

January 2009 Newsletter

Looking Back, Looking Ahead at Firefighter Safety

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A Firefighters New Year's Resolution...To Learn From Others

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Preplanning For Your Life

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It wasn't on the fire ground or an accident, or even on the dangerous interstate highway-there were no warning signs-just a physical that the fire station requires. The chief is always asking if everyone went for his or her physical; and the answer is normally, "yes" or "I have an appointment." I was one of the lucky ones.

Firefighters' Risks Go Beyond Flames, Smoke

Heart attacks are a common cause of death among firefighters, but the Green Bay Fire Department has not lost

one of its firefighters to a heart attack.

[Entering Through the Door, Falling Through the Floor](#)

Concern about the poor performance of the engineered lightweight wood construction under the fire conditions is nothing new. We have known about it for more than a couple of decades.

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- OSU LODD Research Study: Reducing Firefighter LODD & Injury Rates through Selected Leadership & Management Supervision Practices
 - » [Final Report - Phase I](#) | [Final Report - Phase II](#)
- [Fire Department Integrated Risk Analysis and Management: PERI](#)

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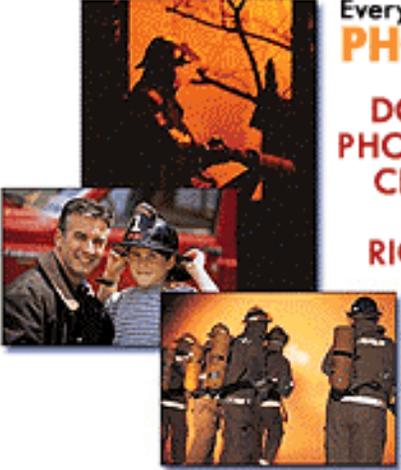
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March 6-8, 2009

Read More: » [About the Event](#)

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Looking Back, Looking Ahead at Firefighter Safety

Firefighter Safety: Use Your Initiative

By Billy Hayes

Courtesy of [FireRescue1](#)

In 2004, more than 200 fire service professionals met in Tampa, Florida, to discuss ways to reduce firefighter line-of-duty deaths. The result of that meeting is what I have been, and will continue, writing about in my columns for FireRescue1, the 16 Life Safety Initiatives. The goal is to reduce firefighter LODDs by 25 percent by 2009, and 50 percent by 2014. So, how are we doing as we approach the halfway mark?

Before I give you that answer, I want us to ask ourselves another question: Are the numbers the only indicator of success? As I look back at 2008, I see many signs of us heading in the right direction. The Health and Safety Section of the IAFC and the FDSOA continue to grow by leaps and bounds. Firefighter safety is becoming the prevalent topic of presentations at state and national fire trade conferences, as well fire service news publications and Web sites. The Everyone Goes Home ® program conducted its own Safety Summit on the campus of the NFA, and has advocate representation in almost every state.

Issues addressed

North Carolina, a state that typically leads the nation in LODDs, is a leader in the nation for the Seat Belt Pledge. Departments all over the country are implementing new policies, procedures and training to address firefighter safety issues. I know there are so many more examples that I haven't mentioned, but I think you get the picture. So, in preparation for 2009, let's answer my first question: How are we doing at the halfway point?

If we go by numbers, I caution you to really examine them carefully. At the time of this submission, we are at 108 LODDs for 2008 as reported on the USFA Web site. But a brief glance of the numbers continues to show that heart attacks and unknown illnesses are the leading factor with apparatus and POV incidents a close second. But keep in mind that many LODDs this year are individuals over the age of 65. We've had 3 individuals die from shootings, and 13 from air tanker and helicopter crashes.

Combat incidents

That leaves roughly 16 individuals - give or take a few depending on your interpretation - as combat incidents. So while the overall number is slightly higher, there are many things to consider that could indicate that we just very well might be improving in some areas.

So as we see some success in firefighter safety, we still have a long way to go. We must identify what things we can fix now? Heart attacks are not an overnight fix. Air disasters are not an overnight fix. Getting shot while trying to help someone is not an overnight fix. Unknown medical illnesses are not an overnight fix. But situational awareness and risk management on the fireground, wearing seat belts, stopping at intersections and following the basic safety procedures are things we can wrap our arms around to make a difference immediately. Not to say we can't fix the other stuff, but it's just going to take time. We cannot continue beating ourselves up over some of this. In fact, we need to celebrate some of the success we've had - and work that much harder in 2009.

Billy D. Hayes is the Advocate Program Manager for the Everyone Goes Home ® campaign through the National Fallen Firefighters Foundation where he has served as a State and Region IV Advocate. He currently serves as the Director of Public Information and Community Affairs for the District of Columbia Fire and EMS Department. Previously, he was the Chief of Fire Services for the City of Riverdale, Ga., and is past-president of the Metro Atlanta Fire Chiefs Association. He is a graduate of Georgia Military College and the National Fire Academy's Executive Fire Officer Program. Hayes frequently writes and speaks on the topics of firefighter safety and fire prevention. In this column series, he will be outlining the 16 Firefighter Life Safety Initiatives - and what they mean for you and your department. He can be contacted via email at Billy.Hayes@firerescue1.com.

