Special Turnout Gear page 29

CAROLINA FIRE RESCUE EMS JOURNAL

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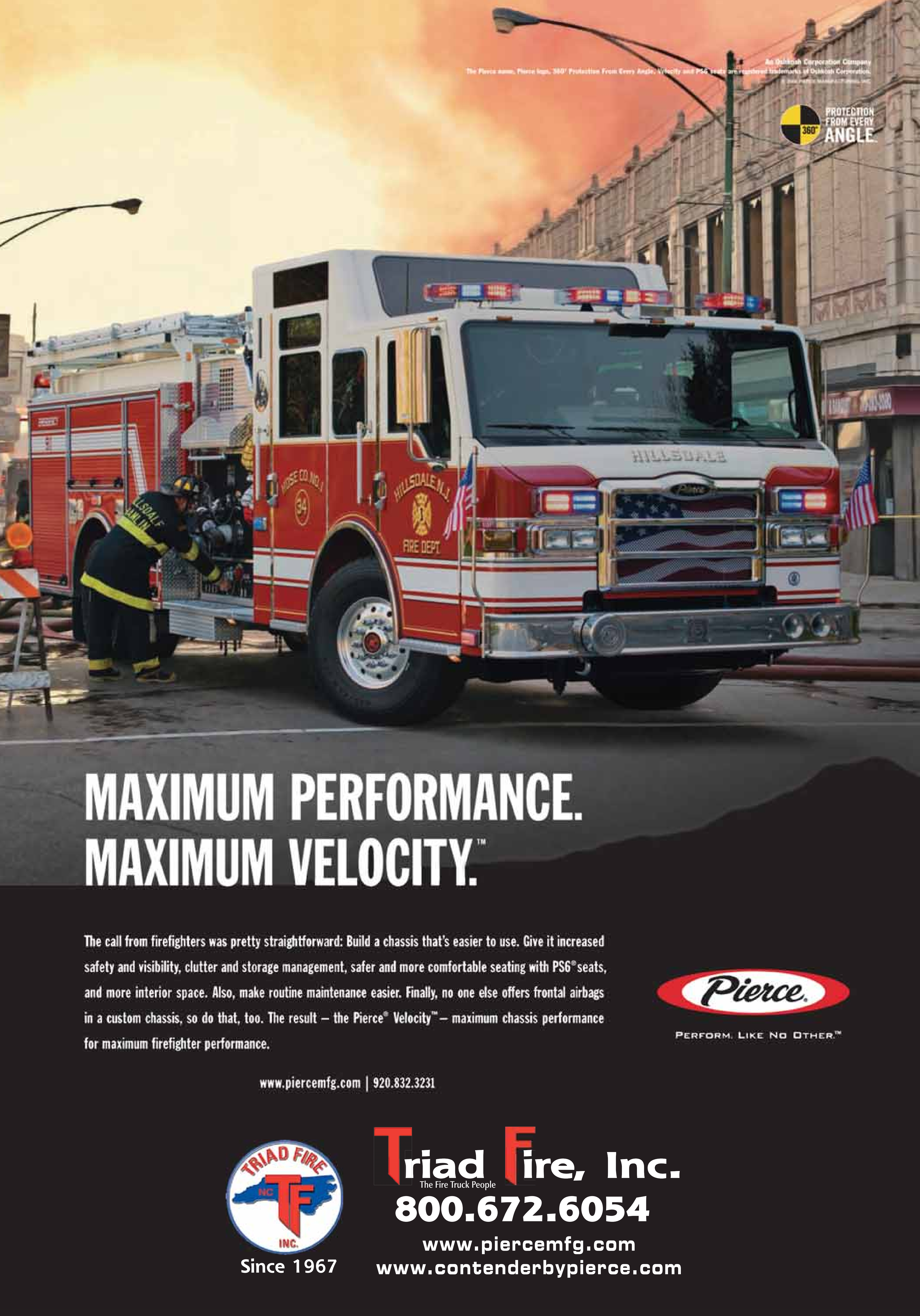

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1985 CAROLINA FIRE RESCUE EMS JOURNAL 2009

From the Editor

by Sherry Brooks

e-mail editing@carolinafirejournal.com

INSIDE

ON THE COVER:

Firefighter-Paramedics from Colleton County Fire-Rescue are shown cribbing the tractor trailer before working on the SUV. Mikey Banks is seated on the ground, Marshal Murdaugh is under the truck, Battalion Chief Marty Stallings is inside the SUV and Bell is assisting. Holmatro Rescue Tools and Air Bags were used in the extrication. A heavy duty wrecker was also used to lift the truck cab approximately three feet to allow for the man's body to be removed, after the passenger side front door was removed with a spreader and several sections of the car were cut away with a cutter. Photo by Barry McRoy.

Sometimes the Heroes are at Home

Who are these unsung heroes? They are the family and friends of our first responders. They are the ones at home taking care of families and tucking the kids in at night when their spouse is on call. They are also in the background of many departments, raising needed funds and working hard to come up with creative and fun ideas for the community.

One recent event was the 6th Annual Tractor Pull in East Bend, N.C. The East Bend VFD's auxiliary sponsored the Friday night event. All ages attended, bringing their lawn chairs and umbrellas for the shade. It was a night of loud noise, red dust in the air and the smell of engines pushed to their limits. Attendees enjoyed home-cooked burgers and hotdogs, desserts and homemade ice cream. Raffle tickets were sold, earplugs inserted and the tractor pull began as the crowds cheered their favorite drivers. All thanks to the hard work of the auxiliary.

Paul Miller, executive director of the North Carolina State Firemen's Association sent us a note on House Bill 511 passing. "This bill allows volunteer fire departments and rescue squads to file for their sales tax refunds," says Miller. "This is for departments that are 501c4's as well as those that are 501c3's. The bill passed the second and third readings, and it is now being sent to the Governor to be signed. This should just be a formality. This is one of the major bills we worked this session and I am so happy to see that it passed. This is a perfect example of how someone tried to fix a previous problem and our departments got caught up in the process by error. Once we pointed out the problem that had been created the legislature worked to correct the problem with House Bill 511. I want to thank all of you who called and wrote your House and Senate members asking for their help in correcting the error by passing House Bill 511. I want to encourage everyone now to thank their House and Senate members for passing this bill. It is a really difficult year to pass any bill that costs the state money. We really need to thank our legislators for their vision and courage in passing this bill." Thanks Paul, and I hope everyone will follow his advice.

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The Three E's of Safety

DAVE MURPHY

In these tough economic times, workplace injury and its associated costs can significantly erode any departmental budget. Fire Chiefs must balance the checkbook and many have learned the hard way that injuries can quickly decimate a budget. Nationwide, an estimated seven percent of industry profits are spent, directly or indirectly, as a result of a workplace injury. The initial treatment is usually the least of the costs; it is the lingering associated aftermath that tends to drive up the total costs of the injury.

An effective illustration is that of an iceberg. The tip of the iceberg (the smallest yet most visible part) represents the actual cost of the injury, such as medical care, transport, rehabilitation and other direct costs. The bottom of the iceberg (the largest and invisible part) portrays lost production, overtime/worker replacement, increased workers' compensation insurance premiums and morale problems, just to name a few.

Money concerns aside, we can all agree that it is not ethical to injure or kill our fellow man, however, in reality, it is most often money concerns that actually forces a drastic change. Unbudgeted costs associated with preventable departmental injuries could actually replace funding allocated for your raise next year, and affect every other intended purchase as well.

Most line firefighters simply do not understand the costs associated with departmental injuries — maybe fire administrators should take some time to educate them?

The Three E's

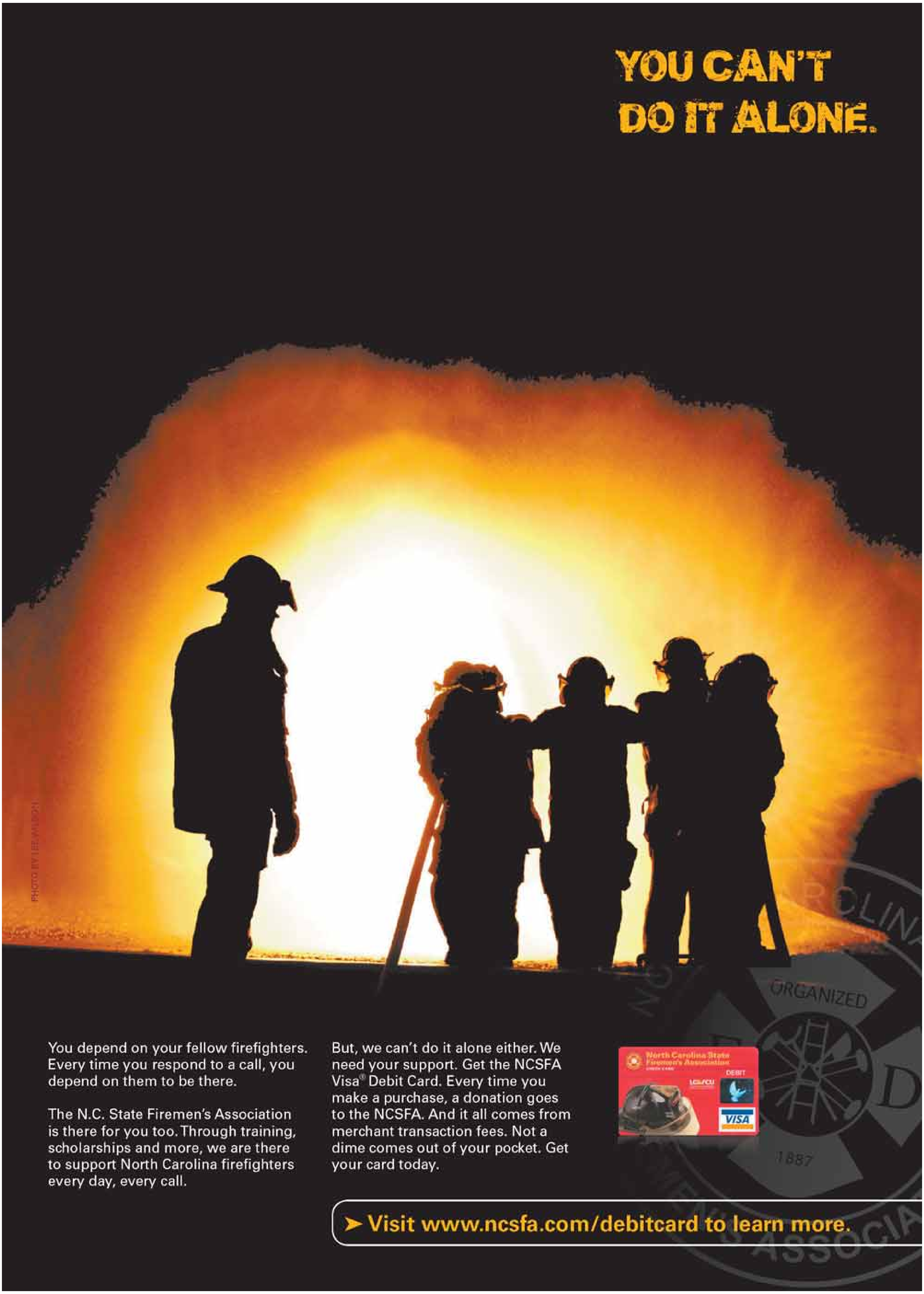
According the National Fire Protection Association, 114 line of duty fire service related deaths occurred in the United States last year, and we are not off to a good start as of this writing. NFPA statistical reports accurately detail injury-causing mechanisms year after year. A refrain often heard after an accident has occurred: "We know what is going to hurt us, but we keep on making the same mistakes." If the process or activity has injured once, and nothing is done, it will injure again!

We all make mistakes and take shortcuts from time to time, and sometimes they come back to bite us. While it is people that cause most of the problems, it is also people that have most of the solutions. The Three E's align with human related factors and formulate the basic preventive tenets of the safety profession. Three E's are commonly known as:

• Engineering
• Education
•Enforcement

If properly pre-applied and consistently utilized, the following proven principles will lessen the chance of injury in your department.

see THE THREE E's page 38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You depend on your fellow firefighters. Every time you respond to a call, you depend on them to be there.
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The Three Little Pigs

KEN FARMER — barnyard management

Everyone has grown up with the classic tale of the Three Little Pigs. It was read to us as a child from a Golden Fable book; we may have watched the Disney adaptation on video or DVD.

A few weeks ago, while sharing a meal with co-worker Mary Marchone and close friend Shane Ray, Mary casually mentioned the fact that we can all learn from the Three Little Pigs. I thought about that for a few days and knew I had to write this article based on her comments and thoughts.

What is the background of this classic story? Like many fables and tales, it was written by James Halliwell-Phillips and first published in a book called *Nursery Rhymes* around 1843. The more popular version is traced back to a book by Joseph Jacobs printed in 1890 called *English Fairy Tales*.

Interesting enough, it was included in a book in 1881 entitled *Uncle Remus: His Songs and Sayings*, Joel Chandler Harris. It again was made famous by Walt Disney in 1933 in a cartoon version called "The Silly Symphony."

In recent times, it entered into some controversy when a new version called *Three Little Cowboy Builders* was turned down by a state government agency awards panel in 2007. There the panel felt that the subject matter could offend Muslims due to its use of pigs as central characters. Religious restrictions on the consumption of pork exist in both the Muslim and Jewish dietary laws, making it a taboo meat according to Wikipedia. Regardless of these issues, it has remained a timeless fairy tale for children around the world.

The main focus is about the three pigs and their efforts to establish themselves in the real world after their mother has them leave their familiar surroundings to seek their fame and fortune in the world. Of course, just like today, the outside world is full of danger and risk. (Checked your 401K recently? For most of us its now a 201K!)

The three pigs all choose a different approach to life and the best way to establish a new home. As you remember, the first pig builds a house of straw. Straw was inexpensive, recyclable and environmentally friendly. It, however, had some hazards. First, it was not a very fire safe choice. Second, it was not a very secure choice. And soon, the big bad wolf who served as the main protagonist (for those like me, this means the bad guy!) shows up and proceeds to rant and rave at the pig in the straw house.

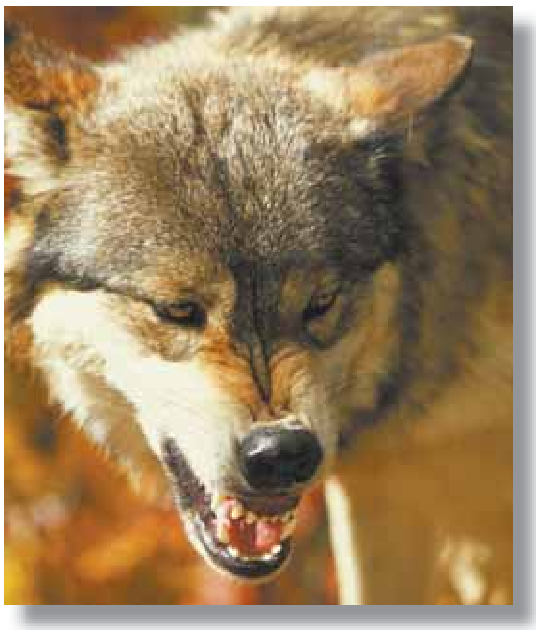
The wolf offers some sense of security for the pig by suggesting he let the wolf in to visit. After continued verbal assaults by the wolf, the pig chooses not to invite the villain in his house. This pig considers the options and decides to stay inside. However, the wolf then proceeds to "huff and puff" until he blows the house of straw down and immediately consumes the pig as his dinner.

The second pig takes another approach to a shelter and quickly builds a house of available resources nearby. This structure, made of wood or sticks, is a sturdier home and offers some increased protection from the elements. It can be built for a low cost, meets current codes and keeps the pig dry and warm. But, alas the wolf has now has his appetite even more increased by his first meal.

He now approaches the home of the second pig and makes a similar offer to be invited into the wood home to visit with this pig. Again the wolf's offers do not appeal to this pig. Again, the wolf grows frustrated with his kind offers being rebuffed and decides to "huff and puff" and blows the house of sticks down. By now you see the clear pattern of the wolf's use of hot air to reinforce his decisions! Unfortunately the same ending befalls the second pig. The wolf devours the pig and then sets off for a third and final feeding.

Now, this brings us to the third and final pig. (All good fables have threes!). This pig must have done some research online and found that a brick house would resist most of the elements such as wind, rain and other issues. Most likely this pig also knew the advantages of having working smoke alarms, a second exit available and installed a residential sprinkler system as recommended

continued on next page



by the local fire department. This pig followed all the current building codes and exceeded them with some more safety and security features. I would not be surprised if this pig may have even put in granite counter tops since he was planning on staying a while. Who knows?

As the tale continues, the wolf soon arrives at this pig's door and proceeds to offer a similar proposal regarding an opportunity to visit with this pig. Again, this pig chooses not to open his door. The wolf then initiates similar actions that were successful before and proceeds to" huff and puff" but to no avail. After becoming frustrated with the pig, the wolf chooses a more direct approach. He decides to attempt to enter the house via the chimney. Again, the wolf's knowledge of fire and safety must have been limited. He is totally unaware that the third pig has begun to heat a large pot of water in his fireplace. The wolf climbs down the chimney and falls directly into the pot and this allows the pig to have a large but chewy meal of wolf stew.

Such is the tale of the three little pigs. Unlike the three blind mice and the three blind men and the three dwarfs (maybe that was seven!); the story ends with both irony and sadness.

In this story, the third pig takes advantage of the latest in safety and security. He plans ahead and anticipates some potential disasters that may hit his humble abode. He goes above and beyond the minimum safety levels and takes the extra time and money to build it right, including the residential sprinkler system, of course!

What is the lesson to be learned here? There are many of course.

Always anticipate the worse: The pig had learned to plan and project for the worse case. He was able to build in several levels of safety and plan for some bad times. Hopefully, the worst case will not occur, but you must plan for it.

Wolves will always be at your door: Wolves come in a variety of clothing, shapes, sizes and appearances. If they want to get in your house, you must have something they want.

Watch out for your brother and sister pigs: This pig lost most of his family due to their lack of planning and rush to get some shelter, rather than the best shelter. Plan for the long haul. Try to help your fellow pigs to make the right decision and provide them the best advice you can. Your first choice is not always your best choice in the long term. I have turned down things which seemed "just right" and later found out there were much better choices right around the corner

You will live or die by your decisions: As you go through life, we all make mistakes. Some of the bad ones will kill us. Hopefully you make a few bad ones and learn from them. Hopefully you only make the bad ones once. Never stop learning no matter what.

Residential Sprinklers Do Save Lives: Hopefully you already know this fact. Truer words have never been spoken. They save the lives of firefighters, homeowners, and citizens, and save property damage to boot. We all know this instinctively in the fire and EMS service, We MUST go out and share this with the world, our friends, our neighbors, our family and builders.

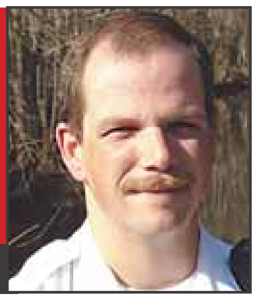
The struggle of this code change began many years ago. It came to a crucial turning point last year with passing of the ICC code change to allow state and local jurisdictions to adopt this change locally beginning in 2011.

Do anything and everything you can to support their adoption of the code change in your local community. Our future generations will say thank you one day.

In summary, maybe the last point did not have anything to do with the barnyard or the three little pigs, but it still important to us all. Hey, the pig is alive and happy!

Stay Safe!

Vehicle Air Bags — Friend or Foe?



DAVID GREENE

Today's military command and control systems are often equipped with a system known as IFF or identification, friend or foe. The term is a bit of a misnomer, as IFF is limited to only identifying friendly aircraft or vehicles. The IFF system simply receives no reply from unfriendly or unidentified aircraft or vehicles.

Today, we find airbags throughout the vehicle's passenger compartment, including side seat and curtain airbags, as well as the really cool "behind sensors" that can decide whether or not to deploy a passenger side airbag based on whether a "behind" is in the passenger seat or not. Airbags are deployed based on the work of several sensors within the vehicle:

- Accelerometers
- Impact sensors
- Side door pressure sensors
- Wheel speed sensors
- Gyroscopes
- Brake pressure sensors, etc.

When the airbag control computer senses a collision, the computer activates a pyrotechnic initiator with a small charge, which in turn ignites a combustible material, which initiates the gas generator, which inflates the airbag with an inert gas. The time from collision detection to full inflation of the airbags is typically between 60 to 80 milliseconds.

From 1990 to 2008, the U.S. National Highway Traffic

see VEHICLE page 58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Heavy Challenges During 'Big Lift U'

By Billy Leach, Jr.

Imagine responding to eight complicated rescue operations in less than 16 hours. That's exactly what responders faced as they attended BIG LIFT U. Operations included a loaded tractor trailer overturned onto an auto, a railroad tanker underride, a 25,000 pound mixer drum resting on an auto, and more.

The BIG LIFT U was sponsored by Central Carolina Community College (CCCC) in Sanford (Lee County), N.C. Both Team Eqt. and Paratech Inc. generously provided air bag systems and struts for use. Chatham Alignment and Towing provided large air cushions used to upright tractor trailers. West Sanford VFD provided an air compressor unit to refill the multiple SCBA tanks that were used.

Held on the campus of CCCC Emergency Services Training Center, responders from eight states and one foreign country attended the inaugural course. National and international presenters provided their knowledge. Senior planner and presenter was Billy Leach, Jr., internationally known for his development and presentation of the Big Rig Rescue program. Assisting with instruction was Nigel Letherby (Paratech Product Specialist), Captain Robert Morris (FDNY Rescue Company No. 1), Kevin Cieciorka (president of Chatham Alignment and Towing and Wreckmaster 6/7A Grad), and Dwayne Smith (heavy recovery operator for Chatham Alignment and Towing and Wreckmaster 6/7A Grad/ Deep River VFD FF). All presenters are known for their considerable knowledge and vast experience in rescue operations and big rig recovery.

Billy Leach, Jr. Senior Planner for 'BIG LIFTU' discusses lifting plans with a member (blue helmet) of Charlottesville-Albemarle (VA) Rescue Squad.

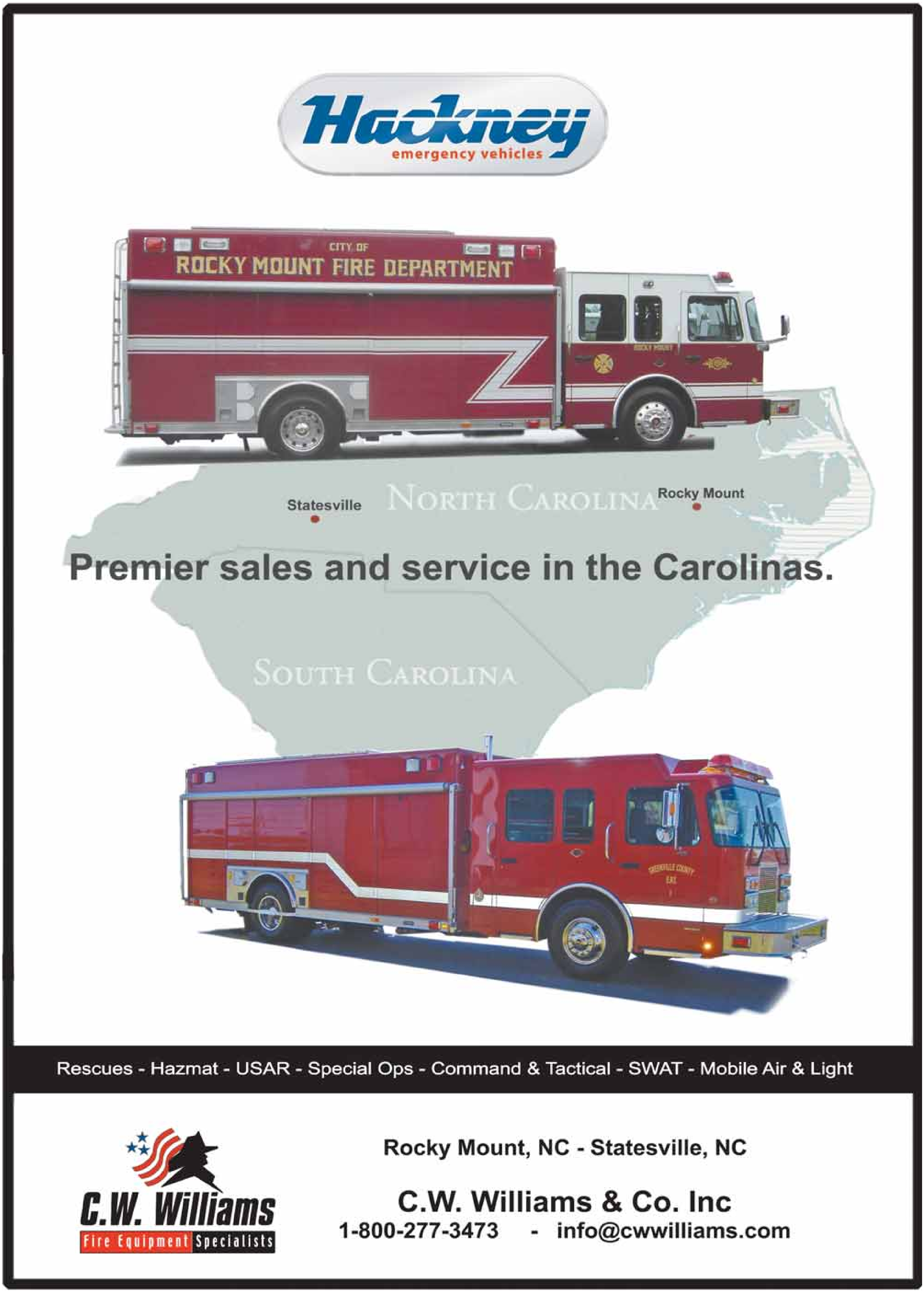
As the responders rotated throughout the eight scenarios, they were challenged to develop a plan of action, then execute that plan and lift thousands of pounds using high, medium and low pressure air bags systems.

