323 million in public assembly properties, a significant decrease of 24.7 percent; $635 million in stores and office properties, a 10.3 percent decrease; $1.2 billion in highway vehicles, an 8.3 percent increase; and $579 million in other vehicles, a significant increase of 52.4 percent, partly due to the aircraft fire that occurred at Offutt Air Force Base, Nebraska. There was a highly significant 32.1 percent increase in storage properties, to $1 billion, partly due to two major fires in Louisville, Kentucky, and Duryea, Pennsylvania. Property loss on industrial and manufacturing properties rose to $924 million over the year before, a highly significant 47.6 percent increase. This jump was caused in part by an industrial facility fire that occurred in Okolona, Kentucky.

It should be kept in mind that property loss totals can change significantly from year to year due to the impact of occasional large-loss fires. NFPA provides an annual analysis of such fires in the November/December issue of the NFPA Journal.

**Intentionally set fires**

NFPA estimates 23,000 structure fires were intentionally set in 2015, a highly significant increase of 21.1 percent over the year before. These fires resulted in an estimated 205 civilian deaths, an increase of 30.6 percent from the previous year. At the same time, though, these fires resulted in $460 million in property loss, a highly significant decrease of 25 percent compared to 2014.

In 2015, there were also an estimated 10,000 intentionally set vehicle fires, 25 percent more than the year before. These fires resulted in $74 million in property loss, a decrease of 36.2 percent from 2014.

Estimates of intentionally set fires do not include allocation of fires whose causes were unknown or unreported.

**Description of the NFPA survey, and acknowledgements**

NFPA annually surveys a sample of U.S. public fire departments, stratified by the size of the community they protect, to project national estimates of the fire problem. All public fire departments that have fire response and reporting responsibilities and protect communities of 5,000 or more are included in the sample. For departments that protect a population less than 5,000, a sample is selected and stratified by the size of the community protected. A total of 2,699 fire departments responded to the 2015 fire experience survey.

Our national projections are made by weighting the sample results according to the proportion of total U.S. population accounted for by communities of each size. Point estimates are presented in this article, and there is a range associated with each estimate.

The data and information included in the full U.S. Fire Loss report are only part of the fire loss picture. A more detailed and complete report on the overall patterns and trends of 2015, available from NFPA’s Fire Analysis & Research Division, includes patterns by region and size of community, as well as a more complete description of survey methodology. The full report that includes additional information like the number of fire department responses by type of call is available at nfpa.org/fireloss.

These results are based only on fires attended by public fire departments. No adjustments were made for unreported fires and losses, such as might occur when an occupant extinguishes the fire. Nor were adjustments made for fires attended solely by private fire brigades such as those at industrial and military installation fires, or for fires extinguished by fixed suppression systems to which no fire department responded.

NFPA is grateful to the many fire departments that responded to the 2015 National Fire Experience Survey for their continuing efforts to provide the data necessary to make national projections. The author would also like to thank the members of NFPA staff who worked on this year’s survey, including Frank Deely, Justin Cronin, and Jay Petrillo for editing the survey forms and making follow-up calls to fire departments, and Norma Candeloro for processing the survey forms.
The following article from NFPA is a breath of fresh air to the extent that in-depth studies are being undertaken regarding what we see as numerous multi story structures being built across the country. Most of which are name brand hotels, apartments buildings or large condominium structures. While most of these structures are sprinklered, the question becomes are the current sprinkler standards adequate for both life safety and building fire protection.

Fire Safety Challenges of Tall Wood Buildings Phase 2: Task 1 - Literature Review

Fire Protection Research Foundation report: "Fire Safety Challenges of Tall Wood Buildings - Phase 2: Task 1 - Literature Review" (PDF)
Authors: Daniel Brandon and Birgit Östman, SP Technical research Institute of Sweden
Date of issue: September 2016

Introduction

Recent architectural trends include the design and construction of increasingly tall buildings with structural components comprised of engineered wood referred to by names including; cross laminated timber (CLT), laminated veneer lumber (LVL), or glued laminated timber (Glulam). These buildings are cited for their advantages in sustainability resulting from the use of wood as a renewable construction material.

Research and testing are needed to evaluate the contribution of massive timber elements to room/compartment fires with the types of structural systems that are expected to be found in tall buildings (e.g. CLT, etc.). Previous research has shown that timber elements contribute to the fuel load in buildings and can increase the initial fire growth rate. This has the potential to overwhelm fire protection systems, which may result in more severe conditions for occupants, fire fighters, property and neighboring property.

The contribution of timber elements to compartment fires needs to be quantified and compared against other buildings systems to assess the relative performance. The contribution of exposed timber to room fires should be quantified for the full fire duration using metrics such as charring rate, visibility, temperature and toxicity. This will allow a designer to quantify the contribution, validate design equations and develop a fire protection strategy to mitigate the level of risk to occupants, fire fighters, property and neighboring property. In addition, the effect of encapsulating the timber as means of preventing or delaying involvement in the fire (e.g. gypsum, thermal barrier) needs to be characterized.
David Gluckman, Chapter Assistant Secretary presents Edward Tanderis, Fire Official for the Borough of Wallington with a $500 grant for Fire prevention Week.
### Meeting Dates/Programs 2016-2017

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**JMCC**

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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
FM Global  http://www.fmglobal.com/
FSDANY  http://www.fsdany.org/regs.htm
FSI  http://www.firesprinklerinitiative.org/
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