A Firefighters New Year's Resolution...To Learn From Others

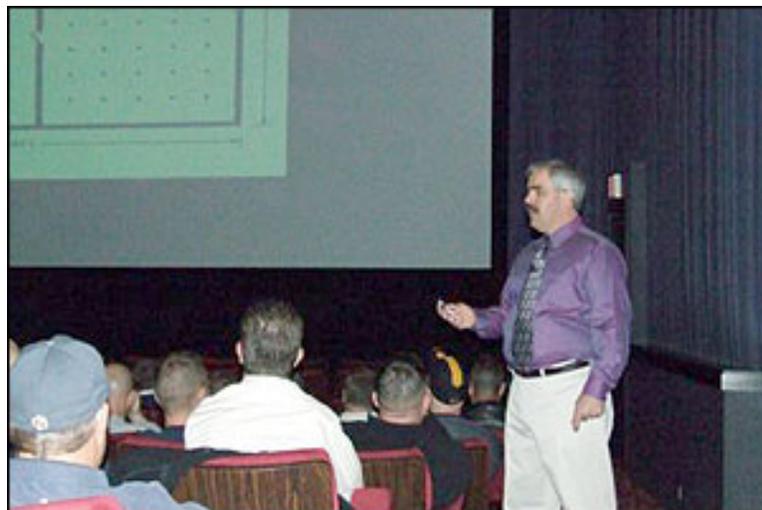
**By Captain Ryan Pyle
Shawnee Fire Department Station 71 (KS)**

It is that time again, the time of year where we all make new goals and resolutions for the year to come. Maybe your goal is to shed a few pounds or to join a gym...again. If you are anything like me, your goals are lofty and sometimes unrealistic. I have decided to keep my goals fairly simple for 2009...or will they be? One goal I have, as it pertains to the fire service, is to learn from the lessons of other departments. On its face, it seems like a simple task. However, anyone in the fire service should be capable of reading a story in a trade magazine, listening to a testimonial from a speaker, or even reading about a near miss event. The fundamental question is; what do we then do with that information? If we do not make positive changes based on the stories we hear or read, then the stories are just words and a passing thought. There have been great advances in the past few years of sharing our "mistakes" with others, but we still have a long way to go. Every department has "dirty laundry" that we do not want to share, for fear of being scrutinized or judged. Now is the time to end that mindset.

The 1999 "Cold Storage" Fire

On November 12th and 13th, the Kansas City metro area had the good fortune of hosting District Chief John Sullivan of Worcester, Massachusetts for a two-day seminar on the events surrounding the 1999 Cold Storage Fire; a tragic fire that resulted in the death of six Firefighters. The Shawnee Fire Department, along with a few local fire service vendors, sponsored the seminar. My name is Ryan Pyle and I am a Fire Captain at Shawnee Fire Department Station 71. I first met Chief Sullivan at The Virginia Fire Officer's Academy in 2007 where he delivered his educational and emotional account of his role at the Cold Storage fire. I felt as though his message was one that every Firefighter needs to hear and made sure to maintain

contact with him. After months of planning, and hard work from every member of the Shawnee Fire Department, Chief Sullivan landed in Kansas City and nearly 400 firefighters from 43 departments heard his remarkable story. As I listened to what he had to say, I realized that he was not just telling a story, his mission was to make sure that not one firefighter in the room had to endure what he and his department had to go through. I am not going to rehash the events of the fire. I am instead going to talk about the message behind Chief Sullivan's message.



The Aftermath of the Fire

It was apparent to each person in the room that Chief Sullivan still has a difficult time reliving the events of the fire. He spoke candidly about the events surrounding the fire and spoke openly about the mistakes that were made and what they could have done differently. We, as firefighters, are notorious for critiquing someone else's actions. However, it takes on a much different meaning when someone who lost two personnel, is strong enough to relive the event and to "air dirty laundry" to thousands of firefighter's each year. When someone who has a story like the one surrounding the Cold Storage fire speaks, they are trying to tell us something. As I listened, I felt as though Chief Sullivan was saying that they never thought this would happen to them, but it did. Does this sound familiar? How many people do you work with that show up at the firehouse and act as if nothing will

happen to them. How did we get to this conclusion, and more importantly, how do we get out of this dangerous mindset? The logical starting point is to embrace the *Everyone Goes Home*® Life Safety Initiatives. They may not completely eradicate line of duty deaths, but they are definitely a great place to start.

Firefighters like Talking to Other Firefighters

I have never met a firefighter who does not like to share "war-stories" with other firefighters. I myself look forward to talking with other firefighters, whether, at the Fire Academy, area trainings, or even with my own crew. These "stories" can also be viewed as an essential learning opportunity. I challenge each of you to talk with each other. By doing so, it can make you and your department better. The story does not have to be anything groundbreaking or life altering; it can be something as simple as a policy change or a training idea to make our job a little safer. I have been gathering thoughts from some of the firefighters that attended the Shawnee seminar. Each of them had a different perspective and more importantly, each had something that they wanted to take back to their respective departments. I am convinced that several lessons were learned on those two days, below are a just a few of these valuable lessons:

- The majority of firefighters are committed to making the job safer.
- If we implement or at the very least try something new, we can and will reduce line of duty deaths in the fire service.
- The importance of accountability and the use of NIMS on any incident involving numerous companies.
- The need for an adequate response, in a timely manner, to a structure fire. In the words of an instructor that I once had in a command class, "go ugly early." In other words, order more resources early and often.
- The importance of reading the building and the initial size-up.
- The importance of pre-fire inspections.
- The importance of knowing the target hazards in your community.
- The importance of knowing when to change strategies, based on deteriorating conditions in the fire building.
- The importance of understanding building construction, and how that construction is likely to behave under fire conditions.