For example, while operating at the railroad tanker underride, responders lifted one end of the tanker calculated at 42,000 pounds. By no means was that the limit of lifting. Another scenario involved lifting a 25,000 pound mixer drum that was resting on an auto, trapping simulated victims.

Lifting a cylindrical object of that size and weight proved to be a major challenge.

Another scenario involved an underride situation that pinned a victim between the rear of a tractor trailer and hood of an auto. Increasing the challenge was yet another victim pinned underneath the auto. Two independent lifts were required to remove the victims — including a pediatric victim pinned between the 'B' post and seat of

see BIG LIFT U page 12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Big Lift U

continued from page 10

the auto in which responders used an air bag to free him.

The challenges continued as a school bus was overturned down a 15 degree embankment partially ejecting three children and pinning them under three distinctly separate locations of the bus. Compounding the problem was a tanker truck and auto resting against the bus. The rescue operation was complicated by victims in three locations, the tanker and auto resting against the bus, plus the slope of the embankment creating weight transfer.

A simulated structural collapse brought large, heavy pieces of concrete down upon an auto trapping the occupants. These pieces were literally balanced upon one another. Responders had to stabilize each piece, anticipate potential movement, and then provide lifting operations at multiple points in order to move the single piece of concrete that trapped the occupants.

Before any rescue actually took place, the responders were involved in a classroom learning session which provided an orientation to equipment, plus a session on Heavy Lifting Operations.

One of the most challenging scenarios involved a 30,000 pound cement mixer on an embankment versus an auto. The auto was in a four foot deep ditch with the 15,000 Front Axle Weight Rating (FAWR) of the mixer resting on the auto. Responders were forced to stabilize the mixer in three directions to prevent movement prior to any lifting operation. Lifting was accomplished using high pressure air bag systems.

After lifting was accomplished at each of the scenarios, timber cribbing and struts were used for stabilization. Responders were taught considerable information regarding timber cribbing in the classroom session, plus provided an extensive handout.

The need for such training was recognized during the training. Often responders

see CHALLENGES page 16


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The Hidden Cancer Infecting Departments

By David Elliott
davidelliott@bluerampublishing.com

A complex issue, viral in nature, plagues both the fields of EMS and the fire service. This is an attempt to bring the matter to the attention of colleagues who may be engaging in this practice. I honestly feel it happens without our even realizing it.

Typically, it is the senior most personnel who have become either jaded or "burned out" in the field of emergency services. In many cases, personnel who aren't yet burned out with the career, they have become frustrated with his or her department's administration. Sometimes the root of the matter lies with someone who was unsuccessful in a promotional process or pursuit of the station of his or her choice. Other cases involve personnel suffering from the "it worked better the way we did it back home" syndrome.

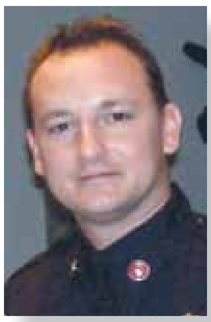
No matter the origin, these attitudes erode job satisfaction, performance and productivity like a psychological cancer.

The real trouble lies with the fact that it is not merely ***their*** problem. These senior employees or volunteers happen to be the ones who most often handle orientation, train or precept new members. This behavior must be identified and either corrected, or at least, put on hold for the time dedicated to orienting new staff. If it is not, the trainees' morale, enthusiasm and dedication may suffer.

There is a degree of excitement for new firefighters and emergency medical technicians to finally reach the point at which they can apply their newly acquired skills. By taking the wind from their sails, the effect is similar to that of water hammer when slamming a nozzle shut. The rookie's morale and excitement is suppressed, the attitude affects the degree of customer service delivered to the public, and it may even prevent his or her recruiting friends into future positions. Simply put, instead of holding out for a significant emergency to test their skills, the time is spent watching the clock in eager anticipation of shift change. In times already dismal in the realm of recruitment and retention, these attitudes can be particularly damning for volunteer organizations.

If you're not an advocate for the field you chose as your career, and the employer you chose to work for, pretend to be...

Bottom line, if you're not an advocate for the field ***you chose*** as your career, and the employer ***you chose*** to work for, pretend to be — at least while training new recruits.


David Elliott

David Elliott has just written and self-published "The Illustrated History of Rescue and EMS," available at www.bluerampublishing.com and can be reached via e-mail at davidelliott@bluerampublishing.com. Elliott is currently a firefighter/paramedic with Horry County Fire Rescue in South Carolina. He is a former Chief of Orange County Rescue Squad and Assistant Chief of South Orange Rescue Squad in North Carolina. He was also a Lieutenant with the Parkwood VFD in North Carolina. He has been in the fire service and in EMS since age 14 when he was a junior member of Williamston Fire Rescue in North Carolina.

Heavy Challenges

continued from page 12

lacked the confidence and ability to use air bag lifting systems and struts. This training was a concerted effort to improve upon this need.

Attending the BIG LIFT U were responders from seven states and Haar FD in Bavaria, Germany. Several large and small agencies were represented. Two heavy duty towing and recovery companies sent their operators to be trained alongside the responders. Those companies were Jolley's Towing in Cowpens, S.C. and Barbour's Towing in Raleigh, NC.

Plans are to offer BIG LIFT U during 2010 with even more challenges and learning. Registration will be limited to ensure maximum hands-on.

For more information on BIG LIFT U or BIG RIG RESCUE, e-mail billyleach@gmail.com.

Responders placing a Paratech strut to stabilize an inverted tanker resting against an overturned school bus. During the overturn three children were partially ejected from the school bus. Jerry Barbour, Ops Mgr. from Barbour's Towing in Raleigh (NC) is cross training with fire responders in order to better perform his job. Although resting on an embankment, the school bus had to be lifted using air bags, and then stabilized.

Standard Operating Guidelines: Are They Really Needed?

By David Hesselmeyer
dhesselmeyer@yahoo.com

There has always been a discussion about Standard Operating Guidelines (SOGs) versus Standard Operating Procedures (SOPs). Supposedly there are lesser requirements to follow SOGs since they are guidelines and not procedures.

Either way, there is a strong need for SOGs or SOPs. These lay out the methodology for your department to operate. Why do we need them?

The Need

Marching Orders

The first reason for us to have such guidance in writing is that, as mentioned before, they give us our marching orders for operating on daily and emergency basis. They can inform us on how to elect officers to which apparatus respond first to certain emergencies.

Without these marching orders, response and operations would become unclear. Decisions would be arbitrary and depend on which officer or senior firefighter is making them. This would prevent us from providing the most efficient and standardized service that is possible.

Many times these marching orders are left to be decided in Board of Director meetings where they get lost in translation and over time. We have an idea of what is supposed to happen, but lack the ability to easily support our decisions since they are not centrally located in a document such as the SOGs.

Legal Support

Today's society is eager to pursue lawsuits. SOGs give a department legal support when the guidelines are approved and written with care, research and follow national standards where applicable.

Situations have occurred where lawsuits were brought about and fire departments have been cleared of any wrong doing due to the SOGs and other supporting documents.

SOGs give the power to perform certain actions, such as remove a volunteer from service. Without proper procedures of how to accomplish this, such an act (as removing a volunteer from service) could be seen as discriminatory or performed without due process. By following set forth guidelines in the SOGs, departments facing such lawsuits would have better support, should the lawsuit even be able to be filed.

SOGs Establishment/ Revision

What does your department have?

The first step in this process is to find out where your department stands. All firefighters should at least have access to a copy of the SOGs.

If you don't have any SOGs,

see GUIDELINES page 18

Standard Operating Guidelines

continued from page 17

then you will need to create a set.

If you do, then look at the last time they were revised. If there is not a date of last revision, look at some of the guides and see if guidance and operations have been advanced.

Creation/Revision Team

SOGs and SOPs are normally better accomplished with a team of experienced personnel. This team should not be made up only of board members, or officers, but should be a neatly balanced mix of board of director members, officers and firefighters. This will allow for the best guides/procedures to be developed.

Research

Research is an important step and should include two major points.

First, you research national standards and policies. Most of this can be done by consulting the National Fire Protection Administration (NFPA) standards.

Second, talk to neighboring departments and see if you can borrow a copy of their SOGs. This can guide you in writing your SOGs and can allow you to ensure that your SOGs mesh well with theirs common operations during mutual aid.

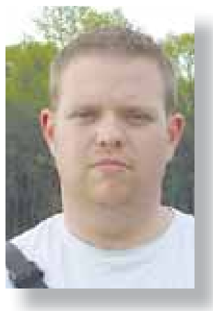
Draft Writing

The process of writing would be the next step. This includes working with the members of the team and making decisions of processes to include. Once the decision on how you are going to operate on a specific topic is formed, put it in a standard format.

Approval Process

Prior to working on the final approval process, a meeting for firefighters to review the draft(s) allows them to provide feedback. This would also add various technical specialists in a range of topics. Those revisions should be considered by the revision/creation team.

Approval of items like this usually resides with the board of directors. The team would need to take this document and present it to the board. There could be additional revisions needed based on board recommendations, or it could be approved as presented.



David Hesselmeyer

David Hesselmeyer is an 11 year veteran of fire and EMS. He is currently serving as a lieutenant and President of the Board for Patetown Volunteer Fire Department in Wayne County and with Pitt County EMS as an EMT-Intermediate. He works as a Regional Preparedness Coordinator for the Public Health Regional Surveillance Team 3 in Fayetteville, which is a specialty emergency response team that responds to public health emergencies. He can be reached at dhesselmeyer@yahoo.com.

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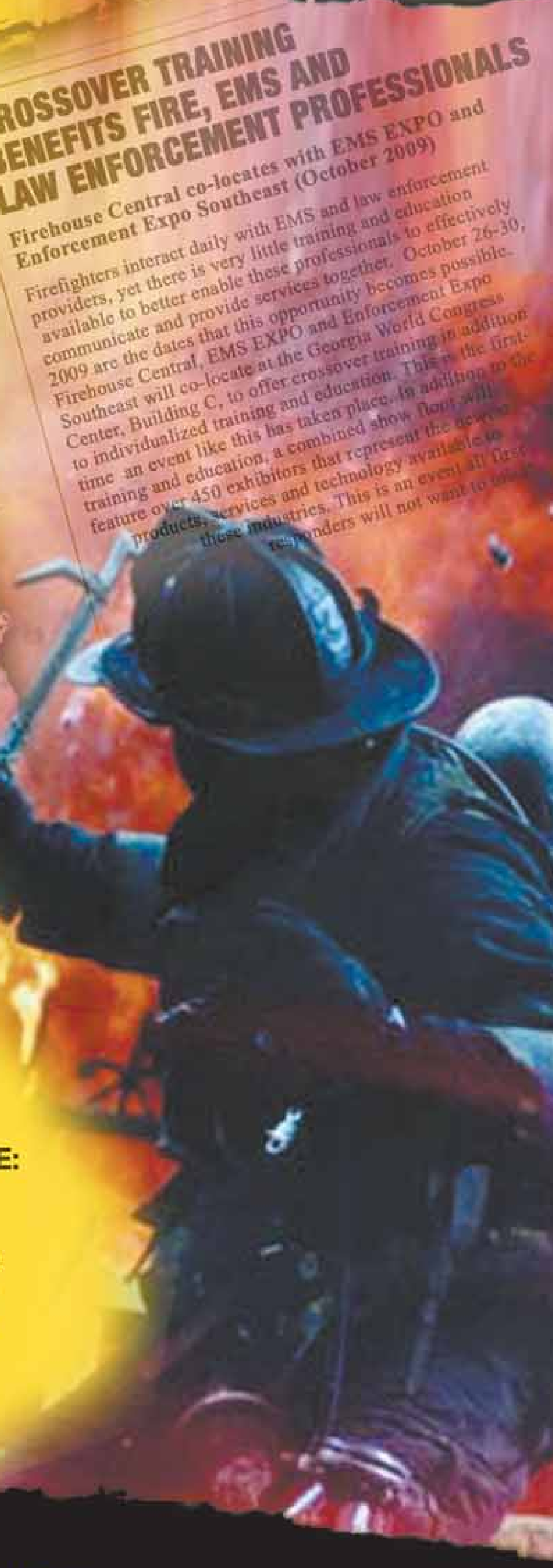

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Understanding the Generation Gap

STEPHEN MARKS

I never quite understood my parents — until now:

I grew up watching the show "Emergency!" and listening to rock music on cassette tapes. My parents on the other hand never took to Johnny and Roy like I did. And their taste in music was something akin to what you would hear in an elevator. I never could quite understand why. I attributed it to the well known yet mysterious generation gap. Now, some 30 years later, I am faced with a similar dilemma.

My children watch reality TV and listen to dreadful music on their iPods. I, on the other hand, seldom watch the television and thoroughly enjoy relaxing to jazz and new age music. Recently at dinner, the kids commented on how much I was becoming like my father — their grandfather. And that is certainly not a bad thing. But it clearly represents yet another shift in the proverbial generation gap.

Recognizing, understanding and embracing this generation gap is not only important for parents, but it is also important for leaders within the emergency services. While our younger comrades are not necessarily our children, within the emergency services community, we often consider one and another as family. Older family members (and parents) are often challenged by this generation gap.

We can overcome this challenge if we understand the differences between the various generations, and help those younger to understand our own personalities and motivations. There have been many articles written over the years, with each successive generation adding to the mix. Within the past century, there have been five primary generations identified:

- GI Generation 1900-1924
- Silent Generation 1925-1945
- Baby Boomers 1946-1964
- Generation X 1965-1979
- Generation Y 1980-2000

Depending on what sources you reference, the actual names and dates of these generations may differ slightly. In some instances, the GI and Silent Generations have been combined and are often referred to as Traditionalists. A small percentage of the Traditionalists and nearly all Baby Boomers make up the majority of our leaders within the emergency services today. But that won't last for long.

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As these generations near retirement, the emerging leadership will come from the Generation (Gen) X population. As the Baby Boomers and Gen X leaders struggle with the challenges of today, they must also understand that the way they are accustomed to doing business may be quite different from each other, as well as that of the younger Gen Ys. Looking at the social, economic and political environment of each generation gives clues as to their respective characteristics and motivations.

The Traditionalists came out of such events as the Great Depression, World War II and the Korean War. They were exceptionally loyal in their work and were driven to create a legacy. They had a strong work ethic. In comparing Traditionalists to Gen Ys — in essence two ends of the generation spectrum — one will quickly see the potential conflicts that can arise in management and leadership.

In between these two diverse generations, one finds the Baby Boomers and Gen Xs. The Boomers, as they are affectionately called, were characterized by independence and rebellion. They came out of events like the Civil Rights movement, the Vietnam War, assassinations of Martin Luther King and John F. Kennedy and the Cold War. They were also known as the Woodstock generation.

Baby Boomers wanted a career that would change the world, and they would often work 70 to 80 hours a week in an attempt to accomplish that. Boomers, by their nature, had an inherent distrust of authority and were not often loyal to the organization. They were, however, loyal to their values and causes. Like the Traditionalists, Baby Boomers have struggled with effectively managing and leading the younger generations.

Gen Xs are the up and coming leaders of the emergency services. This generation has come out of events such as Watergate, the fall of the Berlin Wall, the Challenger explosion and the advent of the personal computer. They have a desire to learn and will change jobs to acquire new skills. They are freer with their communications and are often not afraid of sharing their opinions with others. Gen Xs measure their productivity by project completion, not time on the clock. They are not fans of busy work.

The most recent generation, Gen Ys, have grown up in an era of rapidly developing technology, 24 hour news and instant gratification. They came out of such events as the Oklahoma bombing, Sept. 11th, and technologies like the Internet and personal cell phones. Gen Ys are accustomed to instant communications and frequent rewards. They are typically civic minded and technically savvy. They want more and want it now.

Gen Ys are less inclined to work for overtime and would rather have time off to spend with friends. In fact, they are perpetually connected with friends through social networking like My Space, Facebook and Twitter. (If you aren't familiar with social networks, you are already at a disadvantage in dealing with Gen Ys). They post every aspect of their lives on-line for others to see, and often think nothing of it.

This young generation now entering into the emergency services workforce offers us old-timers several leadership challenges. Gen Ys are often perceived as impatient and arrogant. They often expect promotions without working their way up the ladder. Consider that many Gen Ys grew up receiving accolades and trophies just for participating, not necessarily for any outstanding accomplishment. They are often team orientated and able to multi-task.

Clearly, Gen Ys have grown up in a different environment than their predecessors of 30 years ago. Gen Ys appreciate and expect diversity, and they have a difficult time dealing with those who may be prejudiced by race, nationality, sexual orientation, etc. They are idealistic and cause driven. Gen Ys believe that they can change the world their first day on the job.

Recognizing all of these characteristics may help older generations to understand the motivations of Gen Ys and perhaps be more receptive to their actions. And the Gen Ys need to reciprocate and understand what motivates the older generations. Open and transparent communications is necessary to foster this exchange. While we can not overcome the generation gap, we can certainly work to bridge it.

I still watch "Emergency!" but not on the television. I enjoy the episodes on the Internet. While I have difficulty enjoying some of the newer music being played today, I am at least trying to tune in to what the Gen Ys listen to. I have a Facebook and Twitter account and strive to understand their cryptic text message vocabulary. I take time to explain my generation and actively listen when they detail theirs. And I smile, because now I understand what my parents were experiencing so many years ago.

Stephen Marks serves as a Certified Emergency Manager with Guilford County Emergency Services. He has a diverse background in emergency services administration, training and response with experience in Fire, EMS and HazMat operations. Working in the realm of emergency management, Marks is responsible for emergency planning and training as well as disaster response operations and community preparedness education. He can be contacted through his website at www.scmarks.com.

Extrication: Back to the Basics

DAVID PEASE — REDS Team

Last issue I wrote about how good we had it here in North Carolina, being able to take training through the North Carolina Community College system. When you read this, one of two things will have occurred. One, the NC General Assembly will have voted to charge paid public safety personnel $45 for classes taken through the college system, which would include all paid firefighters, law enforcement officers, and EMS folks. This will have a tremendous impact on our current system. The other option will be they have eliminated this proposal and the fee waiver through the colleges will remain unchanged, the option I hope occurs.

The first of August, my Guatemala rescue team leaves for a week to train their folks in basic rescue techniques. We will be utilizing equipment donated. This is composed of mostly hand tools, but does include a hydraulic combi-tool, some reciprocating saws and stabilization jacks. We will be tasked at teaching these folks the basics of vehicle extrication. I will have a chance to teach some old school. I guess I am dating myself again. As with all extrication techniques, some of the basics never change. Even with all the new tools and technologies we now have, sometimes the basic techniques work the best. This is the place we should all start.

Over the years auto technology has changed a lot. They introduced the frontal driver's airbag in the 70s and continued to improve and add since that time. We now have to not only consider frontal bags, but side and curtain airbags as well. We also have to be aware of seatbelt tensioners, another safety device that could cause us problems. Then along comes the hybrid vehicle that uses electric and gas for power. How do we keep up with all the new technology and changes that come out with every new car introduced on the market? Pretty much we can't. We can read articles on new technologies and attend classes on these topics, which will help us some in doing vehicle extrication. Does all this new technology change what we do or how we do it? The answer is yes and no.

The fact is, if we don't take some preliminary steps in our assessment, it could prove hazardous to our health and the health of those around us. When frontal airbags came on the market, we learned to stay clear of the area between the steering wheel and the patient. We also learned that we should make every attempt to disconnect the battery cables so the airbag capacitor will drain and no longer activate the bag. This has not changed and we should still be doing this. This is still a basic technique that should be practiced on motor vehicle crashes. The concept of frontal airbags has not changed.

The next basic step is to stabilize the vehicle. This can be done with step chocks, wedges, cribbing, and/or struts, another basic technique that should not change. You should not overlook making the vehicle safe to work around and work in. Chocking the tires to prevent forward and backward movement is a must. When you consider stabilizing the vehicle(s), you should aim at having four points of contact to the ground. Although this is not always possible, it is what you should shoot for. You also want to prevent any side to side movement, as well as up or down. You should think of the vehicle in a 360 degree environment and prevent movement in all directions. You want to make the vehicle(s) safe to enter and treat your patients, cut on the vehicle and package the patient and remove them from the wreckage.

Once the vehicle is stabilized and the frontal airbags are disengaged, it is time to look for additional hazards such as side or curtain air-

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bags. This is a simple and easy process that will only take a minute and could prevent injuries or even a fatality. It is worth the extra minute. You need to check the side of the seats and doors for the SRS (supplemental restraint system) lettering, as well as the plastic above the doors, and on the post. The SRS lettering lets you know there are additional airbags that have to be dealt with. The next step is to peel the plastic back, "rip and strip" before you determine when and where you want to cut. To cut through a 5000 psi cylinder could prove to be disastrous.

It is easy to get caught up in the moment and forget some of the basics we once learned. We focus on our power tools and what we can do with them, sometimes before things are as safe as they should be. When I was a paramedic, it was the same mentality as going straight for the intubation tube instead of putting in the basic oral airway first. Sometimes, we just need to step back and take a second and make sure we are making the right decisions.

In future articles, we will talk about some of the basic techniques we can use for extrication. I will also be writing about the Guatemala trip and the training we will be doing there. That should include some good basic techniques and interesting training in general. It will be something new for all of us. Good job to those who attended the heavy vehicle rescue class in Lancaster, South Carolina and Whiteville, North Carolina. Remember, you can never get too much training, as you never know when you may need it. Just ask USAR Task Force 8 from Raleigh, North Carolina, a job well done at Con-Agra Foods in Garner.

If you have any questions or comments e-mail David Pease at Reds100@aol.com and visit the Team website at www.RedsTeam.com.

How Will 2009 End?

MICHAEL P. DALLESSANDRO

The year 2008 began just like any other year. People throughout the country planning to start the year off right, lose weight, save money, change jobs or do more for their community. For volunteer firefighter Paul Ellington, 2008 started for him doing what he loved to do, serving his community. Unfortunately, for firefighter Ellington, his family, his community and the fire service as a whole, he would become one of the first line of duty death statistics for 2008. Firefighter Ellington died from a motor vehicle accident while responding to an incident on Jan. 1, 2008.

In May of 2007, I was guest speaker at a spring business meeting for one of our state associations here in my home state of New York. I was giving a 60 minute segment of a topic that is near and dear to my heart, and one that I boast as "one of my specialties," when it comes to speaking and training — safe apparatus operation, both responding and returning.

Following my presentation, a gentlemen who I know as one of the more senior E.V.O.C. trainers in my state approached me to compliment me on my lecture and to pose a question. After his compliment he said, "why didn't you spend more time talking about the vehicle and traffic law that applies to emergency vehicle drivers in our state?" Now, first of all I only had 60 minutes to make my point, so I didn't have time to burn, but my primary answer was because I wanted the class to pay attention!

It is my opinion that speakers and instructors are dwelling too heavily on the "legal" aspect of driver safety and vehicle operations and not spending enough time on the emotional or human element. We also need to focus on what is going on in the driver's head or in his or her department, that may have contributed to a particular fire apparatus accident, or what may have created an environment of high risk for an accident. I am not trying to link firefighter Ellington's accident to this article for any other reason than I would like you to keep him and all of the other firefighters who have died in the line of duty from motor vehicle accidents in your mind as you read this article. I know of no wrong doing on his part that resulted in his accident. I just want you to read this article and ask yourself if you are ready to ramp up your commitment to keeping drivers safe in your department in 2009 and beyond.