I could write a list a mile long on all of the lessons learned, but again, the most powerful part of the program was what each attendee learned on a personal level. What they learned can then in turn be shared with someone else. Several, if not all of the [Life Safety Initiatives](#) could be seen within Chief Sullivan's presentation. As I close, I challenge each of you to learn something new every day and share it with others. It is my hope that there is a domino effect of positive change in the fire service. In 2009, I am going to listen to others and make changes, what are you going to do?

Ryan Pyle is a Fire Captain at Station 71 in Shawnee Kansas. Ryan has been a part of the department for thirteen years. He holds an Associate of Arts degree in Fire Administration, a Bachelors degree in Management and Human relations, and a Masters degree from the Edwin Stene School of Public Administration at the University of Kansas. Ryan is a graduate of the 2007 Virginia Fire Officers Academy, a program that includes leadership values associated with the Everyone Goes Home® Life Safety Initiatives. Ryan has been accepted into the Executive Fire Officer Program and will begin in September.



Preplanning For Your Life

By William R. Mora

The latest number of line-of-duty deaths occurring at structure fires is not encouraging. In fact, as fatalities are concerned, it sadly appears that the U.S. Fire Service is once again heading to another record breaking year. If one were to observe and compare the action taken during several of the more recent structure fires, similar chains of events which lead to fatalities can be clearly seen. But the encouraging aspect of this situation is that fatalities can be prevented if firefighters were only made aware of the problem. In response, immediate action must be taken to ensure that loss of firefighters does not occur in your department. No one else can do this, only you. There are many risk management strategies that may be used to reduce the risk on the fire ground. One commonly cited in Firefighter Fatality Investigation Reports is the need to follow Standard Operating Procedures or Guidelines. Another risk management strategy involves solutions proposed by the [U.S. Firefighter Disorientation Study](#) published in 2003. The study determined that in several fatality cases the very SOPs that were in use at the time and at specific types of structures and spaces, were actually ineffective, unsafe and needed operational revision.

When findings of case study analysis exist, firefighters must consider their use in practical ways to prevent the traumatic fatalities occurring across the country today. Before departments can get to that point firefighters must know about the type of structure determined to have the greatest chance of taking their life and about the degree of safety their tactics provide.

What's Going On?

It has been definitively determined that structures and spaces with an enclosed structural design are directly linked to firefighter disorientation which typically leads to serious injury, fatality or narrow escapes. The Disorientation Study which examined 17 structure fires nationwide over a 22 year time period determined that in 100% of the cases and when a fast and aggressive interior attack was initiated into an enclosed structure, firefighter disorientation resulted 100% of the time. Additionally, the study noted that a review of the United States Fire Administration's (USFA) [2002 Firefighter Fatality Retrospective Study](#) showed that there were also approximately 27 past cases of firefighter disorientation which took place at the scene of enclosed structure fires. The most recent examination of structural firefighter fatalities, involving one of the largest numbers of cases to date, determined the degree of risk associated with opened and enclosed structure fires. The degree of safety associated with the tactics used during these fires was also determined. The study involved traumatic structural fatalities that took place nationally over a 16 year time span, January 1, 1990 - December 31, 2006. The [Analysis of Structural Firefighter Fatality](#)



Courtesy Steward English
Nine Charleston firefighters, disoriented by blinding smoke, died in this large unprotected enclosed structure when an aggressive interior attack was waged.

Database 2007 (Mora) examined 444 traumatic firefighter fatalities which occurred at the scene of structure fires. There were 123 structure fires which resulted in 176 traumatic firefighter fatalities during an aggressive interior attack. Of 176 firefighter fatalities, 135 (77%) occurred in an enclosed structure fire while 41 (23%) occurred in an opened structure fire. The multiple firefighter fatality rate was found to be even more disproportionate. Of 38 multiple firefighter fatality structure fires, 32 (84%) occurred in an enclosed structure fire while 6 (16%) occurred in an opened structure fire. In light of these significant findings and at a minimum, Chief, Training and Safety Officers should consider the future safety of their current strategy and tactics at enclosed structure fires.



Two Boston firefighters, disoriented by the fire of a backdraft, lost their lives during this unprotected enclosed structure fire.



Courtesy William R. Mora

Two FDNY firefighters died after heavy smoke caused them to become disoriented in this unprotected and unoccupied high rise in Manhattan. During the incident, 49 calls for Mayday were transmitted.



Courtesy WSOC-TV

Two Salisbury firefighters were killed after an attack was initiated in the basement of this large unprotected and unoccupied enclosed structure.

What Do We Do?

Firefighters should recognize and immediately take action to correct the problem. This should involve training in the identification of opened and enclosed structures and an understanding of their associated risk. Also, a change in strategy and tactics must be made when enclosed structures are encountered. Enclosed Structure tactics utilize a more cautious and calculating approach as opposed to the fast and aggressive interior attacks which are linked to LODDs. A critical step in the prevention of LODDs is in knowing when an enclosed structure is involved. There are two settings in which enclosed structures may be identified. One is during the initial size up process at the time of the alarm. But a second and more accurate way involves simply identifying an unprotected enclosed structure during pre-fire planning activities. The Disorientation Study revealed that in 100% of the cases studied, firefighters became disoriented in enclosed structures resulting in 23 firefighter fatalities. In 88% of those cases the structure had no operable sprinkler system. These two findings alone represent valuable information that, if used correctly, may very well prevent exposure to the life threatening hazards that cause disorientation and LODDs. A simple approach to reduce stress and tremendously increase the level of safety on the fire ground involves special preplanning to identify the location of extremely dangerous enclosed structures in your first due area. Of course, the goal is to obtain this information uniformly across a departments' jurisdiction. During this special preplan activity, specific information is sought and collected. In this process, Officers should concentrate on every structure within their area to initially identify enclosed structures and secondly to determine if they are protected by an operable sprinkler system. Therefore, this means that when protected enclosed structures are found, officers must ensure that the sprinkler system is pressurized. When they are not, efforts to

return the system back into working condition must immediately be made. When unprotected enclosed structures are located, and because this is the specific type of structure that has been taking the lives of aggressive firefighters for decades, the address should be entered onto an unprotected enclosed structure reference list. Officers may also note if the enclosed structure is large in size (approx. 100' x 100' or greater) as these are linked to multiple firefighter fatalities. In addition, and to guard against the disorientation and fatalities which occur as a result of early collapses of Truss roof or floor construction, obtaining this particular information can also be included and would be especially beneficial to know during a working enclosed structure fire where smoke conditions would make it difficult to determine the presence of trusses. Once the alphabetized list is completed, it can be forwarded to the dispatch office for use as reference. As structure fires are reported, individual addresses on the enclosed structure list, which may have been entered into Computer Assisted Dispatch Systems (CADs), will appear as messages on Mobile Data Terminals (MDTs) when an emergency call is transmitted. If no CAD system is available, Dispatchers only have to take a few seconds to refer to the list and provide verbal notification indicating for example that, "A large unprotected

enclosed structure is involved and that the structure has a light weight wooden truss roof system." Additionally and when the collected information has indicated the presence of a basement, this information will also be included in the transmitted message. These advance notifications will not only serve as a warning that an extremely dangerous enclosed structure is involved but that enclosed structure tactics or SOGs should be utilized if conditions warrant.

In addition to this effort, a revision of the sprinkler code for the installation of sprinklers at new and existing large enclosed structures should be considered in every community. Although not an easy endeavor, this measure would have a tremendous long term impact in the reduction of the risk to firefighters and citizens alike where incidents like the Charleston Sofa Store fire and the Memphis Family Dollar Store fire, serve as vivid reminders.

Conclusion

Although time will be needed for every firefighter to thoroughly learn all aspects of enclosed structure fires and why they are extremely dangerous, in the meantime, special preplanning of all protected and unprotected enclosed structures in your district can be one of the most valuable non-emergency activities that can take place immediately to help ensure everyone goes home.

Note: This article implements the National Fallen Firefighters Foundation's [Everyone Goes Home® Firefighter Life Safety Initiatives](#), including # 3: Focus greater attention on the integration of risk management with incident management at all levels, including strategic, tactical, and planning responsibilities, # 9: Thoroughly investigate all firefighter fatalities, injuries, and near misses and #15: Strengthen advocacy for the enforcement of codes and the installation of home fire sprinklers.

Related Links:

- [United States Firefighter Disorientation Study 1979-2001](#)
- [2002 Firefighter Fatality Retrospective Study](#)
- [Analysis of Structural Firefighter Fatality Database 2007](#)
- You can contact William at: capmora@aol.com

USFA Releases Provisional 2008 Firefighter Fatality Statistics

EMMITSBURG, MD. - The United States Fire Administration (USFA) announced today there were 114 on-duty firefighter fatalities in the United States as a result of incidents that occurred in 2008. During this period, there were firefighters lost from 34 states and one from the Virgin Islands. North Carolina experienced the highest number of fatalities (11), while Oregon (9), Pennsylvania (9), California (8), New York (7), Illinois (6), Missouri (6), and Ohio (6) each suffered more than 5 on-duty losses.

"The tragic losses of on-duty firefighters in 2008 are a reminder of the necessary commitment and efforts by firefighters in all fire departments across the United States to focus on and improve our operational safety," United States Fire Administrator Greg Cade said. "We understand all too well that many of these losses are preventable. The USFA remains dedicated to continuing our efforts to ensure 2009 is a year where we reduce these losses so that firefighters can return home safely to their families and continue serving their communities."

As the USFA continues to collect and evaluate information regarding the 2008 on-duty firefighter deaths, here are some of the early known facts:

- Preliminary estimates indicate that heart attacks and strokes were responsible for the deaths of 50 firefighters (43.8%) in 2008. This shows a decrease from 54 of the 118 (45.7%) firefighters in 2007.
- In 2008, 26 on-duty firefighters died in association with wildland fires.
 - This loss is more than double the 11 wildland firefighter fatalities in 2007.
 - The 2008 toll is also above the annual average of 21 wildland fire-associated fatalities over the past 10 years, 1999-2008.
- For 2008, 64.9% of all firefighter fatalities occurred while performing emergency duties.
- Twenty-nine firefighters died in 2008 as the result of vehicle crashes.
 - Fourteen of these deaths involved aircraft crashes.
 - Fifteen firefighters died in motor vehicle crashes.
 - Six firefighters were killed in crashes involving their personal vehicles and three died in water tender (tanker) crashes. These two vehicle types have historically been most often involved in crashes that take the lives of firefighters.
 - Speed and a lack of seat belt use historically contribute to these incidents.

These fatality statistics for 2008 are provisional and subject to change as the USFA contacts State Fire Marshals to verify the names of firefighters reported to have died on-duty during 2008. The final number of firefighter fatalities will be reported in USFA's annual firefighter fatality report and is expected to be available by early July.

For additional information on [firefighter fatalities](#), including the annual fatality reports from 1986 through 2007 and the [Firefighter Fatality Retrospective Study 1990-2000](#), please visit the [USFA website](#).