When I first started looking closely at fire apparatus and emergency vehicle accidents, I hoped to see what event or exact chain of events made each of these accidents, that killed or seriously injured our brothers and sisters, unique and different. After all, there had to be a reason our line of duty death numbers never seemed to decline. This is despite the fact that in many parts of our country we were dedicating more and more time and money to training programs, at both the state and county level, to improve drivers and overall firefighting skills. I began to realize that the accidents I was doing research on, and discussing in my workshops, were

see 2009 page 41

Credit Union Supports NC Emergency Response Personnel

In a move designed to bolster support for the state's emergency response personnel, Local Government Federal Credit Union (LGFCU) has introduced a new Visa debit card exclusive to all North Carolina rescue/EMS workers and their families.

The specially-structured card works by donating 50 percent of the merchant's transaction fee from every purchase to the N.C. Association of Rescue & Emergency Medical Services (NCAR&EMS). Instead of fees coming out of the pockets of rescue/EMS workers and their families, store merchants pay the fees to process the debit card transactions. LGFCU simply takes 50 percent of the fee and directs it to the NCAR&EMS, rather than into its own revenue.

"When disasters strike, our state's first responders are on the front lines," said LGFCU President Maurice Smith. "They need the best training possible so they can provide immediate assistance, as well as the other benefits the Association affords, such as insurance, retirement and scholarships. That's why we are so pleased to partner with them to help ensure they get the training and support they need."

In 2003, LGFCU introduced a similar card to support the state's firefighters. To date, there are 5,000 cards in circulation and more than $250,000 has been donated to the N.C. State Firemen's Association (NCSFA).

"Most businesses try to hold on to every dime — especially during these tough economic times," said Smith. "We think it's important to give back to the communities we serve — just as they give back to us. It's the right thing to do."

The two card programs are just another example of how LGFCU has committed itself to serving North Carolina communities. In 2008, the credit union launched LGFCU Financial Partners, LLC so they could begin lending directly to North Carolina's local government units.

Deborah Isenhour, president of Financial Partners, says that despite the weakened state of the economy, communities are always going to need emergency services. That has meant more than 86 loans for them so far — everything from their largest loan of $1.7 million for four fire trucks all the way down to $18,000 for a used ambulance.

It's the desire to service even those smaller loans, says Isenhour, that makes Financial Partners stand out against other financial institutions. In fact, more than 60 percent of their loans are made in less economically advantaged counties, meaning they may be overlooked by larger financial institutions.

"Others might make a decision based on a first look at the loan amount or an organization's financials," says Isenhour. "But with us, it's not about just getting the loan. We're about helping the organization understand its financials and position itself to be able to do what they need to do to serve the community. That may mean helping them shift some things around, prioritize or structure the loan differently. We want to make sure whatever loan we make is a loan they can handle."

A Detailed Overview

2009 A.R.R.A. Fire Station Construction Grant

KEN NEWELL . AIA, LEED AP

By Kenneth C. Newell
AIA, LEED-AP, NFPA

How can our department get a piece of this pie? That's the question on the minds of thousands of departments across the nation. The American Recovery and Reinvestment Act (ARRA) of 2009 provided the Department of Homeland Security (DHS) with $210,000,000 to fund the construction and modifications of fire stations. The program will be administered by the Assistance to Firefighters Program Office under FEMA's Grant Programs Directorate. The grants under this new program will be awarded directly to the fire departments on a competitive basis.

The purpose of this article is to provide an overall view of what the grant is and who will most likely be successful in receiving it, according to guidelines offered by DHS. Much of the information found herein has been garnered from the Grant Announcements, Guidance and Application Kit and Updates as distributed by DHS. As with any federal program, details and requirements are subject to change.

Grant Purpose and Overview

All funding priorities for the Fire Station Construction Grants (FSC) are designed to address first responder safety, enhance response capabilities and/or expand mutual aid.

The purpose of the FSC is to provide economic stimulus in the form of jobs and increase the safety of the firefighters and the communities they serve.

DHS consulted with a panel of fire service professionals representing the nine major fire service organizations and four non-fire service organizations to recommend funding priorities and other implementation criteria for the grants, which will be addressed below.

Eligible Items

- Building construction
- Environmental assessment
- Building site preparation, including demolition, if necessary
- Design, planning, and engineering expenses incurred after award
- Expenses necessary to comply with the most current edition of NFPA 1500
- Expenses necessary to comply with the locally adopted building, fire, plumbing, mechanical and electrical codes
- Sprinklers or other life safety and fire protection systems
- Vehicle exhaust extraction systems
- Decontamination areas
- Space for training (up to 600 square feet)
- Space for gender-segregated sleeping
- Gender-segregated restrooms
- Space for exercise equipment
- Kitchens
- Kitchen Appliances
- Dining/eating area
- ADA compliance
- Gear racks, storage and shelving for gear/equipment
- Internet cabling
- Energy conservation systems (LEED, etc.)
- Renewable energy for HVAC and power systems
- Expenses that support the administration or oversight of the project over and above the direct construction costs, if not excessive.

Ineligible Items

- Land acquisition
- Cost overruns
- Fire station staffing
- Pre-award costs (including but not limited to design, planning, and engineering expenses in-

continued on next page

curred prior to award)
- Grant writing fees
- Space for public use (ballrooms, community meetings, fund raising)
- Furnishings (including office/training equipment)
- Exercise equipment
- Firefighting equipment
- Personal protective equipment
- Washer/extractors
- Apparatus
- Vehicle mounted exhaust extraction systems
- Landscaping
- Security systems
- Decorative items (curtains, wall hangings, etc.)
- Projects that duplicate any other Federal awards
- Demolition costs not related to the project.

Prerequisites

As with all previous Assistance to Firefighters Grants (AFG), the quality of the required written narrative will likely determine the success of the grant application. This is just one reason that many departments are hiring professional grant writers instead of attempting to write the grant themselves.

The grants intend to only support organizations lacking the tools and resources necessary to effectively protect the health and safety of the public and emergency response personnel.

Procurement of services and materials should be conducted in a manner that allows the maximum open and free competition. Existing procurement procedures may be used as long as they reflect all applicable local, State and Federal standards.

Personal and organizational conflicts of interest will not be tolerated.

Total project performance after receiving the grant must take no more than 36 months.

A working knowledge of the National Preparedness Guidelines is expected.

The standards identified in the Buy American Act must be followed.

Requirements of the Davis-Bacon Act (prevailing wages, etc.) must be complied.

Applicants must comply with all applicable Environmental Planning and Historic Preservation requirements.

Applicants must demonstrate their ability to comply with all applicable reporting guidelines and audit requirements.

Evaluation Categories

Assuming that all "qualifying" applicants will meet the minimal prerequisites listed, DHS has identified over 25 other categories that will likely be used in the evaluation to determine the "most qualified"

For example, one of these categories is the project's inclusion of significant sustainable design and construction practices. The "green building" subject would take significant time to fully describe here, but it is satisfactory to say that this issue must be addressed if an applicant hopes to be successful with this grant.

The lowest end of this evaluation category would be a station that only meets the minimum, code-required energy efficiencies and sustainable goals. The highest end of this category would likely be a facility that pursues and achieves LEED Gold or Plati-

see GRANT page 28

Fire Station Construction Grant

continued from page 27

num certification. The higher on this scale you go, more expensive design and construction costs will result.

Other evaluation categories identified in the guidelines are:

- Effect of project on health and safety of the firefighters
- Protection benefit to the community
- Significant levels of incidents
- Protection provided to large populations
- The community's joblessness rate, measured from 2007 to 2008
- Current facilities are unsafe or uninhabitable
- Expanding fire protection coverage under an existing capital improvement plan
- Capital building plans that have been delayed for extended periods of time
- The project will expand the department's mutual aid capabilities
- Timeliness of project implementation and expedited project schedule
- Whether the project land is already owned and zoned properly
- The status of receiving applicable permits for executing the project
- Community's current status in the National Flood Insurance Program
- Applicants with significant numbers of firefighters trained to NFPA 1001
- Immediate access to required utilities
- Commitment of applicant to contribute financially (cost share) to the eligible portions of the project
- EMS service provided in addition to fire suppression
- The new or renovated facilities will comply with current building codes and NFPA standards (sprinkler systems, smoke/CO detection, vehicle exhaust extraction, etc.)
- Expanding to provide sleeping quarters and/or amenities for full-time occupancy
- Less priority for expanding support functions such as communications
- Even less priority for expanding cramped or inefficient spaces

Don't Take this Money for GRANTed!: Other Options

With this low probability of success, why even bother applying. Well, someone is going to be successful. It might as well be your department! You can't win if you don't play. Even if you don't win this "lottery," there are other options for you to consider and reasons why it is a great time to move your project forward.

While this grant only makes $210 million available, each state is receiving billions in federal stimulus money. Significant portions of these billions are not designated for specific projects. While applying for the FSC, also make a full-court press on your state governor's office and representative for potential funding.

USDA-Rural Development has made long-term, low-interest rate loans available for years to qualifying fire departments. These rates and terms can be very attractive and are worth your investigation.

Construction costs are at a five year low. If you are successful in securing funds, it is a wonderful time to build.

Conclusion

The excitement created by this grant opportunity has generated an unprecedented number of applicants. Soliciting as much help as possible during the grant writing phase will make the applicants chances of being successful much more likely. With this much competition for a very limited amount of resources, each submitted grant must be the best, most informative and thought out document possible. If you have not applied for the grant, or if you are not one of the few recipients, contact a fire station design professional about all your other options.

Ken Newell, AIA, is a senior principal with Stewart Cooper Newell Architects, and has designed over 130 Fire/EMS stations and fire training facilities since joining the firm in 1988. His growing resume includes architectural and consulting services for fire departments and municipalities in Georgia, North Carolina, South Carolina, Arkansas, Connecticut, Florida, Kentucky, Montana, Nebraska, New York, Rhode Island, Tennessee, Texas, Virginia, and Wisconsin.
In addition to leading the Fire Station Design Studio at Stewart Cooper Newell Architects, his articles on station design and construction are published regularly in state, regional and national publications. He is also a regular speaker at various national and state fire conferences.
Newell can be reached by visiting www.fire-facilities.com or emailing info@scn-architects.com. Stewart Cooper Newell Architects can be reached at 800-671-0621.

TURNOUT GEAR

INSPECTION - CLEANING - REPAIR - RETIREMENT

Clean Gear is Safe Gear

By Patricia Freeman
Globe Manufacturing Company, LLC

There was a time in the fire service when wearing stained, soiled, "salty" gear was considered a badge of honor. Stories abound of rookies who would take their newly issued personal protection equipment (PPE) and drag it through the dirt to insure that they could not be marked as "newbies." Back then, even turnout gear manufacturers would advise to not machine wash, but rather to hand wash or just "hose off" when necessary. Fortunately, the fire service has come a long way, baby. We now understand that clean gear is the sign of an educated firefighter and that many of the byproducts of combustion are not only combustible, but also present health hazards. The materials that make up today's turnout gear are routinely subjected to different wash conditions as part of a preconditioning routine to insure that the flame and heat resistance, as well as other required attributes, cannot be washed off. This testing regime is completed well before the materials are ever cut for inclusion into turnout clothing.

The National Fire Protection Association (NFPA) has long been recognized for writing nationally recognized standards through the use of Technical Committees. In addition to product standards, fire service Technical Committees are now being asked to write maintenance documents for product users to support the product standards. One such standard is NFPA 1851, Standard on Selection, Care and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting. This user standard was originally published in 2001, as a companion document to NFPA 1971, Standard on Protective Ensemble for Structural Fire Fighting. As with the original document, NFPA 1851 is intended for use by organizations that are responsible for evaluating the risks their emergency responders face, and for end users of firefighting PPE to be able to inspect, maintain, and care for the ensemble elements they use during firefighting operations. NFPA 1851 is a very comprehensive document.

NFPA 1851, 2008 revision

The NFPA Standards Council issued NFPA 1851, Standard on Selection, Care and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2008 edition, on June 4, 2007 with an effective date of June 24, 2007. This is

see TURNOUT GEAR page 30

MES Cleaning and Care
704-597-9249 . mesfire.com

National Fire Fighter Corp.
800-423-8347 . nationalfirefighter.com

Dragon Fire Gloves
800-975-7059 . DragonFireGloves.com

Central Equipment Company, Inc.
803-779-2390 . centralequip.com

Minerva Bunker Gear Cleaners
888-928-6537 . bunkergearcleaners.com

Stedfast USA
SpecStedair.com

Slagle's
800-446-8896 . slaglefire.com

CVC Equipment
704-487-6075

Safe Industries
877-997-7233 . safeindustries.com

Archimedes Products, Inc.
C& H Dehydrator, Inc.
631-589-1215 . thedehydrator.com

Performance Fabrics PGI/DIFCO
800-668-4724

Ram Air Gear Dryer
888-393-3379 . ramairgeardryer.com

Derma-Gard
478-452-8273 . Derma-Gard.com

Tecgen
888-607-8883 . tecgenextreme.com

Turnout Gear

continued from page 29

the first revision to this user document and was stewarded by the Technical Committee for NFPA 1971.

Like all NFPA Technical Committees, this committee is made up of users, special experts, enforcers, installation/maintenance providers, labor, insurers, research and development experts, manufacturers, and consumers from all spectrums of the fire service and related industries. The standards revision process is a minimum five year process, with all meetings being open to the public. The process includes published opportunities for written public input, public comment, and public review, culminating in two thirds of the majority vote of the Technical Committee and three quarters majority vote of the Technical Correlating Committee before a document is presented to the Standards Council. Additionally, there is a forum for publicly challenging any document at the NFPA annual meeting before it can be adopted and issued.

MOST SIGNIFICANT CHANGES TO NFPA 1851:

General

As with all NFPA documents, 1851 was completely reformatted in "official" NFPA text. Basically, this means that the document consists of specific chapters:

- Chapter 1 – Administration
- Chapter 2 – Referenced Publications
- Chapter 3 - Definitions
- Chapter 4 – Program
- Chapter 5 – Selection
- Chapter 6 – Inspection
- Chapter 7 – Cleaning
- Chapter 8 – Repairs
- Chapter 9 – Storage
- Chapter 10 – Retirement
- Chapter 11 – Verification
- Chapter 12 – Test Procedures
- Annex – Explanatory Material

We will briefly touch on each chapter, but go into more detail as the chapters refer to garments and footwear.

Administration

This is the chapter that explains the standard and what it does and does not apply to. The subchapters include administration, purpose, application and units.

Referenced Publications

This is a listing of all documents or publications that are referenced in the standard.

Definitions

NFPA has adopted a universal set of definitions for consistency among the various documents. This chapter, in addition to chapters one, two and four, are the responsibility of the Technical Correlating Committee.

Program

This chapter outlines the various sections in the standard and provides direction for the organizations using the standard. It is applicable to all elements, and includes such topics as record keeping, manufacturer's instructions, reporting concerns, and protecting the public from contamination.

Selection

This chapter discusses the selection and purchase of protective elements and includes requirements for a risk assessment. The risk assessment is to include the types of duties the organization is likely to perform, the organization's experiences, incident operations, and geographic location and climate. The chapter further discusses interface issues, field test criteria and even the development of purchase specifications as well as inspection after receipt of new elements.

Inspection

The inspection chapter outlines the requirements for inspection of elements, which have been significantly increased from the 2001 edition of NFPA 1851. Routine Inspection is a very rudimentary inspection, performed by the wearer after each use, to check for soiling, contamination, and any physical damage or thermal damage that needs to be addressed. Routine Inspection applies to every element of the ensemble: garments, drag

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rescue devices, gloves, helmets, hoods, footwear and interface components.

Advanced Inspections can only be conducted by a verified ISP or by the organization's trained personnel, and the training must come from the element manufacturer. The element manufacturer, or a verified ISP, in conjunction with the organization itself, determines the level of training necessary for the organization's personnel. The element manufacturer, or verified ISP is required to provide written documentation of this training according to the 1851 standard. Advanced Inspections must be conducted every 12 months as a minimum, and the standard requires that the inspection findings be documented. As with Routine Inspection, Advanced Inspection applies to every element of the ensemble, although there are additional inspection criteria for garments.

For garment elements, in addition to all of the requirements of Routine Inspections (soiling, contamination, and physical damage), Advanced Inspection includes loss of moisture barrier integrity, assessment of fit and overlap, evaluation of label and closure integrity, and review of assembly and size compatibility of shell, liner and Drag Rescue Device (DRD). With the exception of the DRD and size/compatibility requirements, footwear is also inspected for the above as well as for exposed or deformed steel toe, steel midsole, and shank.

New requirements have also been added under advanced inspection:

1. Light degradation inspection of the liner. This involves holding the liner up to a bright light to see if the quilt batting has thinned out or migrated, resulting in thin or bare spots in the batt.
2. Leakage evaluation of the moisture barrier. This test has been referred to as the "cup test" and involves a field evaluation whereby water is introduced against the barrier layer and the thermal layer examined for wetness.
3. A new test, called the complete liner inspection, is required to be performed at a minimum three years after the garments have been put into service and annually thereafter. This liner inspection requires that the liner system be opened in such a manner that the inside or film side of the moisture barrier, as well as the quilt or batt side of the thermal layer, be exposed for inspec-

see CLEAN page 32

What is Total Heat Loss (THL) and what does it means to you?

Total Heat Loss (THL) measures the heat stress reduction capability — or breathability — of firefighter turnout gear. The more heat that gets trapped inside a firefighter's turnout gear, the more likely an individual will experience dangerously elevated skin and core temperatures, as well as an increased heart rate. Material systems that provide a higher THL number will benefit the firefighter in the form of more breathable turnout gear. The NFPA 1971 (2007 edition) standard requires a THL of 205 W/m2.

What is Thermal Protective Performance (TPP) and what does it means to you?

Thermal Protective Performance (TPP) is a test that indicates the amount of protection a material or material system provides against both convective and radiant heat. To determine actual time to burn, the TPP score is divided in half and the resulting number is the time, in seconds, that human tissue reaches second degree burn in a flash over situation. The NFPA 1971 (2007 edition) standard requires a TPP of 35 Cal/cm2, which is the equivalent of 17.5 seconds to second degree burn.

Information comprised by Steadfast USA.

Clean Gear

continued from page 31

tion. The Complete Liner Inspection includes a hydrostatic test for water penetration, to be performed on a minimum of three fabric areas and three seamed areas on each barrier being tested. The test is run at one psi for 15 seconds, and the results are documented; any signs of leakage constitute a failure, and must be addressed.

Cleaning and Decontamination

The most significant change is that Advanced Cleaning must be undertaken at the time of Advanced Inspection, if not subjected to Advanced Cleaning in the previous 12 months. The 2001 edition of NFPA 1851 required the Advanced Cleaning be done every six months at a minimum for elements that had been issued, used and were soiled. Advanced Cleaning, like Advanced Inspection, is performed by a trained ISP or by the organization's trained personnel, who are required to have been trained by the element manufacturer or by a verified ISP, and there must be written documentation of the training. The section also provides step-by-step procedures for the washing and drying of each individual element, including proximity protective gear. Some highlights:

Structural gear: Washing Procedure

- Front loading washing machines are preferable
- Machine shall not be overloaded
- Pre-treat heavily soiled or spotted areas
- Separate outer shells from liners and wash independently
- Remove DRD from coats and wash separately
- All closures shall be fastened
- Water temperature shall not exceed 105°F
- Use mild detergent, with a pH factor between 6.0 and 10.5
- Machine adjusted so that g-force does not exceed 100g
- Follow machine manufacturer's instructions for proper setting or program selection
- Inspect after cleaning and where necessary rewash

Drying Procedure

- Dry in area with good ventilation.
- Do NOT dry in direct sunlight.

For Machine Drying

- Do not overload capacity of machine
- Fasten all closures
- Use "no heat" or "air dry only" option
- If heat must be used, basket temperature not to exceed 105°F

Proximity gear: Laundering Procedure

- Outer shell shall not be cleaned with a brush or other abrasive cleaning device
- Clean by gently rubbing surface with soft cloth or sponge containing mild soap
- Rinse thoroughly
- Outer shell shall not be machine washed or dried
- Dry garment by hanging in well ventilated, shaded area

Footwear elements Laundering Procedure

- Footwear shall not be machine cleaned or dried using equipment that produces mechanical action by tumbling or agitation.
- If necessary, wash using utility sink to clean inner surfaces.
- Water temperature shall not exceed 105°F
- Use mild liquid deter-

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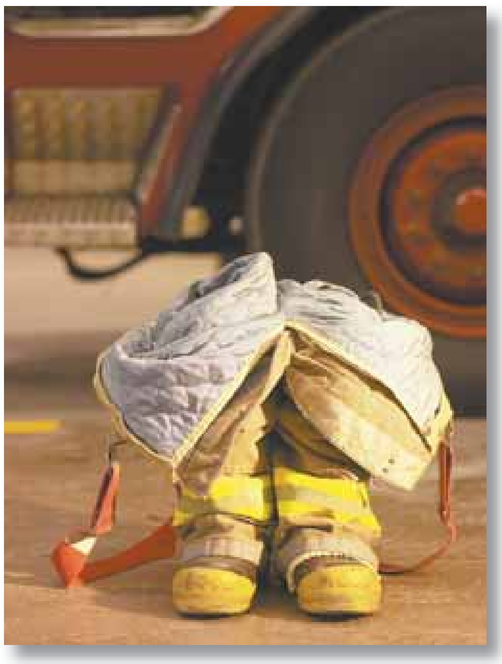

gent, with a pH factor between 6.0 and 10.5
- Inspect after cleaning and where necessary rewash

Repairs

The chapter on repairs is divided into the various ensemble elements, with the majority of the chapter pertaining to garment repairs. Garment repairs are further divided into Basic Garment Repairs and Advanced Garment Repairs. Advanced Repairs can only be performed by a verified ISP, the original manufacturer, or a verified organization, and includes all but the very basic type of repair. For major repairs, ISP's or organizations are required to be verified by an independent, third party organization with no financial interest in the independent service providers.

Either the original manufacturer or an independent service provider performs repairs to boots, with the exception of the replacement of bootlaces and zipper assemblies, which must be supplied by the footwear element manufacturer.

Storage

Other than formatting, the chapter on storage did not change significantly and basically provides what to do and what not to do for proper storage of protective elements. Do not store in direct sunlight, do not store in airtight containers and do not transport with sharp objects or in contact with contaminants such as hydraulic fluids, solvents, etc. Do store in clean, dry, and well ventilated area's, and avoid harsh temperatures above 180°F or below - 40°F.

Retirement

This was one of the most heavily debated sections in the 2008 edition of NFPA 1851, and one of the last issues to achieve consensus. NFPA 1851 sets a mandatory retirement date for all ensemble elements of 10 years after the date of manufacture, with no exceptions. For proximity gear, the requirement is that the outer shells must be retired five years after the date of manufacture. There is an annex item in the standard explaining that this does not mean all ensemble elements will last, or should remain in service for the full five or 10 years. The standard also provides additional criteria for retirement and the disposition of retired elements. Finally, there is a section on special incident procedures, including chain of custody.

Verification (of recognized repair facilities):

Rather than having the manufacturer recognize outside repair facilities, the standard has established a system of third party verification for independent service providers (ISP's) to become verified to perform Major repairs. This requirement is intended to benefit the end user, and protect against any problems that might develop between a manufacturer and an outside repair facility. For example, a fire department could purchase gear from a manufacturer and as part of the purchase, require the manufacturer to provide the name of a recognized facility to repair the gear. If two or three years after the initial purchase, the manufacturer strips the facility of their recognition, where does this leave the department that had been successfully using their services? By having the verification bestowed by an independent third party, it removes any affiliations and offers the fire service a larger range of choices as to whom they want to repair their gear.

see SAFE GEAR page 34

Safe Gear

continued from page 33

A second advantage of this program is that it will establish consistency for independent service providers, since they will all be held to the same standards in determining their ability to repair protective clothing. Rather than obtain recognition from each separate ensemble manufacturer, an ISP or verified organization would obtain the verification a single time from an autonomous source.

The standard sets specific test parameters for the third party organization to use as the basis for the repair verification, including exact seams, patches, and other repairs. There is also a requirement for the ISP to establish and maintain a Quality System, including a Quality Manual which is subject to periodic review.

Test Procedures

This chapter contains the various tests that can be used to establish serviceability of protective elements. Some of the tests included are leakage evaluation (i.e. the cup test), and water penetration (hydrostatic testing).

Annex

The annex to the document is very important, since it contains explanatory material on the actual requirements dictated by the standard.

The annex also contains suggestions for additional testing, considerations, and other useful information for a department in understanding and even implementing the standard.

The annex items are always tied to a requirement in the document. For example, if you look at section 3.2.1* in the 1851 standard you will see that it is the definition for Approved. The asterisk indicates that there is an annex item tied to this section and if you turn to section A.3.2.1 (the annex section) you will find additional material on the subject of Approved.