Goldfeder: All Solutions are Local

By Deputy Chief Billy Goldfeder

Courtesy of FireRescue1.com

I seem to have a reputation of being a pessimist, who only talks about or delivers bad news. Well, someone else can deliver good news - I want us to stay focused on the preventable problems, and that's usually bad news.

But I am starting to see a turnaround in one area - apparatus accidents. People may say we are still seeing 100 or so line-of-duty deaths every year, and 2008 is no different. But anybody who feels we are going to eliminate them all is being unrealistic.

It's a dangerous job and bad things are going to happen sometimes - that's the nature of this job - but it's the avoidable injury and death we need to stay focused on.

But what I have started to see this year is a glimmer of hope specifically related to vehicle accidents. We have seen apparatus crashes this year with different results than in past years. We have seen more use of seat belts, and this is a positive issue that I want to stress.

Tip O'Neill once said 'All politics is local.' And I think this is something that can be applied to the fire service - that all solutions are local.

All the various national fire service initiatives, programs and tools are already out there - and available. I am not sure much more can be provided. Now it's up to the fire chiefs and officers to decide whether they are going to apply these to their departments - and it is up to firefighters to decide to follow their training and their policies.

And this is something that's starting to happen. I'm fortunate to get to travel throughout North America and I'm seeing this for myself. More firefighters are developing a greater understanding of their department's policies and procedures and taking training more seriously because they don't want to unnecessarily get hurt.

This isn't across the board - and there are still some departments where that is not the case - but for the most part I am starting to see some significant change.

It's still the case that more than 50 percent of line-of-duty deaths are being caused by heart attacks or strokes. And for those who fail to take an annual physical, and who don't exercise or eat right, then there's not much more we can do to help.

That brings us on to the second major cause of line-of-duty deaths, vehicle accidents, which is something we have a lot more control over. This year, it seems to be the case that firefighters are starting to understand that they can do no good if they don't arrive on the scene in the first place.

Related:

» FireFighterCloseCalls.com

Greenfield Volunteer Fire Company Saves One of Its Own

By Firefighter John Apostolakes [Greenfield Township Volunteer Fire Company](#)

It wasn't on the fire ground or an accident, or even on the dangerous interstate highway-there were no warning signs-just a physical that the fire station requires. The chief is always asking if everyone went for his or her physical; and the answer is normally, "yes" or "I have an appointment." I was one of the lucky ones.

I have been a volunteer firefighter for Greenfield Township Volunteer Fire Company for three years. Greenfield is a small town in northeastern Pennsylvania with a population just over 2,400. The coverage area is about 32 square miles including a small section of Interstate 81. The department has approximately 30 active members.

I am one who procrastinates as long as possible when it comes to doctor visits or physicals. I have always felt fine; I normally do what I do with the fire company; with no physical signs, no worries about going to see the doctor. I am probably like most people; I do not like seeing the doctor-but mostly, I am afraid of test results.

All my life I played sports. I was very active in ice hockey and I always felt like a 27-year old. I am 47 years old now and I have always thought myself to be in pretty good shape, so I asked myself "what do I have to lose by going to see the doctor?" I went to see my family doctor, who ordered a blood test and everything looked good. Two days later, the doctor called and wanted to see me again. I thought, "Okay, I must have snuck in a snack during my fast before the blood test." Well, I was wrong. The doctor told me that my cholesterol was pretty high. Because of my family history, he wanted to schedule a stress test. I thought again, "no problem."

I took the stress test on a treadmill and my heart rate would not even go up high enough for the doctor to be alarmed and in the back of my mind, I was laughing. Well, pictures tell a different story. After going for an MRI, the pictures showed a blockage in my heart. My doctor told me I was on the verge of having a heart attack. I kept telling myself it was not true and I felt fine. Well, two weeks and a heart catheterization later, I'm feeling like a 27-year old again.

So here is advice from an average person: because of my department's requirement, my life was saved from a silent killer. A blockage in my heart could have ended my life-at home, or on the fire ground, trying to save another life such as a fire victim or one of my brothers.

What was really interesting to me was that while I was having the procedure done, one of the Physicians Assistants asked me what made me go to the doctor, and did I have symptoms? I told him there were no symptoms just a required physical from my fire department. The Physicians Assistants told me that he belongs to a fire department and they don't require physicals. About a week after I recovered, I did some research by speaking to my fellow firefighters around our community and even firefighters that I know from out of state. I was surprised to find that departments they belong to do not require physicals at all. If your department doesn't require a physical, it should. You will not regret it and it will save your life. It saved mine.

I will however gladly speak with any appropriate organizations or persons of interest. I would be very grateful if you could help spread the word.

John Apostolakes can be reached at broncojohn1@earthlink.net

Firefighters' Risks Go Beyond Flames, Smoke

Area Departments Promote Healthful Lifestyles, Fitness

By [Corinthia McCoy](#)

Courtesy of the [Green Bay Press-Gazette](#)

Heart attacks are a common cause of death among firefighters, but the Green Bay Fire Department has not lost one of its firefighters to a heart attack.

It's among a number of area agencies that makes an effort to keep its firefighters in shape.

Green Bay firefighters have access to fitness equipment at each station, and the Allouez Fire Department offers incentives for physical fitness as national figures show firefighters are more likely to die of heart attacks than severe burns or smoke inhalation. In late 2008, heart attacks were the second leading cause of death, behind trauma.