Note

The information contained herein is intended for informational purposes only, and covers only the most basic of information. Since NFPA 1851 is a User Document, we encourage all interested parties to obtain a copy of the standard for the actual verbiage included for the various requirements, as well as a great deal more information not presented in this overview. If you are not able to acquire a copy of NFPA 1851, the standard can be viewed on the NFPA website, www.NFPA.org.

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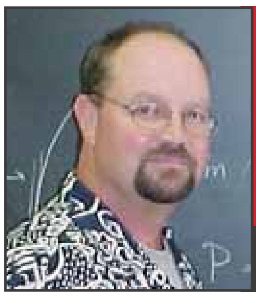

Dispelling Myths About Online Degree Programs

S. JOSEPH WOODALL

A wise man once stated that benefits gained are in direct proportion to the quality and quantity of effort that is directed at achieving those benefits. The 25-plus years of experience I have acquired in the field of education tells me this is just as true in the traditional brick and mortar classroom as it is in the online learning or self-directed learning environments.

My experience has included elementary, high school, community college, under graduate and graduate university teaching experience. I have also experienced these environments as a life-long student. My experience as a student and a teacher (now professor) represents a lifelong continuum of learning, growth and evaluation.

My most recent university experience has been in the online learning environment. As many of you may know, I am an Assistant Professor and Program Director for the Fayetteville State University's fully online Fire Science Program, offering academic concentrations in fire service management and fire investigations. This program competes with other 'brick and mortar' traditional programs, hybrid programs and other fire related online programs within North Carolina and around the country. Of course, with competition comes comparison and online programs competing with traditional classroom programs are often subjected to questions and criticism.

When questions are asked and criticism is levied, it is important that these be addressed; knowledge is power. This is frequently done through the dispelling of myths. Online education has a certain mythology, all its own. The following myths regarding online education are the focus of this article:

Myth 1: Online education isn't as good as traditional education.

Again, refer to the opening paragraph of this article; benefits directly correlate to effort and engagement. We've all seen the student in the back of the classroom that is determined to put in the minimum amount of 'seat-time,' rarely participating, rarely engaged and even rarely present. This simply cannot happen in the online learning environment. A student's presence must be established through active participation in the 'Discussion Boards,' which are topic driven, asynchronous-threaded discussions in which each student is required to login, read the postings of fellow students, and respond to those postings, while creating original, topic appropriate postings, of their own.

Myth 2: Online learning is easier.

This myth is very far from the truth. Most students find that online learning is more challenging, requiring more than just attending class one or two times per week and completing assigned work. Success in online course work requires self discipline, critical analysis, following specific instructions, diligent participation in discussion boards and even coordinating group assignments. Learning online requires much more than showing up for class.

Myth 3: Employers don't place the same value on online degrees.

This is simply not true. Degrees conferred for online programs are not designated any differently than on campus degrees. Research shows that course objectives and learning outcomes are achieved equally well in both environments. Employer's are interested in seeing employees complete degrees that are accredited and per-

see MYTHS page 36

Myths About Online Degree Programs

continued from page 35

tinent. How the learning is achieved does not make a difference to the informed employer. As a matter of fact, employers often find it easier to support personnel attending online courses, even allowing employees to work toward their degrees while at work. Employers also support online degree programs because course work does not require absence from the workplace that often results in overtime expenses.

Myth 4: Online learning is less effective.

Research has validated the effectiveness of online learning. No significant differences in test scores and grades have been found. Again, the effectiveness of any learning environment is, in part, determined through the efforts of the student-participant. Of course, an online course must be well-organized, designed around measurable learning objectives, provide forums for discussion and interaction, and build in expeditious feedback mechanisms.

Myth 5: Online learning is less personal.

This is true to a certain extent. Traditional face-to-face (F2F) contact does not take place. However, through posting biographies, posting pictures, participating in discussion boards and basic social networking; the online environment, in some ways, allows you to get to know fellow students and instructors in ways that offer more depth than the traditional classroom setting.

Myth 6: Online learning requires less time and effort.

Please don't buy in to this myth. If you enter an online course expecting an easy grade, you are in for a serious disappointment. Learning online requires a great deal of effort. Courses are often more writing and reading intensive. Additionally, there is no place to hide in an online course. A student not wishing to participate cannot just set in the back of the room, take up space and put in the required seat time. Your participation will be monitored throughout the course as most online platforms provide quantitative statistics documenting participation, or lack thereof. Not only are you required to participate in the discussions, you are also required to react/respond to the postings of your fellow students. Your responses will be graphically available for all to see, and thus require thoughtful and prepared responses.

Myth 7: Online students are isolated and therefore will be socially disadvantaged.

The majority of online students are working adults who have social interaction in the workplace and in the community. Many assignments in the FSU Fire program encourage students to bring their work team into their learning community and assist them with completing applied learning assignments. These students are pursuing higher education in an effort to improve their work performance. It makes good sense to involve those they work with in the process. Fire program students are also encouraged to work closely with their immediate supervisor, agency heads and other government administrators during the completion of the rigorous academic program of study. Many of the applied assignments require supervisor support through the sharing of information about the particular organization through discussions, interviews and sharing of documents.

Myth 8: A student is more likely to cheat online.

When testing, most online learning platforms rely on time limited access and completion times and usually do not rely on testing for a majority percentage of possible points. Also, proctored exams are also commonly used. Can cheating occur? Yes, but only if the student is grade oriented, rather than learning oriented. Plagiarism occurs in all learning environments. More recently, traditional classroom-based and courses delivered online, have taken advantage of technology and utilize automated assignment submission tools that scan the assignment and compare the narrative to information on the Internet for evidence that the information submitted was copied (plagiarized) from someone else's work. This technology has greatly reduced plagiarism.

Myth 9: Learning communities are not possible.

Many detractors of online learning contend that it is impossible to build a learning community in the online environment. This is not true. The phenomenon of social networking graphically demonstrates that online communities are just as vibrant and beneficial as F2F networks. The degree to which the learning community is devel-

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oped and nurtured is really up to the institution that is offering the course. If the provider is only interested in numbers, crowding one hundred plus students into a course, it becomes more difficult to build a vibrant and beneficial learning community.

Myth 10: There is no way to determine whether or not online learning is for me.

Online learning is not for everyone. Colleges and universities are experiencing what is called the 'transitional generation.' The transitional generation can be defined as those students that grew up in the traditional brick and mortar classroom setting, with little or no interaction with computer technology. Those of us from generations prior to the age of the Internet often have difficulty adjusting to the online learning environment. However, correspondence programs have existed for many decades and have proven successful in their own right. It is important to understand that online learning is not about the technology. It is about learning and growing at a distance. The technology enhances the experience but is not the focus of the course. Most of us from the 'transitional generation' have developed adequate computer literacy and should do very well in the online environment. However, it is important to understand how we best learn.

Some people simply require the discipline and structure of the formal F2F classroom setting. Prior to entering an online program some self-assessment is a good idea. Many instruments are available to assist the individual in determining whether or not an online program best suits their learning needs. An Internet search will provide the potential student with many resources to assess their suitability for online learning. The following link will provide a quick initial assessment: https://registration.gavirtualschool.org/registration/survey.aspx

Learning Happens in Many Different Ways

It is important for everyone to understand that learning is a dynamic process; taking place in every environment and every situation. A shining example of the merits of independent learning would be Abraham Lincoln's self-education. He possessed the dedication and drive to prepare himself to become an attorney; all alone and often by candle light. Whether a person chooses the traditional classroom setting or the online learning environment, the gains are directly related to the effort extended toward the goal of learning and growing.

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The Three E's of Safety

continued from page 4

Engineering

Whenever possible, one should strive to eliminate the physical safety hazards by applying proactive engineering remedies. Find what is wrong and fix it! Do not wait until a system has caused injury — do it before the process is started. Think about what can hurt you at the station or in the apparatus. NFPA standards should be utilized to their maximum advantage when specifying new apparatus, acquiring equipment or building a new station. All possible shortcomings should be recognized before any equipment, building or process is implemented.

Every firefighter should be taught the technical elements of a pre-implementation job hazard analysis (JHA), which entails a systematic pre-review of what can go wrong or make the process flow more efficiently. If correctly administered, the JHA utilizes the brainpower of all end-users and examines all possible injury causing mechanisms, from concept to end use, and seeks to eliminate them. It is imperative that the fire service learns, understands and adopts the overall implications of this philosophy.

Education

When the hazard cannot be eliminated through engineering, then we must employ the next E – Education, training the employee how to protect themselves. Federal law (Occupational Safety & Health Administration) dictates that each employer shall maintain a workplace free from recognized hazards. This is not always possible in the emergency services. Safety training usually specifies a proper technique and a consistent desired behavior. Proper education would also cover the use of personal protective equipment (PPE), which is incidentally the only thing between you and the hazard. When building, equipment, or process changes are imminent and the initial designs are being considered, it is an excellent opportunity to educate those that may be inclined to take short cuts. The best approach would most certainly be to advocate a pre-implementation job hazard analysis and gather as much employee input as possible. The collective knowledge of these individuals will prove invaluable to the success of any design agenda. As a result of the input, the design team can then implement many equipment or process features that will not only increase the efficiency and overall profitability, but will lessen the chance for injury as well. A collective effort will also render a well thought out training program. Proponents of mandated safety related education will always "win in the end."

Enforcement

The final and least desired E is Enforcement, a mandated change to abandon an undesired behavior. Enforcement (discipline) is most often associated with the lack of personal accountability. Accountability starts at the top. The management team must not only "talk the talk," they must "walk the walk" and lead by example. It is not feasible to prevent every accident. It is, however, possible to demand individual accountability to act in a safe manner consistent with the system design. Well written SOP's and SOG's are the first step in this process. Equipment and process design must take this into account; did the design allow the person to operate in an unsafe manner? New or existing systems must be evaluated and acted upon to a degree where chance and risk taking are minimized.

All fire department members should be allowed to assist in drafting complete and concise safe operating procedures. Upon receiving effective instruction and adequate training, compulsory safe behavior, from top to bottom, should be mandatory.

Building Safety into the Fire Department Environment

Regarding incident scene safety concerns, every firefighter should be required to take an incident safety officer certification course. This would be an excellent place to begin your quest for across the board personal safety related accountability. However, not every accident takes place at the scene of an incident. Where do we live, how do we get there and back, life in the station; these must also be considered when writing procedures and guidelines.

Many facets associated with safety are common sense, and are already mandated by OSHA and further stipulated as reasonable and prudent actions adopted by the NFPA. A wise fire officer would be wise to factor some degree of safety into every duty day. Assign a member as safety officer for the day. By doing this, we allow our members to broaden their scope of knowledge and teach them to consider the well being of others. If correctly administered, this knowledge will transcend deeper into the workplace where other members can make a significant difference in the reduction of human suffering, and of course, unnecessary departmental expenditures of capital resources. At a very minimum, we should always ask the following questions:

1. Can what we are discussing or doing cause harm?
2. Is there a safer way to achieve this?

By merely asking these questions, we are not only promoting safety, we are

see BUILDING page 42

Mass Shootings: Are You Prepared?

By Bradley Dean

There is no doubt that the events that occurred at Virginia Tech on April 16th, 2007 are undoubtedly some of the most horrific events that an emergency medical service provider will ever see. The images that flashed across the televisions in America and the thoughts of the injured, and their families are becoming a more familiar scene as we continue to have mass shootings.

What were the lessons learned from Columbine and Virginia Tech, and are we ready for this type of response in North Carolina? We will look at some of the heroic efforts of the Virginia Tech case.

According to the Virginia Tech Report, the Virginia Tech Rescue Squad and Blacksburg Volunteer Rescue Squad were the primary agencies responsible for incident command, triage, treatment, and transportation. There were many other regional agencies that responded to assist with this horrible incident. At 9:42 a.m., Virginia Tech Rescue Squad personnel overheard a call on the police radio advising of an active shooter at Norris Hall. These individuals were getting ready to respond to one of the worst campus shooting events on a United States school campus.

During the initiating phase of response an EMS officer immediately established a command post at the Virginia Tech Rescue Squad building. During the initial dispatch all squads were dispatched to the scene at once, instead of the staging area. The responsible officer continued to remind communications to dispatch units to the staging area after they continued to dispatch units to the scene of the incident. It is essential that the flow of information during an incident be consistent, and directed through the appropriate Incident Command channels.

Homeland Security Presidential Directives (HSPDs) 5 and 8 require that all federal, state, regional, local, and tribal governments, including EMS agencies, to adopt the National Incident Management System (NIMS), including a uniform (Incident Command System (ICS). Further examination of the structure of the Incident Command System utilized at Virginia Tech shows that it did not strictly follow NIMS guidelines, yet it included most of the necessary organization.

Due to some of the information from their dispatch sending units directly to the scene, instead of the staging area, an assisting department officer who arrived on scene was unable to determine if an ICS was in place. This could have lead to a duplication of efforts. The miscommunication of critical information regarding ICS and location

see SHOOTINGS page 40

Mass Shootings

continued from page 39

could have been devastating. Upon the assisting department officer reporting to the appropriate location to jointly establish a Unified Command, communications improved..

"Lessons learned" are all those we have not learned yet from previous events, such as these communication disconnects, failure to effectively use ICS, delays in opening an EOC, questionable value of triage tags, obstacles to patient tracking and dissonance between healthcare and police disaster plans. It seems clear that pre-event coordination, planning and exercises paid some handsome dividends.

There were some positive things that should be highlighted. The EMS responses to the West Ambler Johnston residence hall and Norris Hall occurred in a timely manner. The initial triage by the two tactical medics was timely and appropriate in identifying patient viability. Once this occurred the patients were correctly triaged and transported to appropriate medical facilities.

There are several areas that have been marked for improvement. Standard triage tags were used on some patients but not on all. Standardized tags can assist hospitals during this overwhelming time. In North Carolina there are plans for a standardized triage system that should be implemented over the next 18 to 24 months.

There are seven cross cutting recommendations that come from the Virginia Tech panel report that can be applied in other agencies.

- A coordinated EMS system should include fire and law enforcement communications centers to address the issues of interoperability.
- A unified command post should be established and operated based on NIMS. (For this incident, law enforcement would have been the lead agency.)
- Emergency personnel should use the NIMS procedures for nomenclature, resource typing and utilization, communications, interoperability, and unified command.
- An emergency operations center must be activated early during a mass casualty incident.
- Regional disaster drills should be held on an annual basis. These drills should include hospitals, and all appropriate public safety and state agencies. They should then be followed by a formal post-incident evaluation with recommendations for improvement.
- Triage tags, patient care reports, or standardized Incident Command System forms must be completed accurately and retained after a multi-casualty incident. They are instrumental in evaluating each component of a multi-casualty incident. ICS forms are crucial for reimbursement issues in larger catastrophic disasters.
- Critical incident stress management and psychological services should continue to be available to EMS providers as needed.

How does your agency compare to the cross cutting recommendation, or does your agency maintain the "That won't happen here" attitude? I urge each reader to read the entire report and challenge you to think ahead in preparing for the future of the inevitable multi-casualty incident.

The entire Virginia Tech Report may be found at www.governor.Virginia.gov/TempContent/techPanelReport.cfm.

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How Will 2009 End?

continued from page 24

the same type of accidents that simply repeated themselves over and over again. Different departments, different parts of our country, but nonetheless the same types of accidents.

We were rolling over apparatus, getting in pile-ups at intersections, running off the road in all 50 states and very often speed was in the mix as a root cause. I had to ask myself, "if we know what type of accidents we are continuously having and what is causing them, why have we not been able to successfully reduce or eliminate the amount of apparatus accidents we have annually?"

That question has caused me to begin to break away from traditional discussions of safe apparatus operation and the standard lessons found in the curriculums for canned E.V.O.C. courses taught across the country. I believe the lessons taught and learned in the traditional E.V.O.C. setting, and from the traditional curriculum, have considerable merit and should remain an integral part of a successful driver safety program. There seems to be a significant enough disconnect between the information that is taught in E.V.O.C., such as managing speed, center of gravity, centrifugal force, friction, road conditions, to what we are hoping drivers are considering as they operate their vehicles, and what is actually running through their mind when they are driving their rigs.

Aside from traditional E.V.O.C. lessons, we have to look closely at the attitude and examples towards safe driving set by the leadership in our departments, and the seriousness with which the powers that be, take the importance of budgeting for, and purchasing, up to date, modernized fire apparatus with today's safety features and technology that can save lives and often reduce the chances of having accidents.

There are reasons why our firefighters are having accidents. We can boil it down to basic principals of defensive driving such as cushion of space or speed, however, to truly make an impact on your firefighters or emergency vehicle drivers over the long term, we must couple quality E.V.O.C. programs with attention to other details that we do not often discuss. The following are those details.

Why do firefighters choose to exceed the speed limit?

Hopefully you noticed that I used the word choose in the heading? Fire apparatus drivers who are involved in wrecks where speed is a contributing factor made a decision to accelerate their vehicle from a safe speed to a speed that was unsafe. We cannot let the operator off the hook. They are responsible for the safe operation of their vehicle, both responding and returning.

What causes them to make the decision to speed includes a number of different factors. If our department leaders can get a handle on these factors, the number of apparatus accidents will decline.

A culture of speed on television

This may sound far fetched, but from the time they are born everything a firefighter sees in movies and on television about emergency vehicle operations is all about speed, excitement, adrenalin and theatrics. Firefighters hear what we tell them during training courses and workshops, however, their brain keeps repeating the television images over and over. Even though they know what is right, their mind keeps telling them emergency vehicles must go fast.

see CULTURE page 45

Conference at New Raleigh Convention Center

By Paul Miller

The 122nd Annual Conference of the North Carolina State Firemen's Association, the 77th Annual Conference of the North Carolina Association of Fire Chief's, and the South Atlantic Fire Rescue Expo will be held August 19-22, 2009 at the new Raleigh Convention Center in downtown Raleigh. We have two beautiful hotels serving as host hotels for the event. They are the brand new Raleigh Marriott City Center and the Sheraton Raleigh Hotel which has just been renovated.

This will be the largest fire service event in North Carolina. The state-of-the-art Raleigh Convention Center offers 150,000 square feet of display space with thousands of additional square feet of meeting space. The banquet facilities are second to none. This is truly a premier center that we are sure you will enjoy.

This year there are offering many new additions to the conference. "Hands On Trainings Workshops" will be offered on Wednesday with some of the country's best instructors and teachers. An internet café, state of the art signage and displays, and a new and improved online registration are just a few of the offerings. You can purchase banquet tickets, pre-register for workshops, and sign up for the new Pre-conference Workshops online. There are many more exciting new ideas to make your conference experience a memorable one. There will be a special night for attendees and their families at the historic Durham Bulls stadium. There are plans for a parade down Fayetteville Street know as North Carolina's main street.

The annual conference is a great place to make new friends and renew old friendships. The networking opportunities are tremendous, allowing you the opportunity to visit with firefighters from all across the state and the nation. There will be known speakers bringing their knowledge and experience from many different disciplines.

For hotel reservations at the Marriott, call 888-236-2427 and for the Sheraton 919-834-9900. The cut-off date for the room block is July 18, 2009.

Don't delay-sign up today. Don't miss out on all the fun and excitement found at the 2009 annual conference of the NCSFA and the NCAFC. You will also get to see the largest display of fire trucks and fire equipment in the state. Be safe, buckle your seat belts, and we will see you in Raleigh August 19-22, 2009.

Visit www.southatlanticfirerescueexpo.com or www.ncsfa.com for more information or to register to attend.

Building Safety

continued from page 38

prompting creative thinking among our membership. Our members are the ones that get the job done and the ones most likely to get hurt. Let's give them the tools to hopefully eliminate or at least improve the current safety environment.

In summary, a proactive safety culture is highly desirable and it can be achieved. Departmental safety must be viewed and supported as a core value. Safety does not "just happen." A committed team approach that is fully supported by safety minded management will have a dramatic impact, reducing the frequency of injury, ultimately resulting in a safer, compliant, and more efficient workplace. Acting as an intelligent fire officer, it is your responsibility to not only mandate personal safety related accountability on a daily basis, but also to nurture a lifelong safety mindset within your department and beyond.

Dave Murphy retired as Assistant Chief of the Richmond (KY) fire department. He currently serves as an Associate Professor in the Fire and Safety Engineering Technology program at The University of North Carolina at Charlotte. He serves as an Eastern Director of the Fire Department Safety Officers Association and also as a Principal Member on NFPA 610 — Guide for Safety & Emergency Operations at Motorsports Venues.

Remember the Basics and SURVIVE!

By Lenny Yox

Today, as soon as a person joins the fire service, we bombard them with training. We teach the beginning firefighter CPR, how to face a Haz-Mat incident, keep body fluids from spreading on an EMS call and how to be politically correct 24/7 — but are we teaching him/her how to survive the next "job"?

By now, some of the modern practitioners of PC (politically correct) behavior are probably in a whirl about how I am a dinosaur and have no business in the modern firefighting community. They might be right, by the way, but bear with me one moment - please.

One problem in today's fire service seems to be the loss of tactical training for the interior firefighter. If the texts are to be believed — and I feel they are, the first hoseline on a basement fire is to go to the interior of a dwelling/structure on the ground level and secure the basement door to keep the fire in the basement. This means not opening the basement door — just hold the fire back until another line of equal or larger diameter hits the fire from the rear. This also provides cover for the crew completing the primary search on the ground floor.

Most of the younger firefighters I have posed that scenario to get it wrong. Their feeling is this:

I have a hose.
It is charged
There is a fire.
I will put out the fire!

The firefighters do not realize the additional damage that will probably occur if the door is opened, and they do not realize the additional effort required to make it down the basement staircase, which is effectively now a chimney!

Another area that seems lacking is a true understanding of the term "balloon construction." While many of us old timers grew up in a balloon frame single family dwelling (SFD) and understand the issues with that type construction, most of the new firefighters have never spent much time in one. The lack of fire stops on each floor and the ability of a fire to extend from the basement to the attic quickly is not what they want to learn on their first "job" at one.

I am sure there are balloon frame SFDs in your area. Probably a vacant one if you look around. Get permission from the owner and get your folks into one.

Although there are quite a few other topics that I feel are minimized today — some for good reasons and some due to budgetary issues — I would like to address just one more in this article.

Open spaces existing above the ceiling in many structures (common cocklofts) have caused countless buildings to burn out. Many, if not most, serious apartment fires with extension on the top floor are stopped by the fire walls and extinguished by the fire service. This type of fire is fast moving and difficult to control — especially if it is middle of group (MOG). It can take up to 5 — 21/2" lines to stop this fire if it has not extended too far. When this fire, contained to one building is extinguished, 12 to 16 families have lost most of — if not everything — they own! This is a devastating fire — and has a high potential of injury/death for a firefighter.

Currently, many of the tactical manuals also suggest a mandatory 360 degree walkaround by the commanding officer — ASAP, an ICS system be put in place by the OIC, safety appointed and a RIT team be in place. Some of these actions are also mandated by various federal regulations. While there are far too many regulations to visit within this article, I will be happy to discuss them with you in private if you contact me via e-mail.

In this article, I have thought up nothing new. There is no information contained within this article that has not been in print for decades. E. Freid wrote the definitive text on interior tactics 50 or so years ago. Give him the credit he deserves. The text is still applicable today — as are many other texts on the market.

The point to this article is this: While we need to know all of the new "stuff" in the fire service today, we still need to cover the basics. Without great training for our interior firefighters, how can any officer expect his/her crew to be as safe as possible and to do a good job inside? If we cannot calculate the necessary GPMs needed to extinguish the fire at hand, how can we hope to keep our people safe and extinguish the fire?

As always, these opinions are mine and mine alone.

Please be safe out there. Your family needs you back after the incident is over!

Lenny Yox resides in Carroll County, MD, and has been a volunteer firefighter in that county since 1974. He has held most positions (both line and administrative) within the volunteer service, and has been the team leader for the Carroll County Technical Rescue Team since it's inception in 1994. He is also a career Lieutenant with the Baltimore County Fire Department, a member of the NFPA 1006 committee and has taught for the Maryland Fire and Rescue Institute for 24 years. Yox has an AA degree in Fire Protection, many IFSAC and PRO-Board certifications and is continuing his studies at this time. He can be reached at ropehead18@aol.com.

What's New with Struts and Gloves

DAVID PEASE — tools of the trade

Several years back, I wrote about the Rescue Jack stabilization struts. Now they have introduced a new line of struts that only improve on previous ones. The new X-Struts will give rescuers more stability, capability and versatility. The original X-Strut, now called the Universal Rescue Strut, was developed to be used for heavy extrication, as they carry a stronger load capacity. These struts were made of aluminum to make them lighter but stronger. The other addition was an add-on jack that can be used on any of these struts.