A provisional report by the U.S. Fire Administration, a division of the Federal Emergency Management Agency, said 41 of 106 firefighters who died between Jan. 1 and Nov. 30 suffered fatal heart attacks within 24 hours of performing a stressful or strenuous activity, including fighting a fire.

It was the leading cause of death in 2007 claiming 52 of the 118 lives lost, said the report "U.S. Fire Administration Firefighter Fatalities in 2007."

Multiple factors can contribute to the strain on the heart including the weight of equipment worn and carried by firefighters; the adrenaline rush felt at the sound of an alarm; and environmental factors such as weather.

"You're easily talking probably close to 120 pounds, 150 pounds of extra stuff between the gear they're wearing and the equipment they have to carry up the stairs," said Rob Goplin, assistant Green Bay Fire Department chief and former training division chief.

Green Bay firefighters are required to have an annual physical and health risk assessment. A nutritionist has offered suggestions for healthful eating and cooking, and the department is taking steps to incorporate a national fitness initiative geared toward firefighters. "Those are the kinds of things that you try to bring in and foster and get out to the people," Goplin said.

The Allouez Fire Department also promotes healthful living and has pay-based incentives for firefighters who are able to pass physical tests, said Allouez Capt. Ed Piontek, who has been with the department for 27 years.

But not much is required at the department. Paid-on-call firefighters are required to get only one physical before joining the department. "Nothing's mandatory, not that it hasn't been brought up over the years I've been here," Piontek said.

The Allouez department also takes precautions at major fire scenes by allowing firefighters to take 10- to 15-minute breaks to get checked out and lower heart rates. The Green Bay Fire Department follows a similar model.

"It's almost like being in a football game. You're tired, the coach will put someone in the game while you rest," Piontek said.

Help from the Bellevue Fire Department's added manpower makes it possible for them to have such rotations, he said.

Green Bay Fire Department Lt. Nick Craig said heart attacks weren't "considered a line of duty death, just a hazard associated with the job." The department's records do not reflect a death of a firefighter because of a heart attack.

The U.S. Fire Administration puts firefighter deaths in two categories - natures and causes.

The nature of death is the medical cause; heart attacks fall under that category.

The cause of death refers to the action, lack of action or circumstances that resulted directly in the fatal injury. That covers stress and overexertion, which account for 40.6 percent or 39 firefighter deaths and caused 52 of the 55 fatal heart attacks last year.

"All of that (factors) has a major impact on your cardiovascular system, so it's not a surprise to see overexertion, strain, things like that being the No. 1 mechanism of injury and leading to cardiac arrest and heart attack," Goplin said.

Entering Through the Door, Falling Through the Floor

Study Illustrates Flaws in Lightweight Construction

By Azarang(Ozzie) Mirkhah and Sean DeCrane
Courtesy of FireEngineering.com

Concern about the poor performance of the engineered lightweight wood construction under the fire conditions is nothing new. We have known about it for more than a couple of decades. Obviously, the first name that comes to mind when talking about this subject is the legendary Francis Brannigan and his famous book, *Building Construction for the Fire Service*. There are many great reports, but just a handful of them are mentioned here. Back in 1992, United States Fire Administration (USFA) did a report, titled [Wood Truss Roof Collapse Claims Two Firefighters](#) (December 26, 1992); National Institute for Occupational Safety and Health (NIOSH) did a report on April 2005 titled [Preventing Injuries and Deaths of Firefighters due to Truss System Failures](#); National Institute of Standards and Technology (NIST) did a report on January 2007 titled [A Study of Metal Truss Plate Connectors When Exposed to Fire](#).

Through his writings and all his presentations, Brannigan tried for years to teach us about the importance of having a good working knowledge of building construction and repeatedly advised us to "know your enemy." Fire service members have not fully grasped this concept yet, at least not as well as we should. This year, it seems that there wasn't a month that went by without reports of firefighter fatalities and injuries resulting from catastrophic structural failures under the fire conditions.

On April 4, 2008, a veteran Colerain Township, Ohio Fire Captain Robin Broxterman and Firefighter Brian Schira were killed in the line of duty when they fell through the first floor of a working house fire. The fire was in the basement of a two story, four-bedroom house built in 1991. Reports indicate that the alarm came in shortly after 0600 hours. Captain Broxterman and firefighters Kenny Vadnais and Brian Schira went into the burning building. Three went in, but only one came out. Firefighter Kenny Vadnais believes he is alive today because Robin and Brian helped him escape the fire's death grip. No other injuries were reported. The two occupants of the house made it out before the firefighters arrived on scene (see [FirefighterClosecalls.com Article](http://FirefighterClosecalls.com))

When a firefighter dies in the line of duty, the [National Institute for Occupational Safety and Health \(NIOSH\)](#) will respond and conduct an investigation into the event. NIOSH's intent is not to find fault or lay blame. Their intent is to learn lessons from the mistakes or events, and to release a report with the results of their investigation. The report is a public document and fire departments are encouraged to review the report and learn from the events that led to the firefighter's death.

To get a perspective of the real world performance and its effect on firefighter safety, let's look at two relatively recent incidents investigated by NIOSH. Below are the summaries of these two reports and the recommendations published as a result.