These struts carry a 10,000 lb. column load and a 6,000 lb. lift capability at 12 inches per lift. The strut collapses to 56 inches and extends to 96 inches. With the jack being completely detachable, it can be removed and used on another jack. The detachable jack also allows you to lift much higher than the standard rescue jack, as it can be pinned and reset for additional lifting. This style of strut will lift 40 inches. So you can see where the Universal Rescue Strut will work well in heavy vehicle rescue and extrication. The strut also uses the multi purpose head that can be used with the chain accessories, as well as having the 90 degree and 45 degree angles. The strut uses a ratchet strap attached to the base with a 3300 lb. working load for securing the strut.

The steel version of the X-Strut is a smaller version of the strut with the same basic, but lighter design. It uses the same universal head and attached ratchet strap. This jack is lighter and carries a 4000 lb. working load and jack lift, just like the standard Rescue Jacks. The difference is the detachable jack allows you a greater lift range and being able to use the jack on another strut. This strut comes in the same yellow color as the standard Rescue Jacks.

The other new X-Strut is the new "Green-Lite" strut. This lightweight strut has the detachable jack and attached ratchet strap as well. This green colored strut has a 2500 lb. working load and lift capability. This strut will be a quick and lightweight jack to be used in standard vehicle crashes. All struts carry a 4:1 safety factor. When looking at vehicle and heavy vehicle stabilization, the X-Struts are a good choice. You can find out more on the Rescue Jack X-Struts at www.res-q-jack.com.

I also wrote about the new Pro-Tech 8 fire gloves several years back. Over the past few years the glove had to overcome some heavy fire from some big competitors. The glove passed the NFPA 2007 certification in March of 2007. In 2008, Tech Trade introduced the new Pro-Tech 8 Titan. This glove features waterproof suede goatskin leather exterior that covers more than the earlier version. The liner is a sewn and glued Kevlar with a breathable polymer liner for blood borne pathogens and moisture resistance. The glove still features the 7 layer knuckle guard and stays soft after use and washing. The glove does not dry hard but actually gains more dexterity as it loosens up. This glove also offers additional Nomex over the original gloves.

They have now introduced the Pro-Tech 8 Titan Kangaroo. This glove is the same version as the regular Titan glove using Kangaroo skin in place of the suede goatskin exterior. This glove offers superb dexterity and flexibility as all the Pro-Tech 8 gloves have.

Another exciting glove that Tech Trade has introduced recently is the Pro-Tech 8 X, extrication and rescue glove. This glove has a waterproof suede goatskin leather palm and a waterproof nylon back. This glove features the same breathable polymer liner for blood borne pathogens and moisture resistance as the Titan. The glove also has the knuckle guard and features a non-slip cut resistant silicon patches on the palm and back. This extrication glove also has a 100% Kevlar liner with an elastic wrist cuff. All the Pro-Tech 8 gloves are reasonably priced and have great durability and dexterity. Watch for more gloves in the future. You can see more on the Titan gloves at www.techtradellc.com.

Next issue, we will look at some more equipment that can make our job as rescuer's easier and safer. Always do your research before you purchase, and if have questions, shoot me an e-mail at reds100@aol.com or give me a call. Stay safe and train hard.

Feel free to contact me if you have any questions or concerns at Reds100@aol.com and visit our Website at www.RedsTeam.com.

Culture of Speed

continued from page 41

One way to break this "TV brainwashing" is to integrate scenes or clips from some of the most popular movies and TV shows into your classroom driver training sessions and have firefighters offer critiques of what they saw. Once they can make the connection between the actions of emergency vehicle drivers on TV and what they have identified as wrong when behind the wheel in the real world, those bad habits may be begin to be broken.

Do as I say not as I do

Another reason firefighters speed is because they attend training sessions and drills where speakers and officers drone on about safe driving messages only to watch the same officer or chief who just taught the drill exceed the speed limit in the department S.U.V. for the first call received after the drill was over.

I have also seen the scenario play out in departments where "certain" individuals either through position, friendships or perceived experience, are given a "pass" when it comes to speeding, while other members are disciplined for it. It does not matter if you are the chief's best friend, have been driving apparatus for 12 years or hold rank yourself —the rules of safe driving should apply to all.

Hurry up and get there

Firefighters also exceed the speed limit putting themselves, their crews and the motoring public at risk because of statistical and geographical issues. Response times are one of these statistical items that are held over the heads of fire departments whenever quality of service, labor contracts or funding enters the discussion. Many firefighters who drive apparatus think about, or at least consider, the importance of response time in the back of their minds on a regular basis while responding.

- Have we as department or government leaders done our part to maintain minimum staffing levels?
- Have we planned for growth of our communities and constructed fire stations where they are needed?
- Have we closed or temporarily removed companies from service to save dollars?

The longer your fire apparatus has to travel to respond to an alarm the longer your response times are going to be. Many fire drivers will subconsciously respond to this added pressure and may use speed to compensate for the greater travel distance to alarms, thus increasing their risk for speed related accidents.

One final note about speed. In the volunteer sector of the fire service, firefighters are often using speed to make up for a delayed response from lack of manpower and multiple tone outs. By the time a firefighter arrives at your station, especially during the day, your department and neighboring departments may have already toned out the call two or three times. When that firefighter finally rolls off the ramp with your rig, subconsciously in his mind he is thinking he is already "late" for the fire. Think about that mindset for a moment. We all know what it feels like to arrive at work, school or a fire department meeting five or 10 minutes late. For most people who care about their jobs, their mind is already working on them about the five minutes. Take that feeling one step further with a mindset of a fire driver that is already programmed for a quick response and make that person feel "behind," or "late to the call," and speed will definitely become an is-

see HURRY UP page 46

Hurry Up and Get There

continued from page 45

sue with that response.

Why are we rolling rigs over?

Many department driver trainers have not looked our drivers in the eye and told them in plain and direct language that the truck can and will roll over. Our training programs must cover the risk for rollover with each of our vehicles. We should be showing firefighters during behind-the-wheel drills specific areas in our communities and our response area and our mutual aide areas that are high risk for rollovers. Make sure your members understand soft shoulders and the impact heavy rains and roadside ditches can have on the stability of the shoulders. Teach your drivers how to recognize areas where three or four inches of pavement have built up over the years, leaving a road edge that has the ability to literally "grab" your rig and draw it towards the ditch.

Firefighters must carefully practice in controlled conditions the feeling of the rig dropping off the pavement and understand how to gently bring it back on he road surface, or allow it to fully stop and then be slowly driven back up on the pavement before accelerating. Regular hands-on training in rollover prevention will help reduce the risk of roll over accidents.

Why are firefighters being ejected?

They are not wearing their seatbelts, DUH! But it is not that simple, because there are reasons they are not wearing them. Many departments out there are still operating apparatus that may not be equipped with seatbelts, or may be equipped with seat belts that are broken or simply do not work. We cannot continue to speak about seatbelts at conferences, promote seatbelt pledge forms and write about their use in magazines like this one, when the firefighter gets on the rig for a call there are no seatbelts to use.

Non-compliant apparatus must be faded out, or every effort should be made to retrofit old rigs to bring them as close to compliant as possible. If your local government is not supporting your apparatus updates, either through their actions, comments or funding, it is time to bring the trucks to them and make sit in the seats and try to buckle up. If they cannot buckle up when they get in your rig — ask them why!

Seatbelts are too restrictive or time consuming

There are many drivers of apparatus out there who feel that the seatbelts restrict their motions too much, or even worse, feel they may be trapped inside the rig in the event of an accident. Departments should address proper attire and footwear for drivers of fire apparatus. Drivers should have a full range of motion in the driver's seat and have the ability to see all around the vehicle. Drivers should test how they feel in the apparatus with boots or turnout gear before driving a rig for an emergency response, to make sure they have the ability to control the vehicle. Cutting corners for safety should not be used to achieve a timely response to a call. Your drivers should understand that the 15 seconds or less it takes to buckle up are meaningless in the big picture of a timely response.

Tell them the truth about many of our rigs

When I was a young child growing up there was something about fire trucks that always caught my eye. They were very different than all the other trucks that I saw around my town. I believed fire tucks could do almost anything and that no harm could come to them. When I first started driving fire apparatus as a young volunteer firefighter at the ripe age of 19, that almost "mythological winged chariot" view I had of our rigs as a child still remained with me in some ways. Due to that perception, I drove our apparatus like no harm could come to me, the community, other motorists, fellow firefighters and the rigs themselves.

We need to teach our drivers the nuts and bolts of apparatus. The sooner they clear their mind of the "almighty fire truck" attitude and get down to,"the truck is a man made tool that must be respected" mindset, the better off we will all be. If we let ourselves, or our personnel, push that rig too far the apparatus will not correct our errors for us and will not do anything more special for us than any other truck on the highway. Our rigs do not have a mind of their own, but if we push them too far, they can and will take over the driving for us, and you won't like the ride they give you.

How 2008 ended

On Dec. 31st, 2008 around 9:10 pm, 24-year-old firefighter Jarrett Little was driving his responding pumper to a reported chimney fire. Reports say that while making a turn his pumper struck a pole and rolled over. Firefighter Little ultimately succumbed to his injuries and was the final line of duty death for 2008 for a firefighter in a motor vehicle accident responding or returning.

It is my hope that while reading this article you have been able to identify some key areas in your driver-training program that you can address with some of the above concepts and thoughts.

You can reach Dallessandro at MPDBUS1@aol.com, or visit www.respondsmart.com.

Medical Incident Management
Triage and ICS Works, But Only When Practiced!

BRADLEY DEAN, NREMT-P

In the past, mass casualty incidents were described as a plane or bus crash, or any similar devastating event. These have always been taught at the end of EMT class, and are often an afterthought in may EMS systems in the realm of preparedness and practice. Over the past 10 years, events highlighting terrorist incidents and natural disasters have changed our perspective on both the type and probability of incidents that we are likely to encounter. It is time that we discuss some of the overall considerations of managing incidents that involve multiple patients from both medical and operational standpoints.

Small incidents can cause big problems.

That gut feeling that you have should be telling you that you need more help upon arrival. This feeling underscores one of the biggest misconceptions in multiple-casualty incident management. The thought that you have to have a huge incident to use the incident command system and principles of triage is one that needs to be changed, because the three- to 10-person incident can cause considerable stress on most EMS systems.

One big problem is that many responders define an MCI as a mass casualty incident, implying a major disaster, while the simplest definition of an MCI is actually a "multiple casualty incident" that can not be handled with readily available resources.

Traditionally, and from the EMS standpoint, there are three broad levels of multiple casualty incidents:

- Level 1: 3-10 patients
- Level 2: 11-25 patients
- Level 3: more than 25 patients.

From a strictly EMS perspective, our response level to an incident will depend on the number of patients.

Even when we realize that an incident is a multiple (not mass) casualty, two major pitfalls are not calling for help early, and not calling for enough help.

The cornerstone in MCI management is the scene size-up. This sets the foundation for how the remainder of the call will progress. Rushing, or tunneling in, prevents adequate size-up and causes cracks in the foundation of scene management. The key components of sizing up the multiple casualty incident include:

- Number of patients
- Begin or direct triage activities
- Nature of the incident
- Hazards (fire, natural disaster, hazmat, CBRNE)
- Entanglement or access issues

When determining the number of ambulances needed for a multiple casualty incident, a general rule is:

- Level 1 (3-10 patients): 2-5 ambulances minimum
- Level 2 (11-25 patients): 5-10 ambulances minimum
- Level 3 (25+ patients): >10 ambulances, plus alternative transportation (e.g., school bus).

Looking at the incident, the number of patients and the severity of each are the deciding factors for how

see TRIAGE page 48

Triage and ICS Works

continued from page 47

many ambulances are needed. In smaller incidents, the number of ambulances needed may be increased by patients who request transport to different hospitals. Incidents that involve violence or highway collisions may require additional ambulances to avoid combatants or intoxicated drivers being transported with the victims. Also remember that you have to cover your jurisdiction in the event of other emergencies. Murphy's Law will almost always guarantee this additional strain on the system.

Triage, Triage, Triage

The triage process will differ depending on the nature of the incident. A two vehicle collision may simply entail: "I will check this car, you check the other," and then comparing notes to determine the number of injuries and the severity. Larger incidents require a more formal triage plan with a designated triage officer and tagging system. The state of North Carolina has adopted the SMART Triage management system as a formal triage system that is being rolled out to EMS systems. The following are practical recommendations for successful triage:

Initial triage is quick and functional. Triage will continue in other settings, including the treatment area, ambulance and hospital.

Triage involves difficult decisions. Be prepared to do the greatest good for the greatest number of patients. The time you spend with any one patient must be limited.

Triage must include tags or another marking device (tags). When there are more patients than on scene crews can handle, patients must be tagged for continuity and to prevent unnecessary, confusing and time consuming re-triage.

The most common error in triage is to classify patients as more severe than they actually are. Become familiar with your triage criteria. A popular triage system that many management systems use is START (Simple Triage and Rapid Treatment). START uses three components:

- Respirations
- Circulation
- Mental status.

Large incidents present even more problems than small ones with logistics. The logistical issues are often the greatest headaches in large incidents. In terms of manpower, the issue at larger incidents is sometimes the abundance of personnel rather than the lack of personnel. With abundance comes issues like freelancers who jump into the system without direction and appropriate staging and assigning of resources to appropriate tasks.

Access to and egress from the scene can also be problematic. If too many vehicles crowd the scene, ambulances may be blocked from leaving. Create an appropriate staging area and flow of vehicles into and away from the scene. Incidents greater than Level 1 usually necessitate triage, treatment and transport officers. Level 2-3 MCIs require safety and staging officers.

As a general rule, if you are not able to move every patient immediately from the scene to an ambulance, you will need a treatment sector to stage patients for care and prioritize subsequent transportation. There should be no delay in transporting patients when ambulances are available and waiting.

The transportation officer has several important tasks, some of which are not evident until the incident is almost over. In addition to determining hospital availability, coordinating patient transport and notifying hospitals about the patients that they will receive, the hidden value of the transport officer is record-keeping. Not long after the first wave of patients leave the scene, the police will ask where a suspected perpetrator was taken, or concerned relatives will want to know where a loved one was transported. It will be the organized transport officer who will put out these secondary and time-consuming "fires."

One of the largest ques-

continued on next page

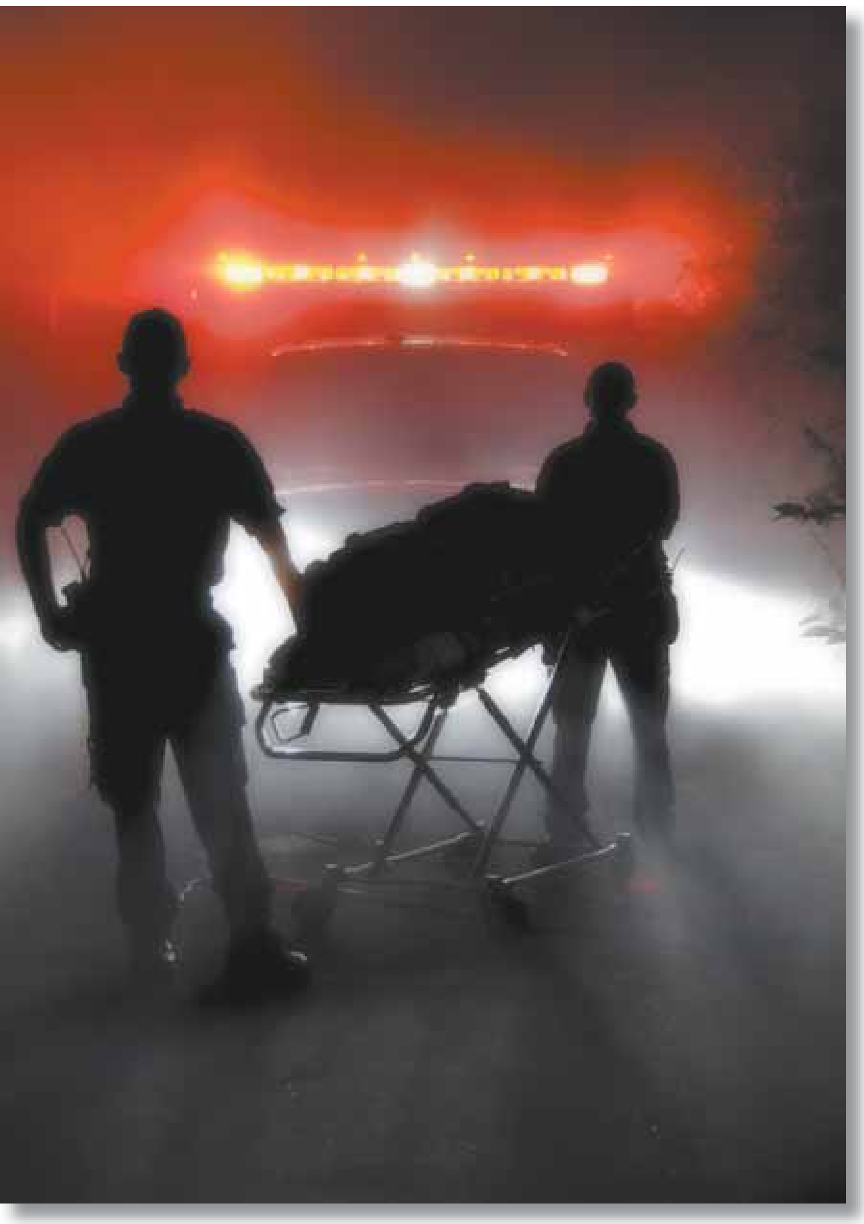
tions, of which I can probably answer for a majority of EMS systems is, "How many ambulances carry sealed or taped-shut MCI kits?" This is usually done because items inside will be lost (or stolen) if not secured. Unfortunately, this creates a situation where providers get their first look at the contents of the triage kit at a major incident. Of course, other than when it may have first been put onto the unit.

Using a sports analogy, "People will play the game the way they practice." It is vital to keep the concepts of incident command and triage fresh. One EMS system that I am aware of assigns one day a month as a "tag day," when all patients transported get a triage tag regardless of their problem. Rotating days over a year gets all providers used to filling out triage tags before the pressure is on. This also gives the hospital staff a chance to use them as intended and walk the patient through the hospital as a patient from a mass casualty incident.

I have also heard EMS administrators state that they can not afford to do "tag days." My question would be can they really afford for the bad press to make it out because their personnel were not prepared for "the big one."

Lastly, we should treat the little ones as big ones. Consider any call with three or more potential patients as an MCI, even if they are not all transported. Doing the little things on the little ones, will keep you in the right frame of mind for when the big one happens. This will also get the police and fire departments use to seeing you operate within the system on calls. Multiple casualty incidents are not particularly common. We are often quick to dismiss them as "mass confusion incidents" without taking steps to make the next one better. It is my hope that this article will arm you with the information to put you in the right frame of mind to help make your next MCI function more smoothly.

Bradley Dean is Assistant Regional Emergency Response and Recovery Coordinator for the Triad RAC of North Carolina - Wake Forest University Baptist Medical Center, Trauma Department. He is a Graduate Student at Wake Forest University, Deputy Commander - Triad RAC State Medical Assistance Team, EMT-Paramedic - Davidson County Emergency Services, Lexington, NC and Rescue Technician - Thomasville Rescue - Thomasville, NC.



What is Your Command Plan?

By Chris Grant
www.esfiretraining.com

(The following is part one of a two part series on your command plan.)

The critical decisions that must be made by the first due officer cannot be understated. Think back to the last NIOSH report that you read where things started to go bad based upon the initial command plan. I am sure that you have heard the old adage, "The first five minutes will dictate the next five-hours." If the first arriving officer does not identify incident priorities, plan the initial strategy, and assign the appropriate units to accomplish tactical objectives, the incident has the potential to grow exponentially beyond the initial alarm assignment.

In the Feb. 15, 2005 edition of the International Association of Fire Chiefs, On Scene Magazine, Chief I. David Daniels asks, *"Is your incident management system functional?"* In his article he describes command dysfunction and mentions six major symptoms;

- Inadequate risk assessment
- Lack of responder discipline
- Inappropriate or lack of utilization of an incident management system (IMS)
- Lack of accountability and ineffective communications
- Ineffective incident commanders

Let's take a look at these dysfunctions to determine how to avoid them.

Risk Assessment

The first arriving company officer must perform an adequate risk assessment based upon the capabilities and limitations of the responding units. A 360 degree evaluation must take place prior to placing units across the threshold.

Sizing up an incident includes the evaluation of life hazards for both occupants and responders. If there are no trapped occupants, or the fire conditions have extended beyond that of a successful rescue, the incident commander (IC) must seriously consider not putting firefighters' lives in jeopardy.

The location and extent of the fire must be determined prior to developing the incident strategy. Basement fires have killed numerous firefighters in the past. A majority of these deaths came after firefighters operating on the floor above succumbed to hostile fire events or floor collapse.

The failure to identify building construction features that may contribute to fire spread or collapse could also place your crews in peril. The floor above, the adjacent rooms, and the uninvolved hallway, are all exposures that must be protected in order to prevent fire spread.

Responder Discipline

Tactical deployment must be based upon the facts presented at the incident scene. Searching above fires with no hand lines in place, inadequate gpm based upon fire loading, inadequate water supply to sustain a consistent fire attack, and uncoordinated ventilation activities are just a few examples that have resulted in past

see WHAT IS page 66

Public Safety Considerations for Explosive Incidents

By August Vernon

First responders may encounter many challenges during their careers, including suspicious packages, bomb threats and IEDs (Improvised Explosives Devices). Two recent incidents in the past four months, utilizing explosive materials, need to be reviewed in the interest of public safety, and current international trends, to develop effective public safety guidelines.

During the evening of Friday, Dec. 12, 2008, an IED detonated inside the West Coast Bank in Woodburn, Oregon. Two police officers, including one bomb technician, were killed in the explosion, and two others were injured. Also during the four day siege in Mumbai, India that began on Nov. 26, 2008, the latest open source information indicates at least a total of seven IEDs and vehicle borne improvised explosive devices (VBIEDs) were employed during the four day long siege towards responders and the public.

The FBI annual report on terrorism shows that the majority of domestic terrorism in the United States consists of explosives incidents. Public safety agencies at all levels (local, regional, state and federal) must learn to work together to deter IED attacks from occurring in their jurisdictions, and to safely respond in the event an attack occurs.

Explosives are the number one choice of terrorists around the globe for several reasons. Understanding some basic information, such as indicators and tactics, may help first responders prevent the initial attack, and protect the public from secondary attacks.

The information provided in this article is for educational purposes only. Please follow all local procedures and guidelines when responding to these types of events.

The Threat

These recent explosive incidents have demonstrated the need to prepare local, regional, state and federal resources to plan for and respond to these events. First responders will be the community's first line of defense if these deadly weapons are involved in an incident. IEDs are also designed to defeat a specific target or type of target, so as they become more sophisticated. They generally become more difficult to detect and protect against.

It must be recognized that many domestic and international groups and individuals pose serious threats to our daily operations. They are willing and able to design and use IEDs against the public and first responders. It is important to note that there are also hate and extremist groups active in North and South Carolina. It is also important to remember that most of these devices in the Middle East, Far East and the United States are built from readily available commercial and household chemicals and materials.

Multi-Agency Planning

Planning and interagency cooperation for any IED or critical incident type of event should be paramount. Public safety agencies all share some of the same priorities during an IED event. There is tremendous need for a coordinated effort among all agencies to ensure a safe and effective response. Preparation is the key to an explosives incident and that includes a clear idea of your actions before the incident occurs. The first step in your preparation is a review of your agencies guidelines and procedures when responding to these types of events. As with any multi-hazard assessment and planning process it is a great idea to do a multi-agency exercise (tabletop or functional) to bring all the key agencies together and rehearse the plan once it has been completed. A tabletop exercises (TTX) is a cost and time efficient means of testing your multi-agency planning and response efforts. Responder's safety is paramount during this type of event!