Incident 1:

[Volunteer Fire Fighter Dies After Falling Through Floor Supported by Engineered Wooden-](#)

I Beams at Residential Structure Fire - Tenn. (NIOSH Report)

On January 26, 2007, a 24-year-old volunteer firefighter died at a residential structure fire after falling through the floor which was supported by the engineered wooden I-beams. The victim's crew had advanced a handline approximately 20 feet into the structure with zero visibility. They requested ventilation and a thermal imaging camera (TIC), in an attempt to locate and extinguish the fire. The victim exited the structure to retrieve the TIC. When he returned, the floor was spongy as conditions worsened which forced the crew to exit. The victim requested the nozzle and proceeded back into the structure within an arm's distance of one of his crew members, who provided back up while he stood in the doorway. Without warning, the floor collapsed, sending the victim into the basement. Crews attempted to rescue the victim from the fully involved basement, but a subsequent collapse of the main floor halted any rescue attempts. The victim was recovered later that morning. NIOSH investigators concluded that, to minimize the risk of similar occurrences, fire departments should:

- Use a TIC during the initial size-up and search phases of a fire
- Ensure firefighters are trained to recognize the danger of operating above a fire and identify buildings constructed with trusses or engineered wood I-beams
- Consider modifying the current codes to require that lightweight trusses are protected with a fire barrier on both the top and bottom.

Incident 2:

Career Engineer Dies and Fire Fighter Injured After Falling Through Floor While Conducting a Primary Search at a Residential Structure Fire - Wisc. (NIOSH Report)

On August 13, 2006, a 55-year-old career engineer died and another firefighter was injured after falling through the floor at a residential structure fire. The victim and the injured firefighter had arrived in their ambulance and assisted the first-due engine to attach a five-inch supply line at approximately 1227 hours. The engine company was conducting a fast attack on a suspected basement fire while a ladder company conducted horizontal ventilation. The ambulance crew had advanced to the front of the structure when the incident commander requested them to conduct a primary search. The victim and the injured firefighter proceeded to conduct a left hand search at approximately 1234 hours. They took a couple steps to the left just inside the front door to conduct a quick sweep. Visibility was near zero with minimal heat conditions. Because of the smoke conditions, they kneeled, sounded the ceramic tile floor, and took one crawling step while on their knees. They heard a large crack just before the floor gave way, sending them into the basement. The basement area exploded in a fireball when the floor collapsed. The victim fell into the room of origin while the injured fell on the other side of a basement door into a hallway. The injured firefighter was able to eventually crawl out of a basement window. The victim was recovered the next day. The NIOSH investigators concluded that, to minimize the risk of similar occurrences, fire departments should:

- Conduct preincident planning and inspections of buildings within their jurisdictions to facilitate development of safe fire ground strategies and tactics
- Use a TIC during initial size-up and search phases of a fire
- Ensure firefighters are trained to recognize the danger of operating above a fire and identify buildings constructed with trusses
- Consider modifying the current building codes to require that lightweight trusses be protected with a fire barrier on both the top and bottom.

Three lessons should be taken from these two reports. One, these types of dangers impact all firefighters, both career and volunteer. Fire does not know the difference or care; it is an equal opportunity killer. Two, both reports emphasized the importance of firefighters knowing the dangers of operating over a fire and identifying buildings with trusses. Third, both reports recommend that the fire departments should modify the current building codes to

require that lightweight trusses be protected with a fire barrier.

During the recent [International Code Council's \(ICC\)](#) Final Action Hearings in Minneapolis for the 2009 edition of the building construction codes, by actively participating in modifying the deficiencies in the current building codes, the fire service attempted to address lesson three. There was a code proposal that would have required lightweight construction in residential properties to be protected with a 30-minute barrier.

The attendance at the final action hearings set a record in the number of fire service attendees. The majority of those attendees were there to support the proposed requirement of residential fire sprinklers in one and two-family homes. As you know, that proposal passed with a strong 73 percent majority, receiving 1,282 votes.

The proponents of the code change to require the protection of lightweight construction hoped for success because of the large fire service attendance. Another encouraging sign was the fact that the code change to require the barrier was scheduled to be heard immediately following the residential fire sprinkler proposal. Surely the fire service would remain to vote on such a critical safety issue.

Unfortunately, during the debate on the code proposal for the protection of lightweight construction, we could see large numbers of firefighters leaving the room. In the subsequent vote, the proposal requiring the fire barrier received a majority of the votes, but fell fifty votes shy of the required 2/3 majority required to be accepted into the codes. The proposal received over 700 votes. That means approximately 500 firefighters left the room after the sprinkler vote. We were not as coordinated and organized as we should have been, and the fire service attendees were not well informed about the code hearing process and procedures. As a result, they believed their work was successfully done and there were no more fire-related proposals to be voted on, so it was time to leave; just as they are used to returning to the fire station right after responding to an incident and putting out the fire. But if only 60 fire fighters would have stayed for the vote, we could have passed the requirement to protect lightweight construction--exactly what NIOSH had recommended numerous times.

We will not give up our efforts to protect our firefighters. The fire service will be back in force, and we will be much better organized and more prepared. We are in it for the long run. In March 2009, another code proposal will be submitted in the ICC code process attempting to address this issue once again at the Code Action Hearings in October 2009 in Baltimore.

But remember that all these efforts would only enhance safety in the new houses being built in the future, and will not have any impact at all on the existing homes. Now let's take a look to see what we in the fire service can and must do to reduce our firefighter fatalities in the existing homes. That is especially important when you consider that there is an inventory of more than one hundred million existing homes around our country, and that a majority of those built in the last twenty years were constructed with those lightweight wood trusses.

The question fire service leaders must ask is: What can we do to reduce our firefighter fatalities resulting from such structural failures?