Scene Safety

When responding to a reported IED event, first responders need to become more "tactical" in their thinking. All responders must maintain your situational awareness. When responding, get all the dispatch information you can. Look at the routes in to and out of the emergency site. Survey the scene for during your "windshield survey." Scan the area for objects and

see PUBLIC SAFETY page 52

Correction

The article, "Collapse Dangers: Preventing Firefighter Fatalities," on page 20 of the Spring issue of Carolina Fire, had related resources that were left out of the article. The related resources include:

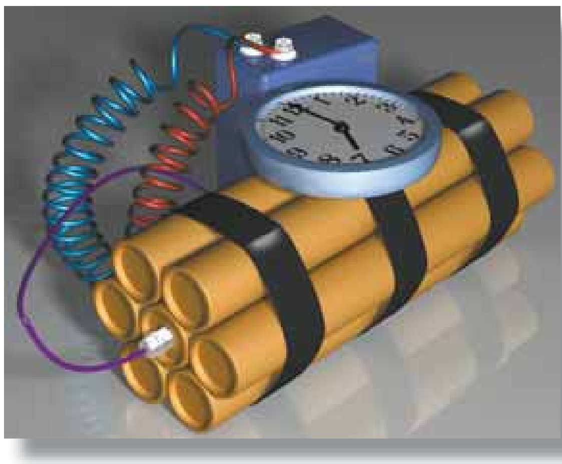
- U.S. Fire Administration – Structural Collapse Prediction Technology Research
- Vincent Dunn on Front Wall Collapse Danger
- Jason Poremba on Close Calls on Camera/FireRescue 1 News
- United States Department of Labor

We apologize for any confusion.

Public Safety Considerations

continued from page 51

people that seem out of place for the location or time of the call. If it looks suspicious, it probably is. Do not use two-way radios, cell phones, mobile data terminals (MDT) within 500 to 1,000 feet of the device or suspected device or package when possible. Take a moment to do a 360 degree survey of the situation. Keep open an escape route for making a quick exit from the scene if necessary. Scan the areas where you are parking and staging. Use staging areas to limit the number of responders and vehicles on scene. Don't stack up responders and resources in one location. Always be aware of the possibility of secondary devices and attacks. Immediately implement and use the Incident Command System (ICS) and Unified Command. Scan the area using binoculars, spotting scopes, or vehicle-mounted cameras if possible. Clear and control the area of operation as you would a hazmat event. Move people away from the incident or suspicious item with the support of law enforcement. Never move the items or packages away from people.



Do not attempt to approach, move, handle or disarm an IED; this is a job for specially trained personnel.

Homemade Explosive Materials (HME)

First responders are more likely to encounter homemade explosives and improvised explosive devices (IEDs) than military weapons in their day-to-day response operations. Many of these materials are fairly simple to make, requiring very little technical expertise or specialized equipment.

Instructions on how to make these materials are provided on the Internet and in publications such as Jihad Manual and The Anarchist Cookbook. The recipes for homemade explosives are often very inaccurate and dangerous to produce. Most of the HME recipes are dangerous to make, and the explosive materials created are often highly unstable. Would-be bomb makers have been killed and injured trying to make these materials and this is one situation where responders may be called to a home laboratory setting.

Threat Identification

It is important that responders be able to recognize a possible explosives material, IED or booby traps. An IED can be discovered during a terrorist or criminal explosives incident response or can be discovered when conducting routine public safety activities such as inspections and investigations. Improvised explosive devices can be designed to be concealed or look like ordinary items.

Responders should be very cautious of any items that arouse your curiosity.

The exterior inspection of a suspected device does not ensure its safety.

Unusual devices or containers with electronic components such as wires, circuit boards, cellular phones, antennas and other items attached or exposed.

Devices containing quanti-

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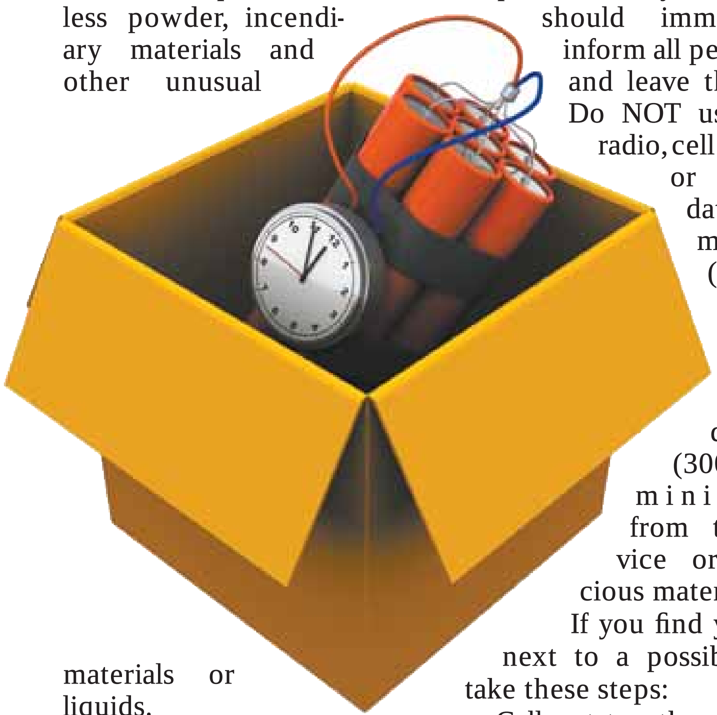

ties of fuses, fireworks, match heads, black powder, smokeless powder, incendiary materials and other unusual materials or liquids.

Materials attached to an item such as nails, bolts, drill bits, marbles, etc. that could be used for shrapnel.

Ordinance such as blasting caps, detcord, military explosives, commercial explosives, grenades, etc.

Any combination of the above described items!

Discovery of Suspicious Items/Materials

A first responder who comes across a suspicious device/package during routine public safety activities should immediately inform all personnel and leave the area. Do NOT use your radio, cell phones or mobile data terminal (MDT) until you are a safe distance (300 feet minimum) from the device or suspicious materials.

If you find yourself next to a possible IED, take these steps:

- Call out to other personnel to stop moving
- Stop and look around for any other devices or suspicious items
- DO NOT touch or move anything
- DO NOT operate light or power switches
- Keep other responders from coming over to look or take photos
- Move out of the area the same way you entered by retracing your steps
- Conduct personal accountability outside of the hazard area
- Isolate and secure the area
- Establish zones of control similar to a hazmat incident with law enforcement assistance
- Call for and wait on the local or state Bomb Squad assets

Fire/Rescue Operations

Rapidly establish a unified command post and staging areas outside of hazard area. Start building the Incident Management System. Responders should wear complete PPE and SCBA. Responders must immediately monitor for other hazards such as chemical agents, gases or radioactive materials. Firefighters should attempt to approach a reported explosion from upwind when possible because even small explosive devices or materials can cause significant dust and smoke.

There may be several vehicles or structures burning due to the explosion. The Incident Commander will need to make the decision as to whether the fire operations should be offensive in nature or defensive in nature. If a vehicle or structural fire is involved, conduct a rapid knockdown while considering evidence.

This issue can depend on a variety of factors such as the possibility of secondary devices, need for rescues to be conducted or the structural stability of involved structures. Fire agencies will also need to consider searching beyond the immediate scene of an incident for victims unable to call for help. This may be especially needed in a dense urban environment, where persons injured in the surrounding structures were injured/affected (directly by the bombing or medical is-

see FIRE/RESCUE page 54

Fire/Rescue Operations

continued from page 53

sues such as the elderly suffering a health condition).

EMS Considerations

Rapidly establish a unified command post and staging areas outside of the hazard area. Start building the Incident Management System and Unified Command. EMS may need to utilize "scoop and run" and "load and go" from the incident hazard area. Casualty collection points (CCP) may be established in safe areas inside or outside a location. EMS may need to implement disaster procedures such as triage tags, casualty collection points and field treatment areas for minor injuries.

Implement local mass-casualty/mass-fatality procedures. Expect numerous types of traumatic injuries resulting from blast pressure, burns, and shrapnel. Quickly remove victims from the area, and render aid in a secure location. Conduct triage outside the hazard area. Use litters, blankets, or backboards. Triage will be conducted at least twice — once at the blast scene and again at the hospital.

Command Post Considerations

The Incident Command System (ICS) is one of the best tools for agencies to utilize when responding to these types of critical incidents. The response to an IED, unexploded ordnance (UXO), suspicious materials or booby trap/anti-personnel device (APD) is similar to a hazardous materials response in some ways. Use your "zones of control" to assist in your response efforts:

- **Hot zone** (where the device is located)
- **Warm zone** (where the secured perimeter will be established)
- **Cold zone** (secured location of unified command post and staging)

First arriving units will have a drastic effect on the progress of the incident. All appropriate agencies — fire, EMS, law enforcement, bomb squad, emergency management office and hospitals — should be notified as soon as possible if there is a report of an incident or possible incident. Responders and Incident Commanders must quickly and safely conduct the "windshield survey". Fire and EMS should remain in staging area until the scene is secured by law enforcement when possible. Incident scenes spread over a large area may need to be quickly divided into smaller branches/divisions. Responders may initially run into victims fleeing the incident. Responding vehicles may attract victims. Immediate interagency cooperation/Unified Command is essential. Clear radio and personal communications are necessary for effective operations.

The information provided in this article is for educational purposes only. Please follow all local procedures and guidelines when responding to these types of events.

First Responder Training

The first step in your preparation is providing proper awareness training to all response personnel. Preparation is the key to a mitigating an IED incident and that includes having a clear idea of your actions before the incident occurs. This should at least include an awareness of the hazards associated with IEDs and the proper steps for the responder to take upon discovery of an item or responding to an incident. If there is a local bomb squad or hazardous devices unit in your area, ask for its assistance with your training and planning. Most bomb technicians will be glad to provide your agency with training on their procedures and equipment, since they will require

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your support during an incident. Responders should understand their roles and responsibilities in supporting bomb squads during these incidents and how to safely treat an injured bomb tech and remove the bomb techs suit and equipment if they are injured.

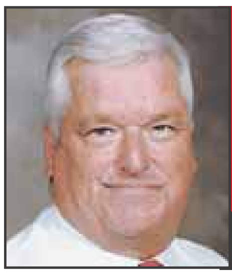
Another excellent training resource for first responders is the Incident Response to Terrorist Bombings (IRTB) course in Soccoro, NM, funded through the U.S. Department of Homeland Security. This course gives first responders information regarding planning for and responding to IED or terrorist events. The student will be able to witness live explosive events ranging from a small pipe bomb to a large car bomb. Course is open to fire, EMS, law enforcement and emergency management agencies. The course also allows the student to return to their respective agency and provide awareness-level training.

For additional information, visit www.emrtc.nmt.edu.

Conclusion

The information presented here is intended to help public safety agencies with their planning and training efforts and to spur further discussion and planning within agencies. Please remember to follow local guidelines and procedures. Each community should have a plan in place to address these types of events. If a major IED incident occurs in the U.S., trained and educated first responders can help lessen the impact with a safe and effective response. The more our public safety agencies prepare, the better they are prepared to respond to and effectively manage any type of situation that might arise. The community has entrusted us with their safety — let's prepare now!

August Vernon is currently an Assistant Coordinator for a County Office of Emergency Management. Vernon returned to his position at Emergency Management after a year in Iraq as a security contractor conducting long-range convoy security operations involved in several IED and combative engagements. Vernon has been employed in Emergency Management for seven years and also served as a member of the fire service and a fire service instructor. He also served in the U.S. Army as a CBRN (Chemical, Biological, Radiological and Nuclear) Operations Specialist. August is a member of the IFSTA WMD/terrorism Committee. He teaches courses in Incident Management, Emergency Management, HazMat Operations and Terrorism/WMD Planning-Response. He also provides specialized emergency services planning and training on critical incidents. Since 2004 he has served as technical reviewer for the development of six different training films produced by the Emergency Film Group. He has also written over 25 nationally published articles and is also author of the new First Responders Critical Incident Field Guide published by Red Hat Publishing.



Arson and the Economy

DOUG ROSS — expanding our knowledge

Greetings! News flash! The economy stinks!

Never in my life have I seen so many acquaintances unemployed and looking desperately for a job. My state is seeing its highest ever unemployment rates and it doesn't appear that relief is in sight. This is not the customary "arson and the economy" storyline where I'll report a rise in the number of foreclosed homes being burned intentionally (true!) for the insurance money! This story is entirely from another angle.

I am sure that each of you reading this has been affected by the downturn in the economy, both personally and professionally. Who hasn't been affected! Unfortunately, the belt tightening likely has altered how your department reacts to suspected arsons and arson investigations. It seems that arson-related efforts always suffer when budgets must be cut. Historically, law enforcement's involvement in the reduction of arson has taken a back seat to other high-priority crime classifications. Not until the mid-1970s when the Federal Bureau of Investigation elevated arson a Part I (from a Part II) crime did law enforcement see the need to aggressively entertain arson in their budget considerations. With the FBI's crime classifications, arson was now viewed with the same importance as homicides, rape and burglary, at least on paper and through statistical calculations.

Law enforcement, and possibly the fire service, has been numbers-driven for many years. Too many unsolved criminal incidents make the numbers look bad! Bad numbers can have a negative impact on federal funding and public opinion. Still, arson investigation hasn't held the importance it deserves over the years and now budgets are again causing the axe to fall on arson investigation efforts nationwide.

With a historically low conviction rate nationally, some administrators may feel compelled to prioritize criminal investigations which would place arson on the bottom of the list again. From a Public Safety view, budgets are being cut regularly in 2009 and a new word has established itself in the vocabulary of police and firefighters everywhere: furloughs! What? That's right! Furloughs! Defined: a usually temporary layoff from work. If that isn't bad enough, many public safety departments are essentially laying off permanent positions disguised as lowering the ranks through another strange word: attrition! Defined: a reduction or decrease in numbers, size, or strength!

Either way, the firefighters and police officers are experiencing a reduction in force that affects everyone. This reduction in force causes administrators to prioritize manpower. This isn't good! I know that the number of arson investigators being utilized by the S.C. Law Enforcement Division is half the number on staff in 1991, when all arson investigations became their responsibility. I also know the number of fire investigation requests remained constant over many of the years, but have likely declined recently because of "supply and demand." If you

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don't have an investigator to respond, the local requests will likely dwindle!

Another issue of reduced work force was recently highlighted in April and May of this year in Myrtle Beach, S.C. The SC Forestry's reduction in the number of Forest Rangers and heavy equipment (too expensive) played a costly role in the forest fire that devastated the Barefoot Resort and other areas of the city. Budget cuts may not be entirely to blame but, in my opinion, they certainly affected the eventual suppression of the Myrtle Beach fires.

From the standpoint of arson investigations, I am sure these administrators will tell you that all fires will be responded to and extinguished in their jurisdictions, but, they might not be investigated because of the results of the forced prioritization. Where does this lead us? Turning our back on this crime because of lack of financial support is reprehensible. Unabated arsons destroy the very tax base that funds public safety efforts through annual taxes. On many occasions, an arson arrest often solves parallel crimes such as burglary, larceny and in rare instances, homicide.

Hopefully, the financial crisis in country will soon ease. I pray for a quick return to a strong America that I have been accustomed to most of my adult life. Some early indications tell us we may even be turning the corner now, but turning our backs on the crime of arson isn't a wise practice. The ripple effect of disregarding criminal offenses can't be good for America!

Hopefully, governments and administrators will see that fire and arson investigation is vital in the daily war on crime. One never knows when the phone will ring at 3 a.m. with a report of a devastating fire, such as Mexico just experienced, that claimed the lives of 40 children in a day care. Let's hope that when the call comes, there will be experienced fire and arson investigators able to respond. Let's hope the department requesting the investigation isn't told "we don't have anyone to send."

Good news

On a more cheerful note, congratulations are in order for Greenville (SC) Technical College's Fire Science Technology program achieving Associate Degree status! The program serves as a shining example that perseverance will certainly pay dividends if the goal remains in focus. My personal congratulations go to Department Head Phillip Hill and to Bonita Watters for their unending efforts concerning the Fire Science technology Associates Degree program. I personally know of the blood, sweat and tears that went into this becoming a reality. I can proudly inform you that this is the only Associate Degree program in Fire Science Technology in South Carolina. The new degree combines basic fire service training with advanced courses recommended by the National Fire Academy (NFA) Fire Emergency Services Higher Education (FESHE) committee's core curriculum for an associate degree in fire science. The basic training portion must be taken via traditional classes. All other courses in the associate degree program are available online. Learning is vital to life! Never quit learning! See you next time!

Doug Ross is a retired veteran of 31 years as a law enforcement officer in South Carolina. Twenty-seven of those years were focused on Arson Investigations as a Greenville, SC Police Officer and later as a Lieutenant with the SC Law Enforcement Division (SLED). He is currently recognized as a Certified Fire Investigator by the International Association of Arson Investigators. His business, FireFuzz Enterprises, specializes in the instruction and training of fire and arson investigators in the Carolinas. He is an adjunct instructor in the Fire Science Technology program at Greenville Technical College. He is also a licensed Private Investigator in South Carolina. He encourages you to contact him at firefuzz@aol.com. Visit his webpage at FireFuzzEnterprises.com.

Vehicle Air Bags

continued from page 8

Safety Administration identified 175 fatalities caused by the estimated 3.3 million airbag deployments and 6,377 lives saved and countless injuries prevented. Statistically, it would appear that airbags are a benefit to vehicle occupants during a collision.

How do we (arriving on an engine or ambulance after the collision is over with) identify whether an airbag is a friend or foe?

The answer is simple and it doesn't take an expensive IFF system. Airbags that have deployed are our friends and those that have not are our foes.

Our circle surveys should always include stabilizing the vehicle and cutting power from the batteries. It is worth mentioning that the inner circle folks (the ones stabilizing and cutting battery power) should have a look inside the vehicle, or at the very least have a face to face with the individual charged with the extrication plan. If extricating a patient could be accomplished by simply rolling down a power window and moving a motorized seat down and back, we will find that our simple plan is not so simple once the battery power has been severed and the motors operating the seats and windows no longer work. There may be other electrically powered things on the vehicle that you would want to operate prior to cutting power.

If we identify an airbag that has not deployed in the collision, and we do not need the vehicle's electrical power, cutting power from the batteries should be done immediately.

How long, once the battery is disconnected, does it take for the capacitors to lose their ability to fire the airbags? This question has no simple answer as each car manufacturer has designed their capacitors to discharge at different intervals. Most vehicles do not maintain the ability to deploy the airbags beyond between one second and six minutes after the vehicle power is disconnected.

Several older models of Isuzu, Porsche, Saab, and Volkswagen manufactured vehicles can require up to 30 minutes of absent power before the capacitors lose their ability to deploy the airbags.

Disconnecting the vehicle's power should be accomplished by disconnecting (or cutting if necessary) the negative battery cable first, followed by the positive battery cable. Both need to be disconnected. Additionally, we should insure that no metal parts have penetrated the battery case that could recomplete the electrical circuit. Once power has been disconnected, the capacitors will begin to discharge the power they store to deploy the airbags. Once the discharge time has passed, the chance of airbags deploying is significantly reduced.

Keep in mind that a relatively small charge is needed to initiate the airbag deployment process, so static electricity or other electric charges should be avoided even after the batteries have been disconnected and the capacitors have fully discharged. There may also be a battery powered global positioning system (GPS) unit or cell phone that has backfeeds through the vehicle's electrical system, even with the batteries disconnected.

Operating around an undeployed airbag should be done with the utmost caution. Many people like to refer to the "5-10-20 rule" — maintain a separation of five inches from side airbags, 10 inches from driver's side airbags, and 20 inches from passenger side airbags.

If you are using a commercially available airbag cover to prevent full deployment of the airbag, be certain that the cover is designed for the type of vehicle on which it is being placed. Remember that steering wheel spoke and rim can be severed and removed, but never cut or drill into the steering column, particularly one that contains an un-deployed airbag.

As we are adding medications to the ambulances, learning new ways to secure an airway, adding super-sophisticated air monitors that can "read the mind of the person that last handled the hazardous material," and refining ways to run into a building with a fire in it, don't forget to keep up with the changes in automobiles. Automobile extrication continues to be a tactically challenging venue of our multi-faceted jobs.

The 2008 Lexus LX570 sports utility vehicle has a mind-numbing 10 airbags throughout the interior passenger compartment. Although this particular vehicle has to be one of the safest to be in during a collision, make sure that when you approach it, or any other vehicle after a collision, that you have your IFF system operating. Be safe and do good.

David Greene has more than 15 years experience in the fire service industry and is currently assistant chief with Colleton County (S.C.) Fire-Rescue. He holds a bachelor's degree from the College of Charleston and an associates degree in Fire Science. He is also an adjunct instructor for the South Carolina Fire Academy. He frequently teaches auto extrication, hazardous materials technician, emergency vehicle driving, pump operations and basic firefighting courses. Greene is a nationally registered paramedic, a resident fire marshal and a certified fire and explosion investigator through the National Association of Fire Investigators. He is also a student of the Executive Fire Officer program at the National Fire Academy. He can be reached at dagreene@lowcountry.com.

High Efficiency Integrated Technology Tools Save Lives

By Richard Schubiger

One of the biggest problems firefighters encounter is communications, primarily between the firefighters themselves and dispatch. There are now tools to solve these communications problems. However, it's difficult to easily evaluate all of the communication, GPS tools, mapping, video, and dispatch options that are available because there are so many. While some options are cutting edge and new to the market, there are two core functions that these tools address: personnel safety and operation efficiency. Often the rest are "nice to have" options but not mandatory.

The key objective is always firefighter safety, and there are several tools that make this easier. For instance, upgrading handheld radios with GPS technology is becoming industry standard. Another product, the Portable Repeater, can be deployed at a disaster site with a moment's notice. While these sound like simple solutions, not many organizations effectively combine product selection and integration, training, drill participation, testing and service. Any of these alone will increase safety, but in combination they ensure the maximum level of firefighter protection.

There are also portable self-contained communications modules that can be deployed on-site, offering first responders from multiple agencies hundreds of secure communications devices including voice, SMS and GPS capabilities within one hour. These systems offer your mobile command center immediate and secure communications.

Many companies have the ability to fully integrate mapping, GPS, Secure Communication and live IP video feeds to enable your command center to best allocate resources, find and rescue distressed personnel and place all of the information at your fingertips to make the most educated decisions regarding your personnel.

While these tools aid firefighters to safely and efficiently fight a fire, manage resources and protect personnel, it is still the well trained professional that manages the risk to citizens and property alike. A professional communication and security firm should aid you in making the best integrated technology choices and in weaving through the funding process.

Richard Schubiger, CEO of Global Technology Solutions based in Hollywood, Florida, has over 20 years of experience in the wireless communications industry and has been involved with all facets including sales, service, design, and project management. On the web: www.gtsna.com

Greenville Tech Offers State's Only Associate Degree in Fire Science Technology

GREENVILLE, SC — Greenville Technical College will begin offering an Associate in Applied Science degree with a major in Fire Science Technology beginning fall semester 2009. This is the only associate degree in fire science technology offered in South Carolina.

The new degree combines basic fire service training with advanced courses recommended by the National Fire Academy (NFA) Fire Emergency Services Higher Education (FESHE) committee's core curriculum for an associate degree in fire science. The basic training portion must be taken via traditional classes. All other courses in the associate degree program are available online.

A certificate in Fire Service Technology was added to the Greenville Tech curriculum in 2006 at the request of the Fire Chiefs' Association of Greenville County, which provided guidance on content. Until that time, fire service training could only be obtained at the South Carolina Fire Academy in Columbia. The certificate program gives students the knowledge and skills needed to become a basic firefighter and takes students through National Fire Protection Association (NFPA) 1001 Firefighter II level. It provides the critical elements of NFPA Firefighter I and II. Upon successful completion, students may apply to sit for the IFSAC Firefighter I and II certification exam.

Completion of the associate degree prepares firefighters for advancement to officer positions as fire departments recognize the importance of higher education. With courses available online, firefighters can gain the knowledge and skills required for advancement without interfering with work responsibilities.

For more information visit gvltec.edu.

Foam Systems, Too Many Choices

SANDY WILBORN — foam technology

I've been asked, "I want foam on my new engine but how do I know which system, or how large it should be?"

This article will discuss the systems, and how to make a more fact based choice on the correct size of the system needed for your future use.

There are systems that use a venturi induction as the means of placing the foam concentrate into the water stream. These systems may use the older technology of eductors that we are familiar with, and have had on engines for decades. It was usually a system that we hooked up to a discharge line where we made only the one line a "foam capable" houseline. This system took a few moments to assemble and hook up (provided we cleaned it and stored it properly).

There are some limitations to this system, such as a certain flow. Most were 95 gallons a minute of flow. A couple others come to mind being a 60 GPM flow and a 125 GPM flow model. Other typical issues involved with this system are leaks in connections causing a vacuum leak and causing loss of flow. We are restricted to length of hose lines due to backpressure. This term is used for the amount of loss, in the venturi, which can be rated in percentages such as 30 percent and 35 percent, depending on the equipment used.

On most of the older units, we had to increase the engine pressure to 200 PSI. This left us with 130 or 140 PSI of line pressure. We use up more as friction in the hose. With our normal rates of loss, it restricted us to 150 feet of hose line on 1½" and this leaves us the 100 PSI that is needed for the nozzle to do its job at the optimum.

Using 1¾" hose line increased the length to 300 feet due to less friction loss and gave the operator more to keep in mind.

Elevation also caused more loss of length due to increased friction loss. Proper cleaning and storage on the previous use or training class would come into play on this use also. A lot to deal with for a single line capable of flowing 95 GPM flow.

"Our engine has a 1500 pump, why would we want to be just a 95 GPM flow?"

We now have a much more sophisticated style unit with direct injection electronically controlled. It gives a much broader range of flows, and is done by internally mounted instruments, rather than guessing or change in pressure. It is instantly adapted to higher or lower concentrate injection rates, allowing the operator to pay attention to more crucial events on the scene. This leaves the scene safer due to less time needed away from the pump controls.

Most of these systems operate with just one press on a button. Most of the other settings are either set prior to delivery, or the units default to these settings used in most situations. Yet, they allow almost instant changes when required. These are built into the pump house plumbing and eliminate assembly, errors in flow, keep the engine from having to experience much higher flow pressures, and allow normal operation using the hose lines as we carry them, or even adding to them with no changes other than standard practices. This gives us much more versatility in flow management and capabilities along with multiple lines having the flow and use. This makes the new engine with 1250, 1500, 1750 GPM and higher flow capabilities much more efficient — rather than be restricted to the older 95 GPM restriction.

Now that we have these high flow engines we need to know how to size a foam system to gain greater use of all of this high tech equipment we just purchased.

First, what is it we want the system to achieve. Will we be using only Class A foam? Will we be wishing to use Class B foam? Will we want to use one of the emulsifiers? Will it be used for both Class A and Class B foams? How many lines do I want to flow?

Most manufacturers list their capabilities and performance ranges. If it is a trusted company, then all that is left is for us is to put our needs down and compare it to the

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lines they offer. Most offer units from one-gallon-a-minute of concentrate flow and up. Remember that some systems are not capable of using different foams or concentrates.

"We want a foam system for our 1500 GPM engine, and we want to have three Foam lines. One will be a 1¾" line 100 feet long as a trash line in the front bumper with approximately 175 GPM flow. The second will be a 1¾" line 250 feet long and is a pre-connected cross lay, also planning on a 175 GPM flow. Finally, we want a 2½" line 250 feet long loaded in our hosebed for about 300 GPM flow and we want to flow Class A foam. It is generally used at 0.5 percent or less flow."

Back to our flows, showing about 650 GPM flow. (And for sure this is not the maximum but just a number.) If we plan on Class A use at 0.5 percent, times our 650 flows, then we now want a system capable of 3.25 gallons of concentrate flow per minute. What are the chances that we will use all of these lines at one time? What are the possibilities that we will want to use Class B foams, which are used in higher percentages, such as one percent, three percent, or six percent? Now we would have to change our numbers drastically.

Would we want to use Class A for Class A fires, such as homes, wood, paper, cotton and brush fires? Would we want to be able to fight Class B situations and flammable liquids at those higher rates?

Now that we know what we want, we can make fact-based choices as to the proper foam system we would need. Always err on the up side. If it is decided that we need a 3.5 gallon flow, and the company we chose only offer 2.5 or 5.0 gallon systems, jump to the higher unit. Many systems now are capable of flowing five to 10 gallons of concentrate with some offering up to 300 gallons a minute of concentrate flow. So your needs can be met.

Also, you might have the treasurer a "golf weekend" to mellow out from some of these numbers and the price of the concentrate you might burn through on a long fire scene. It is just what we have to deal with.

If you know your numbers, or need help in choosing, give me a note and I will help in any way. We can look into the systems that meet our range of needs. Then you can make a really good decision. Looking forward to your replies and questions.

Sandy Wilborn was with Forbush VFD for over 20 years and with the Fire Brigade at his regular occupation for 12 years. He has taught through many of the community colleges in North Carolina. He was a long time member and on the Board of Directors with the North Carolina Fire and Rescue Service Instructors. He works with manufacturers of fire trucks, foam systems, foam solutions and application devices. He has been involved with Class A foam use. Wilborn was also the Chairman of the Board at his department for 23 years, a Captain and the training officer for about 15 years. He is an IFSAC Nationwide certification firefighter, and is in constant contact with some of the best minds in the fire service. He can be reached at srw1226@aol.com.

Today's engines are equipped with more sophisticated style units with direct injection electronically controlled.

The ADA Compliant Fire Station

By Zachary Zettler
AIA LEED AP
CR architecture + design

Did you know that the Department of Justice, the Federal Civil Rights Act and the Architectural Transportation and Barriers Board will affect your next fire facility project? You will if you plan to build a new fire facility or renovate an existing fire facility. They all require that any new or renovated fire facility comply with the Americans with Disabilities Act (ADA). One of the most debated topics in fire station design and construction today is centered on ADA. The fact is that there shouldn't be much debate at all. The law is very clear what is required.

This article will look at this complex and often misunderstood federal law, and explore the specifics of how ADA applies to fire facilities, explore opportunities to work within the guidelines of ADA, and discuss why it is important to know and understand this law.

Understanding ADA

ADA is a federal civil rights law established in 1990 to give equal rights to the disabled. The law states that "physical or mental disabilities in no way diminishes a person's right to fully participate in all aspects of society, yet many people with physical or mental disabilities have been precluded from doing so because of discrimination." Contrary to the popular belief that ADA applies to physical disabilities alone, the law recognizes physical impairments; mental impairments; drug addiction; and the substantial limitation of major life activity – i.e. hearing, sight, etc. The impairment can be either permanent or temporary.

There are two design standards that a designer can choose from to comply with ADA — the Uniform Facilities Accessibility Standard (UFAS) and ADA Accessibility Guidelines (ADAAG). UFAS or ADAAG can be used for most fire projects, however; UFAS compliance is required on federally funded facilities. ADAAG is primarily used because it is considered more common and less stringent. We will look at some of the specifics related to ADAAG and fire facility design later in this article.

ADA is broken into four titles:

Title I – covers rights related to employment

Title II – covers public services and buildings

Title III – covers public accommodations and services operated by private entities

Title IV – covers miscellaneous provisions and telecommunications

Most fire facilities fall under the coverage of Title II — public services for logical reasons, however volunteer fire departments fall under a gray area. Title II encompasses any state or local government, any department, agency or other instrumentality of state or local government, and certain commuter authorities. While most volunteer departments are not fully a government entity and not fully a private entity, this leaves some debate as to which title they fall under. There are significant distinctions between Title II and Title III; therefore it is critical to determine which title your volunteer department falls under. ADA uses the following guidelines to help make this determination:

- Whether the entity is operated with public funds. If so, they fall under Title II.
- Whether the entity's employees are considered government employees. If so, they fall under Title II.
- Whether the entity receives significant assistance from the government by provision of property or equipment. If so, they fall under Title II.
- Whether the entity has a publicly elected board. If so, they fall under Title II.

It's important to understand the difference between the Federal ADA law and local building codes. All state building codes have accessibility guidelines, but only a select few have been certified by the Department of Justice as fully complying with ADA. Some states go beyond the federal guidelines. However, the Federal ADA is the minimum standard of compliance. A local building official can provide official and enforceable interpretations on the ADA Law; whereas they can only provide guidance on local or state code. If a complaint is filed with the Department of Justice, they will look at the Federal ADAAG as the basis for compliance.

For example, ADA requires a toilet stall to be a minimum dimension of 60 inches by 60 inches with grab bars. The Florida Building Code, one of the codes that the Department of Justice certifies, requires a 60 inch by 72 inch stall with the same grab bars, but a sink is also required within the stall. The Florida Code exceeds the minimum ADA requirements, and there-

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fore is considered certified by the Department of Justice. North Carolina, Florida, Maine, Maryland and Texas building codes are certified as compliant with ADA.

There are significant differences between new construction and renovation projects. While any new construction must fully comply with ADA, there are thresholds to modifications or renovation projects. With any renovation project, any new or altered portion of work must be compliant. If the primary function of a building is altered, the path of travel to the altered area and the restrooms, telephones, and drinking fountains serving the primary function must comply.

If you plan to renovate or add on to a training room, you must bring other areas of the building up to compliance as well. ADA recognizes that this may not always be feasible from a project cost standpoint. They recognize "technical infeasible" conditions with alterations.

According to the Title II Technical Assistance Manual: "with respect to an alteration of a building or a facility, that it has little likelihood of being accomplished because existing structural conditions would require removing or altering a load-bearing member which is an essential part of the structural frame; or because other existing physical or site constraints prohibit modification or addition of elements, spaces, or features which are in full and strict compliance with the minimum requirements for new construction and which are necessary to provide accessibility." Essentially, this means that alterations for the purposes of increasing accessibility are limited to those that are practical and feasible.

A common argument is: "The public will never enter most spaces in my station. Does that mean that I don't have to make it fully accessible?" The answer to that question is, "well, sort of." There are two types of spaces in a building when it comes to accessibility – public uses spaces and work use spaces. Just like it sounds, public use spaces are defined as any space available to the public. Public use spaces must fully comply with all provisions of Title II of ADA. Public use spaces include all offices, conference rooms, training rooms, and anywhere you take the public on station tours. The last one, station tours, is a significant one.

see ADA page 64

Cincinnati Fire Station No. 9 incorporates an ADA compliant sink mounted at 34 inches and with a depth of 6.5 inches, as well as a standard sink.

ADA Compliant Fire Station

continued from page 63

Parma Fire Station No. 2 in Ohio has a larger, ADA compliant dorm room which is used by the shift supervisor.

If you currently walk grade school students through your apparatus bay, it changes from a work use area into a public use area. Work use areas are those areas that are only used by employees and not open to the general public. All work areas are only required to be designed so that they can be approached, entered and exited by a person with a disability. This is a significant distinction. Work use areas are not required to comply with the other, more stringent requirements of public use areas. For example, sinks, shelving, countertops, etc., are not required to be at ADA height, maneuvering clearances are not required at doors, and accessible height toilets are not required.

Implementing ADA in Common Fire Station Spaces

You are probably thinking "with all these rules, am I going to end up with a lot of things in my new or renovated fire facility that I can't use or don't want?" The truth is that if you embrace ADA as an opportunity where you are able, you can make the design enhance some of the spaces and meet the requirements of the law.

For example, accessible sinks are required to be mounted at a height of 34 inches in lieu of the more typical 36 inch countertop height and may be a maximum of 6-1/2 inches deep. It's tough to wash a big pot in a sink that is only 6-1/2 inches deep. So, why not have two sinks—one sink that is compliant that you can use for washing your hands or a piece of fruit and one sink for washing dishes. The cost for the additional sink is minimal in comparison to the total project cost.

At least one of the dorm rooms is required to be accessible. This means that it will most likely be a little larger to comply with the 60 inch maneuvering clearances. If you locate this room strategically, it can become the shift supervisor's dorm space.

Toilet/shower rooms are also required to be a little larger, have lower countertop and shelving heights, and have grab bars. The big difference between a standard and accessible toilet/shower room comes into play in the shower design. An accessible shower stall is required to have grab bars, be 36 inches square, and have a fold-up seat. Some manufacturers have what are called convertible shower units. The units are shipped with all the parts for the grab bars and seat, but you can install them at a later date when needed. Until that time, it functions as a regular shower.

Community/training rooms are generally considered to be a public use area, even if you don't let the public use it. When you are working with your architect to layout this space, provide an area for wheelchair seating, especially in a tiered seating layout. An alternative solution is to provide movable furniture to allow flexibility for wheelchair seating.

Apparatus bays, as mentioned earlier, can be considered a public use space. Consider how the space is used with an architect to determine the required level of compliance with ADA. A higher level of compliance is required if you give public tours through the bay area or if you use it for voting, fundraisers or potluck dinners.

All it takes is the filing of one complaint and the Department of Justice will investigate the issue to determine if a lawsuit is warranted. If so, the lawsuit is heard in Federal District Court. Also, all public buildings are subject to an audit by the Department of Justice at any time, and department funding can be terminated as an enforcement option. Therefore, compliance is all the more important.

Remember, ADA is not a building code, it's enforced by the Department of Justice; compliance with local codes does not necessarily mean you comply with ADA. First, determine the extent of public use in your station and remain consistent for all visitors. By understanding the use and the implications of ADA upfront, you can creatively work solutions

see IMPLEMENTING page 71

Keeping a ‘Good Pulse’ on Your Firefighters

By Thea Coleman, RN
Director of Corporate Health
Spartanburg Regional
Healthcare System

It should come as no surprise to any of us that healthcare is at the top of the agenda for reform on the national level. The cost of healthcare for an individual with a single diagnosis of chronic disease can amount to thousands of dollars per year. While it is evident that prevention is the key to keeping our healthcare crisis manageable, disease management is equally as important.

Many of the diseases that we see here in the United States are preventable. Obesity has definitely put us on the international map for discussion. It is not a secret that the lifestyle and behaviors of our nation have contributed to a staggering number of overweight adults. Type II Diabetes, high blood pressure, cardiovascular disease, and depression are showing up at earlier ages now and the financial impact is recognized much sooner than in the past. The good news is that we have now acknowledged the unhealthy state of our society. The bad news is that we are not in a position to implement a national short term solution to our issues.

But one thing is certain, we can all begin to work on prevention on an individual basis and we can begin the dialogue to better health with the people we work with each day.

Firefighters definitely come to mind when we discuss the healthcare topic. We view our fire fighting workforces not only as public servants, but as heroes. We want them to be healthy; we want them to be in good condition; and most importantly, we want them to be safe. We are devastated when we hear that a firefighter has lost his/her life during a fire or rescue mission. We feel like we have lost someone very close to us. The long term trend is that we annually lose 100 firefighters while on duty. In addition to these deaths, we know firefighters have an increased rate of sudden cardiac events which may be associated with stress, exertion and the nature of the job they perform. Many of the deaths and health events may also be linked to chronic illnesses that had not yet been diagnosed. It is distressing to learn that a team member has suffered and it makes it even harder when we know there is chance the misfortune could have been prevented.

In 2005, a study by the National Fire Protection Association showed that more than 70 percent of fire departments lacked fitness and health programs. This should not come as a shock when we take into consideration the struggle for funds to maintain fire and rescue trucks, provide education programs, supply up to date personal protection equipment, and keep basic operational costs in line. However, dollars spent on disease management, fitness programs, and wellness initiatives have proven major returns on investment.

70 percent of fire departments lack fitness and health programs.

It seems wise to invest in the single most important asset on your force; and that asset would be your firefighters. Keeping a “good pulse” on your team can mean the difference between life and death. So, when the budget comes along, educate your men and women on health and wellness, design a fitness program with a local provider for your workforce, and chose the very best health partners to assist you with implementing excellent safety, disease management and health prevention programs. Your reward will not only be cost savings for your department and the individuals on your team, but you will also have the satisfaction of knowing you have positively impacted the quality of life for your firefighters.

What is Your Command Plan?

continued from page 50

firefighter line of duty deaths (LODDs).

The IC must ensure that all responders are accounted for on the fire ground and that their assignments are in line with the incident action plan. Freelancing at any incident can have disastrous consequences.

Accountability

The term accountability can be used to describe responsibility, as well as tracking of resources and people.A fire chief will hold his/her members accountable for their actions, but is the fire chief accounting for all responders on the fire ground? What is your department's policy? Is it clear? Is it followed all of the time, or only at fires? If you are not sure of the answers to these simple questions, then you are not prepared. NFPA 1500, 8.4.4 requires that the *Incident Commander maintain an awareness of the location and function of all companies or crews at the scene of the incident.*

Simply having an accountability officer may not meet the true expectations of the standard. Imagine if someone was to blow a whistle at your next fire, stopping the event, could you at that time account for each person on the fire ground to include their location, assignment and who they are reporting to?

Communications

Situations that hinder or restrict communications will create dysfunction in any command system. A fire department's communication system should provide a standard method to give priority to the transmission of emergency messages and notification of imminent hazards to all levels of the incident command structure through routine radio communication. To ensure fireground safety, clear text should be used. The use of 10-codes or other verbiage may cause confusion. The term "Emergency Traffic" has the priority over all communications.

The IC should conduct a personnel accountability report (PAR) from division/sector/branch supervisors whenever a change in operations occurs, or a significant event occurs on the fire ground such as a collapse, or hostile fire event, to ensure the accountability of all members operating on the fire ground. If a report comes back that a firefighter is missing, the IC should confirm the name of the missing individual, the unit that they are assigned to and their last know area/location of operation. Once this information is gathered, an "Emergency Traffic" from IC should be called asking if anyone on the fire ground is with, or has seen the missing individual. If no immediate response is received, the Rapid Intervention Team (RIT) will be deployed to the last know area of the missing individual.

All units on the fire ground should communicate via radio only as needed. Unnecessary communications can cause the IC to miss important transmissions. Portable radio etiquette is necessary when operating near others with their portable radios on. Squelch and feedback can add confusion. Ongoing CAN reports and face-to-face communications when possible will allow the IC to focus on the effectiveness of the IAP.

Next issue will continue with ineffective accountability, communications and incident commanders.

Chris Grant

Chris Grant is serving as a career firefighter with Central Pierce Fire & Rescue in Tacoma, WA. A 23 year veteran of the fire service, he has held several positions, from operations section chief, training division captain, Haz-Mat team leader and Chief of the Washington State Fire Academy's Recruit Training Program. He has earned Associates Degrees in Fire Command Administration and in Fire Investigation and is currently working towards a bachelor's degree. He is a frequent instructor for the National Fire Academy and has spoken at FDIC. Contact Grant at www.esfiretraining.com.

A Budget Puts You in Charge

By Arianna Derrick

Before you run from the room screaming, please know that making and following a budget does not have to be complicated or stressful. It does not need to generate the negative thoughts that come to mind. So relax, take a deep breath and read on.

Having a budget puts you in control of your financial house. It allows you to choose how your money is spent — not wonder where it went. The good news — a personal budget is more about common sense than mathematical wizardry. If you are honest and realistic, it will be a successful process.

Separate fact from fiction

Remind yourself what you spend and how you spend it. If you're so inspired, a terrific idea is to write down what you spend, and where, over two or three days. As simple as this exercise sounds, you will be surprised at the "found money" you discover — the cash you probably don't even realize you're spending.

Separate fixed expenses and arbitrary expenses

The fixed category includes things like your mortgage, car payment, school costs, insurance, etc. The second category includes things like your morning coffee, how many groceries you buy, how often you shop for clothes, etc. You can't change what you can't change, but you will find many areas where you are able to save by choice.

Arianna Sims Derrick

Helpful Hint: AARP (no, you don't have to be old, and you don't have to be a member) has a good website that provides simplified budgeting forms to help you get everything easily organized on paper: www.aarp.org.

The goal is a clear picture of the money that flows through your life — how it comes in and how it goes out. Try to account for every dollar (easier to do if you follow Step One). Once you have it in front of you, take a really close look.

Separate how you live and how you want to live

The proof is in the numbers. What do you change? Do you rethink your goals or spending choices? Have you uncovered bad money habits? This is where you clarify the priorities in your life and settle on a plan that will support the direction you want to take.

Separate wanting to change and acting to change

For example, pay yourself first. In other words, include saving in your budget. Be calendar-aware to avoid late fees and balance-aware to avoid overdraft fees. In other words, live within your means. Follow general guidelines. Shelter should be around 30 percent, food 20 percent, transportation 18 percent, and credit card debt 10 percent of your take home pay. In other words, get the balance right.

Helpful Hint: If you get to this point and feel your spending is out of control, you might want to consider contacting Consumer Credit Counseling Service (800-388-2227) or American Credit Counselors (866-795-2226).

Separate fighting it from living it

You have a budget now. You're organized. No more going into crisis mode to manage your finances. Admit it, wasn't that easier than you thought?

Arianna Sims Derrick, CFP, has a BS in Mathematics Education and a MAT in Health Education from the University of South Carolina. Prior to joining Abacus in 2004, Arianna taught math at Midlands Technical College, served as the Director of Orientation at the College of Charleston, was the Principal of Hand Middle School, and was an Assistant Principal of Dreher High School. She is a 1985 graduate of the Leadership Columbia Program.

New Safety Options for Multi-Story Buildings

It's not just Chutes and Ladders anymore

By Ryan Alles

Plan two ways out! Isn't that what we are always preaching? Finally, incredible breakthroughs in building safety have provided solutions for those above the second floor, and it isn't Chutes and Ladders any more. This new industry is referred to as "Supplemental Evacuation." Experts reiterate that stairwells need to remain your primary means of egress but are doing their best to ensure that building owners, managers and occupants alike have a second way out. The Safe Evacuation Coalition (*http://safe-evacuation.org*) was formed by four manufacturers of these devices and set out to drive standardization and formal recognition internationally.


Ryan Alles

In 2006, the ASTM International (The American Society for Testing and Materials) became the first to create formal meetings among these experts and begin the lengthy process of creating standards. The first such standard became known as "Standard Specification for Multi-Story Building External Evacuation Controlled Descent Devices." Controlled Descent Devices (CDDs) have been in use for decades, primarily in the fall protection arenas serving construction sites, maritime applications and oil refineries. CDDs have proven to be a reliable solution for descent from structures and usually operate at pre-determined speeds of three or six feet per second (similar to an elevator). What's unique about CDDs is that they look like, and work similar to a pulley, as one side goes down, the other side comes up for the next user automatically. This process is repeated until all occupants have been evacuated. Most CDDs are reusable and require little maintenance. Some manufacturers pair this device with portable or fixed mounted anchoring systems and fire protective evacuation suits. This allows for rapid deployment in multiple locations should Supplemental Evacuation become necessary. These could be the perfect solution for the disabled, mobility impaired or elderly occupants to evacuate should they not be physically able to descend dozens of flights of stairs. Portable systems may also serve as the perfect tool for firefighters to rapidly deploy a safe means for multiple occupant rescues and emergency egress should it become necessary.

In 2007 the ASTM finalized "Standard Specification for Multi-Story Building External Evacuation Platform Rescue Systems." Platform rescue systems operate similar to an elevator in description but are designed for, and are therefore much more suitable for

continued on next page

Photo Courtesy High Rise Escape Systems, Inc.

emergency evacuation. These systems are installed inconspicuously atop buildings and in an emergency deploy and lower down the outside to the street level. Firefighters board as they arrive and control the fire-protective platforms as they take much needed supplies up and evacuate people on the way down. This combination allows rescuers to arrive well rested to the upper floors safely from the outside of the structure. These systems can evacuate dozens of people from multiple floors at the same time.

Simultaneously, the National Fire Protection Agency was working diligently to develop guidelines for safe implementation of these new lifesaving devices. In 2008 the NFPA wrapped up its three year review cycle and voted overwhelmingly to adopt Supplemental Evacuation into the Life Safety Code and Building Construction Codes as an annex. As of Jan. 1, 2009 this text provides guidance on how to incorporate Supplemental Evacuation. Only two types were approved: Controlled Descent Devices and Platform Rescue Systems. Chutes, Parachutes, Descent Lines, Helicopters and Zip lines have been deemed unsafe for occupant evacuation.

These new technologies provide a perfect opportunity for first responders to take a proactive approach to involve themselves during training or drills. This is a chance to build a great rapport with residents in your first due and to understand how this type of evacuation may affect your current distribution of resources at any multi-story incident.

Ryan Alles is the President of High Rise Escape Systems Inc. He spent nine years as a professional firefighter/EMT. He is a NFPA Technical Committee Appointee, founding member of the Safe Evacuation Coalition, participating member on the ASTM E06.77 committee on Supplemental Evacuation Devices, member of the International Counter-Terrorism Officers Association. Alles is considered a Subject Matter Expert (SME) on Supplemental Evacuation.

Photo courtesy Escape Rescue Systems, LTD

DES, Fort Bragg Fire and Emergency Services Wins Safety Seat Award

By Tina Ray
Paraglide

When Fort Bragg Fire and Emergency Services began its child safety passenger program in October 2007, it was staffed by only a couple technicians.

Today, the program boasts nearly 20 certified technicians who are able to inspect, install and service child safety seats, said deputy fire chief Mark Melvin. The technicians take a four-day class of 32 to 36 hours to earn certification.

The safety program has been so widely promoted and effective that the department has won the North Carolina Child Passenger Safety Program of the Year Award for 2008. The award was presented to the department at the state's Child Passenger Safety Conference March 13.

Since the program's implementation, the fire department has made contact with more than 2,500 caregivers, Melvin said. More than 300 child safety seats have been installed and another 300 to 400 have been inspected.

"We inspect them and make sure they're installed correctly; if not, we do a reinstall," he said. Fort Bragg Fire and Emergency Services coordinates with the Womack Maternity Care Outreach Program and its Expectant Mothers Program to ensure that passenger seats are not only distributed, but are safely installed.

The department uses a PowerPoint demonstration to educate parents about the rules and regulations regarding safety seats, Melvin said.