As a rule, in the fire service "we risk a lot to save a lot, and risk a little to save a little." Looking at it from the firefighters' safety perspective, then: We have the option of staying out protecting exposures with defensive operations. Although contrary to our current aggressive "interior attack" mode of operations, is a viable option that fire service members should seriously consider. Simply stated, when it comes to the lightweight wood truss construction, it might be best to stay out from the get go and protect our own firefighters.

Considering our professional obligation and deep commitment to saving lives, this might be a lot easier said than done. We would still be charging in full force if we believe that someone might be trapped inside and a life could be saved. But we should also remember our commitment is to save lives, including our own.

Simply stated, we should not be risking firefighters lives for houses built without much fire resistive rating and no active fire protection systems if there are no civilian lives to be saved in the first place. Buildings are disposable. Lives aren't, and that goes the same for our firefighters' lives.

To get a clear picture of why we should stay out and keep our firefighters safe when there are no lives to be saved, take a look at the latest Underwriters Laboratories (UL) report released on October 1, 2008. Last year, UL received a fire grant from the Department of Homeland Security (DHS) to do a research study on the performance of the lightweight construction under the fire conditions. UL conducted a series of tests, and just this month posted the results of their study titled [Structural Stability of Engineered Lumber in Fire Conditions](#) on their [UL University website](#).

This is a great online course, free of charge and available to all. This course is essential for all firefighters and an absolute must for all incident commanders and fire safety officers across the land. It is only 52 minutes long but it is absolutely worth it. Please take the time to educate yourself and the staff under your command. The lives that they save could be their own.

Just to give a brief overview, UL did six tests and videotaped them all. They had two firefighter mannequins in full gear with TICs on these test floors and roof assemblies. Watch the videos and see if you can predict when the mannequins will fall through.

It is interesting to see that the difference in the temperature reading of the TIC at the top assembly compared to the inferno below. In one test, after five minutes, the TIC temperature showed a comfortable 73 degrees on the floor level above the fire; meanwhile, the temperature below was 1,378 degrees. This was not because TIC was not working or reading inaccurate temperatures; but because the flooring and carpets do not transfer that temperature, so the TIC doesn't see it.

Briefly stated, based on this report, the lightweight construction, the increased fuel load, and the synthetic petroleum-based materials in modern structures all contribute to much greater fire growth. Needless to say, faster fire growth significantly increases the probability of sudden catastrophic structural failure in these buildings. Time is working against us when fighting fires, and delayed response times could have direct adverse impact on the outcome of the call. Time is a luxury we don't have when responding to these lightweight construction fires; catastrophic structural collapse and firefighter fatalities could be the end result.

Take a look at the [Time versus Products of Combustion illustration](#) posted on the United States Fire Administration (USFA) website. You can clearly see that the increase in time directly correlates to the magnitude of fire and significantly increases the hazards facing our firefighters. This [USFA illustration](#) underlines the impact of response time and the importance of residential sprinklers in early suppression of fires.

It is positive to see that, slowly but surely; the fire service is finally realizing the importance of their active participation in the code development process. This participation will not only protect our communities and provide for the safety of our citizens, but also the firefighters putting their lives on the line day in and day out. Organizing the fire service to actively participate in the code development process is our task, as identified by Strategy 5 of the [Vision 20/20 National Strategies for Loss Prevention](#), which is focused on this very important issue.

We were successful in getting the residential fire sprinklers into the codes, which was a big gain, but we failed to get the 30-minute lightweight construction protection. We will keep on fighting for it and will undoubtedly succeed in future. We owe it to Robin Broxterman and Brian Schira and all of our other brothers and sisters who gave their lives fighting fires.

Firefighters and Asbestos Can Be a Dangerous Combination

Jennifer Miller, Awareness and Outreach Coordinator

Mesothelioma.com

Each time a firefighter heads into a blazing building, he/she faces myriad risks. Some dangers are quite obvious - like smoke inhalation and falling debris. Others, like contamination from asbestos, are less so.

For nearly a century, the building industry made liberal use of the mineral asbestos, which was cheap to use and well-known for its durability and heat resistance, and fire resistance. Because of those properties, it was used in attic insulation, floor and ceiling tiles, drywall and drywall glue, shingles and siding, and to wrap pipes and wires. In fact, asbestos causes no real health concerns, but when it is damaged - as in a fire - it can be deadly.

When asbestos is damaged, fibers can circulate throughout the air. Inhaling airborne asbestos fibers can cause them to become lodged in the chest area, where they can eventually cause an asbestos cancer known as mesothelioma. This disease can remain latent in the human body for as long as 50 years and by the time symptoms surface, it has reached Stage 3 or 4. By that time, mesothelioma treatment options are few and rarely successful. And though new mesothelioma treatments have been developed over the last few years, the prognosis for an asbestos cancer sufferer is still grim.

Firefighters can avoid exposure to cancer-causing asbestos by taking the proper precautions when fighting a fire and during overhaul or investigation after a blaze, where asbestos debris may be present. It's difficult to tell when and where asbestos might be present, so wearing a self-contained breathing apparatus (SCBA) should be a regular practice to prevent inhalation. The SCBA provides breathable air and tiny, sharp asbestos fibers will not be able to enter the respiratory system.

In addition, to avoid spreading asbestos contamination to others, the SCBA should be thoroughly cleaned after use and any clothes worn while fighting a fire containing asbestos should not be worn away from the site of the blaze. A firefighter with asbestos on his/her clothing or equipment can bring the hearty fibers back to their station or even to their home, potentially causing secondary cases of asbestos cancer in family members who are exposed to asbestos in a secondary fashion.

For more information about asbestos safety, please visit Mesothelioma.com.