If a child is younger than eight years old and weighs less than 80 pounds, according to the buckle–upnc.org Web site, state law requires that the child be secured in a child restraint device, or CRD. Children may be secured in a properly fitted seat belt at age eight, regardless of weight, or at 80 pounds regardless of age, or whichever comes first.

If a child is less than five years old and 40 pounds, the CRD must be installed in the rear seat. Front seat installation is allowed if the CRD is designed for use with air bags.

Fire personnel are trained to look for compliance with those regulations, said Lt. Steven Stewart, a team leader at Fort Bragg Fire and Emergency Services.

They check to ensure that the correct seat has been selected based on the child's age, size and physical development, he said. The seat must be easy to use each time, not be on a recall list and must come with an instruction manual.

The back seat is the safest location and lower anchors and tethers for children, or the LATCH system works best, preventing the seat from moving forward or side to side by no more than one inch.

When first-time mother Samantha Birkholz had concerns about the location of her seven-month-old son, Dorian's safety seat, she and her husband, Staff Sgt. Patrick Birkholz of the 2nd Brigade Combat Team, 82nd Airborne Division, visited the fire station at the intersection of Honeycutt Road and Knox Street.

"We weren't sure if we had it in right or what was the safest spot because we have an SUV," Birkholz said.

She said firemen not only told them that the back seat was the safest spot, but they also tightened the safety seat, as opposed to allowing the seat belt to retract as the Birkholz's had routinely done.

"We left there feeling really good that something we were doing was right," Birkholz said.

Passenger seat safety check–points have been set up at stations No. 1, 3 and 5, said Melvin.

"They can go to any of those stations and the staff on duty will be glad to inspect their seat, reinstall it and if you bring in a seat that shows damage or wear and tear, we will replace it for free," he said. Seats are often donated through a program by the N.C. Safe Kids Association and the Cumberland County Safe Kids Coalition.

This is the first time that Fort Bragg Fire and Emergency Services has won the Child Passenger Safety Program of the Year.

"It was great; we were shocked," said Melvin. "This is a North Carolina award so there are firefighters from all over North Carolina competing for it, so for us to be able to be selected it was definitely an honor and a tribute to the guys who worked so hard to be able to get our message out to the community and be very proactive in their approach to the child safety program."

According to buckleupnc.org, drivers who do not adhere to state regulations regarding the transportation of children may be subjected to a fine not to exceed $25, full court cost of $120 and two points on their driver's license. No insurance points will be added.

But, there is a more pressing incentive for parents and guardians to follow proper safety protocol in transporting children — safety.

Stewart said, "I encourage people to take advantage of the services to make sure their children, which are their precious gifts in life, are safe every time they drive the road."

For more information contact Lt. Steven Stewart, Fort Bragg Fire and Emergency Services Division, 910-364-6042.

Implementing ADA

continued from page 64

into your station design that enhance the overall station design. Most importantly remember – it's a federal law.

Zachary Zettler

CR architecture + design (previously Cole + Russell Architects) is a full-service architecture firm focused in government, education, commercial, retail, housing and hospitality design. Specialized in the planning and design of fire, emergency and public safety facilities, CR has completed nearly 100 fire projects nationwide. CR's Training by Design© concept enhances a building design and site for training opportunities and accommodates such training exercises as high-angle rescue, ladder evolutions, hose advance, rappelling and more. Visit www.cr-architects.com for more information.

Using movable furniture in your training room adds flexibility and provides an alternative solution for wheelchair seating.

INDUSTRY NEWS

Unibody Actuators from Elkhart Brass

Elkhart Brass Manufacturing Company, Inc. introduces the next generation in electric valves for fire apparatus — the new Unibody actuators, the E3F and E4F. These two actuators represent the first major extension of the Elkhart Brass Unibody valve product line since its introduction two-years ago.

For this OEM-driven innovation, Elkhart has taken the electronics out of the controller and actually embedded the microprocessor controls into the valve actuators. Now any control system can be used — from everyday discrete switches to PLCs to the Elkhart UBEC controller line — allowing much more flexibility in apparatus design. Additionally, either actuator will interface to any existing Elkhart UBEC or ICS controller in a retro-fit capacity. The E3F is utilized for valve control only. The E4F also includes flow and pressure sensor provisions.

Elkhart Brass Mfg. Co., Inc. is a leading manufacturer of innovative firefighting equipment. They have been owned and operated by the same family since they were founded in 1902. Elkhart Brass manufactures firefighting nozzles, water cannons, valves, fireground appliances, foam eductors, and apparatus fittings, as well as accessories for many of these components.

Hands On Training with the Mobile Building Collapse

Lafayette Fire Company No. 63 in Lancaster County, Pennsylvania, was the winner of a free training in the Mobile Building Collapse Simulator (patent pending) which was created by Personal Protection Equipment Specialists (PPES) in Lincoln University, Pennsylvania. Volunteers from various departments in the area participated together in a building collapse and confined space training. The interior of the simulator was set up to represent a three story building collapse with a possible victim inside.

Crews worked in teams to make their way through up to two tons of debris in tight, confined spaces with limited visibility and equipment. Many areas required removal of SCBA's to navigate and limited space to use equipment and tools. Crews were rotated several times. It took approximately three hours to extricate one patient.

The Mobile Building Collapse Simulator (patent pending) gives fire and rescue personnel a way to get hands-on training in confined spaces and building collapse. This unit is the only one of its kind in the country and is designed with two levels that contain various hazardous obstacles. The mobile unit is transportable and can be used indoors and/or outdoors.

For more information, visit www.ppes.us and click on the "simulator" link.

Rescue 42, Inc. Introduces The McLaski™ Wildland Combination Tool

Rescue 42, Inc. has proudly unveiled its newest product line designed for firefighters, by firefighters, The McLaski™ Wildland Combination Tool.

"The traditional tools used in I-Zone firefighting have been the McLeod and Pulaski," states long time Cal Firefighter and inventor Tim O'Connell. "I wanted a lightweight, well balanced tool that would have the best features of both plus some extras to minimize the number of tools I had to haul around on a wildland fire."

The McLaski™ actually features seven essential wildland tools: a fire rake, hoe, scraper, axe, wildland spanner wrench, gas wrench and fusee holder. Its innovative head design is well balanced and weighs in under 6 lbs to minimize firefighter fatigue, yet is extremely effective at cutting line.

The McLaski™ is available in three handle lengths, a 42" helattack, 48" standard and 60" long and use Nupla® composite handles. The 48" handle is also available in wood.

Visit www.Rescue42.com or call 888-427-3728 for more information.

RIBCRAFT Introduces New Line of Professional Grade Boats

RIBCRAFT, a leading builder of professional grade rigid inflatable boats (RIB), announced the addition of the AF Series of Inflatable for first responders and military agencies.

The AF Series, designed specifically for military, special forces, and first responders provides an alternative to the RIB for applications that require an easily transportable, shallow draft, and economical inflatable boat. Ranging in size from 14' to 19', the three AF models feature heavy duty 1880 dtx Hypalon tubes, removable rigid floors, and an innovative hull and tube design designed to carry large payloads on a plane while at

INDUSTRY NEWS

the same time delivering unsurpassed performance and maneuverability.

Each model can be fully foldable and compact for easy deployment and offer quick assembly. Like every RIBCRAFT RIB, the AF Series can be personalized to meet mission requirements.

Visit www.ribcraftusa.com for more information.

SCENEdots announces SCENEalert

With a SCENEalert kit you can convert your old 2 1/2" or 3" fire hose to a life saving visual device. Simply remove the couplings from an old fire hose and install the eight (6" high) dual side aluminum reflectors. The 50 foot hose can be unrolled in a safe area and quickly dragged onto the highway to create a highly reflective visual device,dividing the scene from the highway. When the scene is complete, simply drag the SCENEalert into a safe area and roll-up as any traditional fire hose for easy storage on the apparatus.

You can quickly deploy 50 to 100 feet of visual protection, and since each reflector is fastened to the hose at six foot intervals, the placement always remain the same distance apart. With the eight reflectors tethered together via the fire hose, SCENEalert becomes a constant visual reminder for the emergency personnel not to cross-over into the traffic area, unlike cones when placed too far apart.

For more information call 815-832-4475 or visit at scenedots.com.

Seagrave Carolina Relocates To Larger Facility

Seagrave Fire Apparatus, LLC, announced that its commercial vehicle manufacturing and apparatus service facility in Rock Hill, S.C. (Seagrave Carolina), has moved to a larger facility within the city. Seagrave Carolina relocated from its former facility on Lesslie Highway to meet its growing needs and to better serve Seagrave customers. The new facility is located at 251 North Wilson Street and has 19,500 square feet under roof. Six offices, a conference room and an employee lunch room occupy 2000 square feet of the facility. The increased office space and manufacturing area will improve operations and create efficiencies in through-put, delivery time and service on apparatus. The facility features fabrication and assembly areas, a paint booth, an inspection bay and service bays. Seagrave Carolina's phone number will remain 803-980-3575.

TECGEN XTREME™ Protective Apparel Introduced for Firefighters

Ashburn Hill Corp., manufacturer of fire-retardant apparel for industrial and firefighting applications, debuted its product, TECGEN XTREME™ protective apparel, at the Southeastern Association of Fire Chiefs' Annual Leadership Conference in Myrtle Beach, SC, June 18 and 19. TECGEN XTREME™ is a unique, dual-certified product that meets the National Fire Protection Association's specifications for wildland firefighting (NFPA 1977-2005) and technical rescue ensemble (NFPA 1951-2007).

"Currently, there aren't many products in the market that can meet both of these specifications without additional layers for protection," said Jon Heard, president and chief executive officer of Ashburn Hill Corp. "We are thrilled to bring a product to market that can provide needed protection without the added bulk."

For more info call 888.607.8883, e-mail info@tecgenfr.com, or visit the TECGEN XTREME™ Web site at www.tecgenxtreme.com.

XRT® Power Systems Introduces the XRT Smart Power Combi Power Generator

Designed to provide firefighters and emergency response professionals with the power they need to run the tools they prefer., the XRT Smart Power Combi is for applications that need PTO power and variable engine RPM, like Pumpers. The XRT Smart Power system will only use one

PTO and will allow the operator to vary engine speed, such as allowing them to drive to the scene or during pumping operation. The rescue pump will be attached to the Smart Power generator and will free up critical space by the transmission PTO and in the compartments.

"The XRT Smart Power Combi was developed to address the overwhelmingly frequent request for a single industrial power system capable of accommodating any and all hydraulic extrication tools on the market," said Robert Hansen, president, XRT Power Systems. "Our innovative, patented design is the most versatile system on the market, consistently delivering the shortest time between arrival and extrication."

For more information, contact 800-343-0480 or visit www.xrtcombi.com

Chester Fire and Rescue
2009 KME/Spartan Challenger Pumper w/Spartan chassis, Cummins ISC, 330 hp, 1500 GPM Hale QMax-150 pump, 750 gal. poly tank, hard sleeve suction hose stored in driver side hose bed.
Delivered by Slagle's Fire Equipment Co., Inc.

Dutchman Creek Volunteer Fire Department
2009 KME International Top Mount Pumper Tanker w/Navistar chassis, International Maxx Force 8, 330 hp engine, 1500 GPM Hale QMax-150 pump, 1000 gal. poly tank, pike pole storage.
Delivered by Slagle's Fire Equipment Co., Inc.

Fairview Volunteer Fire Department
2009 KME-International Eliptical Tanker w/Navistar chassis, International Maxx Force 9, 330 hp engine, 1250 GPM Hale pump, 2000 gal. eliptical tank, 10" pneumatic round dump in rear.
Delivered by Slagle's Fire Equipment Co., Inc.

Edmund Station 13
2008 Freightliner Commercial Tanker w/Freightliner chassis, Cummins ISC 330 hp engine, 750 GPM Hale pump, 1500 gal. poly tank, 2500 gal. port-a-tank storage rack, booster reel in dunnage area.
Delivered by Slagle's Fire Equipment Co., Inc.

South Congaree
2008 KME Spartan Metro Star/KME Pumper w/Spartan chassis, CAT C9 engine, 1500 GPM Hale pump, 1000 gal water/20 gal. foam pump, custom paint by KME.
Delivered by Slagle's Fire Equipment Co., Inc.

Lovelady Volunteer Fire Department
2009 KME/Freightliner CAFS Pumper/Tanker w/Freightliner chassis, Cummins ISC 330 hp engine, 1500 GPM Waterous pump, 1000 gal. water/25 gal. Class A foam tank, FoamPro power fill/refill system.
Delivered by Slagle's Fire Equipment Co., Inc.

Lowell Volunteer Fire Department
Slagle Brush Master Ford F-550, 4 door XLT w/Ford chassis, powerstroke 6.0 V-8 engine, 250 Waterous pump, 300 gal. water/8 gal. foam tank, Scotty Around the Pump foam system.
Delivered by Slagle's Fire Equipment Co., Inc.

City of Mullins
2009 International 7600 2 door Commercial Pumper/Tanker w/International chassis, Cummins ISM 410 hp engine, 1500 GPM Hale QMax pump, 2500 gal. fiberglass tank, portable tank storage trough.
Delivered by Slagle's Fire Equipment Co., Inc.

City of New Ellenton
2009 International KME 4400 Pumper/Tanker w/International chassis, MaxxForce 9, 330 hp engine, 1250 GPM Hale QFlo pump, 1000 poly tank, painted steel electric rewind booster reel.
Delivered by Slagle's Fire Equipment Co., Inc.

Rock Ridge Volunteer Fire Department
2009 KME Predeator Severe Service Pumper w/KME chassis, Cummins ISM, 385 hp engine, 1250 GPM Hale QMax pump, 750 gal. poly tank, 5 SCBA seats in cab, 6" front suction, O.A.H. - 9' 5".
Delivered by Slagle's Fire Equipment Co., Inc.

Rolesville Volunteer Fire Department
2009 KME International 4400 Eliptical Tanker w/Navistar chassis, International Maxx Force 9, 330 hp engine, 1250 GPM Hale pump, 200 gal. eliptical tank, 10: pneumatic round dump in rear.
Delivered by Slagle's Fire Equipment Co., Inc.

White Marsh Welches Creek VFD
2009 Ford/Slagle Brushmaster F350, 4x4 w/Ford chassis, Hale 100x, 18 hp pump, 225 water/10 gal. foam poly tank, booster reel w/200' of 1" booster hose, (2) 120 v flood lights on each body side.
Delivered by Slagle's Fire Equipment Co., Inc.

NEW DELIVERIES

Bay Leaf Fire Department
2009 Pierce Custom Contender w/Pierce chassis, Cummins ISL 425 hp engine, 1250 GPM Waterous pump, 1000 gal. UPF Poly tank, 10 kw hydraulic generator, LED wearning lights, foam system.
Delivered by Triad Fire, Inc.

Boone Trail Emergency Services
2009 Pierce Custom Contender Pumper w/Cummins ISL 425 hp engine, 1250 GPM Hale QMAX pump, 750 gal. UPF poly tank, full height and depth compartments, hydraulic ladder rack, 3 kw light tower.
Delivered by Triad Fire, Inc.

Cool Springs Volunteer Fire Department
2009 Pierce Contender Tanker w/Kenworth chassis, CAT C15 475 hp engine, 1000 GPM Hale Q-PAK pump, 3,500 gal. UPF poly tank, speedlays, side dumps, rear dump, stainless steel wrapped poly tank.
Delivered by Triad Fire, Inc.

Eastwood Fire Department
2009 Pierce Custom Contender Pumper w/Pierce chassis, Cummins ISL 425 hp. engine, 1250 GPM Waterous CS pump, 1000 gal. UPF poly tank, electric cab windows, enclosed ladder storage.
Delivered by Triad Fire, Inc.

High Point Fire Department
2009 Pierce Arrow-XT Custom Pumper w/Pierce chassis, DDC Series 60 455 hp engine, 1500 GPM Waterous CSU pump, 500 gal. UPF poly tank, Husky 12 foam system, enclosed ladder storage.
Delivered by Triad Fire, Inc.

Mint Hill Volunteer Fire Department
2008 Pierce Velocity 105' Aerial Ladder w/Pierce chassis, DDC Series 60 515 hp engine, 2000 GPM Waterous CSU pump, 500 gal. UPF poly tank, TAK4 IFS, side roll protection, 750 lb. tip load.
Delivered by Triad Fire, Inc.

Morrisville Fire Department
2009 Pierce Custom Contender Pumper w/Pierce chassis, Cummins ISL 425 hp engine, 1500 GPM Hale QMAX pump, 1000 gal. UPF poly tank, Husky 12 foam system, hydraulic ladder rack.
Delivered by Triad Fire, Inc.

Raleigh Fire Department
2009 Pierce Arrow-XT Custom Pumper w/Pierce chassis, CumminsISL 425 hp engine, 1500 GPM Waterous CSU pump, 500 gal. UPF poly tank, LED warning lights, speedlays, 120 VAC lights.
Delivered by Triad Fire, Inc.

Troutman Fire Department
2009 Pierce Arrow-XT 105 PAL 105' Aerial Ladder w/Pierce chassis, 2000 GPM Waterous CSU pump, 500 gal. UPF poly tank, 750 lb. tip load, TAK4 IFS, front impact protection, side roll protection.
Delivered by Triad Fire, Inc.

Troutman Fire Department
2009 Pierce Arrow-XT Pumper w/ Pierce chassis, 1500 GPM Waterous CSU pump, 1000 gal. UPF poly tank, air actuated Newton dump, TAK4 IFS, front impact protection, side roll protection.
Delivered by Triad Fire, Inc.

Wake-New Hope Volunteer Fire Department
2009 Pierce Custom Contender Pumper w/Pierce chassis, Cummins ISL 425 hp engine, 1500 GPM Waterous CSU pump, 1000 gal. UPF poly tank, front inlet, foam system, 7.2 kw generator.
Delivered by Triad Fire, Inc.

Weaverville Fire Department
2009 Pierce Saber Encore Rescue w/Pierce chassis, Cummins ISL 425 hp engine, roof compartment storage, 25 kw PTO generator, 3 kw light tower, low pressure tool air reel.
Delivered by Triad Fire, Inc.

Advance Volunteer Fire Department
2008 Anchor-Richey EVS F-550 Wet Rescue Vehicle w/Ford chassis, 6.4 powerstroke diesel, 300 GPM Waterous E-511 A pump, 300 gal. poly tank, 12 volt extendable scene lights with ATP covers.
Delivered by Anchor-Richey EVS

Hugh's Pond Volunteer Fire Department
2008 Anchor-Richey EVS Bullett Flatbed Brush Truck with transverse compartment, Sterling chassis, 6.7 Cummins diesel engine, 245 GPOM Hale HPXB-200 pump, 300 gal. poly tank.
Delivered by Anchor-Richey EVS

New Salem Volunteer Fire Department
2009 Anchor-Richey EVS 5500 Flatbed Brush Truck with transverse compartment, 6.7 Cummins diesel engine, Dodge chassis, 245 GPM Hale HPXB-200 pump, 300 gal. poly tank.
Delivered by Anchor-Richey EVS

SC Forestry Commission
2009 Anchor-Richey EVS 5500 Wildland Fire Flatbed w/Dodge chassis, 110 GPM Waterous E-501 high pressure pump, 300 gal. poly tank, Foam Pro 1601 foam system, custom compartments.
Delivered by Anchor-Richey EVS

Surfside Beach Fire Department
2008 Anchor-Richey EVS Bullet Multi-Purpose Response Vehicle w/ Sterling chassis, Cummins 6.7 litre diesel engine, 300 GPM Darley 1-1/2 age 26 L/D pump, 300 gal. poly tank, 3000 watt generator.
Delivered by Anchor-Richey EVS

Lower Currituck
2008 Dodge 5500 4x4 Brush Truck w/Dodge chassis, 300 GPM 21 hp diesel pump, 300 gal. poly tank, all LED emergency lighting, foam system, all aluminum body and compartment construction.
Delivered by Bay Fire Products, Inc.

Cherryville Rescue Squad
2008 Polaris Range 700 XP Utility Vehicle for off road rescue w/700 EFI engine, 4x4 Medlite Skid unit, LED warning lights, movable 4500 lb. winch, graphics by Transcal Graphics.
Delivered by Al Lane Motorsports

Mountain Park Rescue
2009 M&W 14' Rescue w/GMC 5500 chassis, Duramax engine, 20 kw PTO generator, 6000 watt Command light, air compressor.
Delivered by Mid Carolina Emergency Apparatus, Inc.

Kannapolis Fire Department
Seagrave Marauder II w/Allison EVS 4000 transmission, pumper powered by 455 hp Detroit, 1500 GPM Waterous pump, hydraulic tool plumbed in front pumper, 10 kw generator, LED lighting.
Delivered by Seagrave Carolina

Gamewell Fire Department
2009 Ferrara Pumper/Tanker with Peterbuilt chassis, Cummings engine, 1250 GPM Waterous pump, 1000 gal. poly tank, rear 10" Newton dump, double crosslays, Q2b siren, aluminum wheels.
Delivered by First Choice Fire & Safety, Inc.

Haw River Fire Department
2009 Ferrara Intruder II Pumper/Tanker w/Ferrara chassis, Cummings 400 hp engine, 1500 GPM Waterous pump, 1000 gal. poly tank, Willburt light tower, 10 kw hydraulic generator.
First Choice Fire & Safety, Inc.

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NEW DELIVERIES

West Liberty Volunteer Fire Department
2009 Rosenbauer Commercial Pumper w/International chassis, 1500 GPM Hale Qmax pump, 1500 gal. poly tank, vertical light tower, internal mounted ladders, pike poles and suction hoses.
Delivered by C.W. Williams & Co., Inc.

South Edgecombe Rural Fire Department
2009 Rosenbauer Top Mount Pumper w/International chassis, International MaxxForce 330 hp engine, 1250 GPM Darley pump, 1250 gal. poly tank, internatl Fold-A-Tank storage.
Delivered by C.W. Williams & Co., Inc.

Sloop Point Volunteer Fire Department
2008 Rosenbauer Custom Pumper w/Spartan chassis, Cummins ISL-400 engine, 1500 GPM Waterous pump, 1000 gal. poly tank, Rosenbauer Safe Step compartment steps.
Delivered by C.W. Williams & Co., Inc.

Roseboro Fire Department
2009 Rosenbauer Custom Pumper w/Spartan chassis, Cummins ISL 425 hp engine, 1500 GPM Waterous pump, poly tank, rear door on cab for entry and exit, internal ladder storage.
Delivered by C.W. Williams & Co., Inc.

Fire District #28, Inc.
2009 Patriot 2000 Gal. Elliptical US Tanker Fire Apparatus w/International chassis, 330 hp engine, 500 PTO GPM HM 500 Darley pump, 2000 gal. UST/UPF tank, stainless steel body.
Delivered by C.W. Williams & Co., Inc.

City of Claremont
2009 Rosenbauer Custom Pumper w/Spartan chassis, Caterpillar 400 hp engine, 1500 GPM Hale Qmax pump, 1000 gal. poly tank, recessed square body design, low mount speedlays.
Delivered by C.W. Williams & Co., Inc.

Bunn Rural Fire Association
2009 Hackney Heavy Rescue w/Spartan chassis, space saver fill station, front bumper hydraulic reel with tool storage, custom paint by Hackney.
Delivered by C.W. Williams & Co., Inc.

East Gaston Volunteer Fire Department
2009 Smeal Custom Side Mount Pumper w/Spartan Gladiator LFD chassis, 455 Detroit S60 engine, 200 GPM Waterous pump, 1000 gal. pro-poly tank, full depth departments, 30 gal. foam cell.
Delivered by Metrolina Fire & Rescue

Alexis VFD
2009 Smeal Custom Side Mount Pumper/Tanker w/International 7600 chassis, 430 hp Caterpillar engine, 1250 GPM Waterous pump, 3000 gal. pro-poly tank, trip air operated 10” Newton dumps.
Delivered by Metrolina Fire & Rescue

Powellsville Volunteer Fire Department
2009 E-One Tradition ES Top Mount Pumper w/International chassis, Maxxforce 330 hp engine, 1250 GPM Hale Qflo pump, 1000 gal. poly tank, roll up doors, LED lights, extended body.
Delivered by Fire Connections, Inc.

Hughes Pond Volunteer Fire Department
2009 E-One 1800 Tanker w/International 7400 chassis, Cummins 330 hp engine, 1250 GPM Hale pump, 1800 gal. poly dry-side tank, Newton dumps, dual tank fills in rear, stainless wheel covers.
Delivered by Fire Connections, Inc.

Falkland Volunteer Fire Department
2009 E-One 2 Door Commercial Top Mount Pumper w/Freightliner chassis, Cummins ISC 330 engine, 1250 GPM Hale Qflo pump, 1030 gal. T type poly tank, FoamPro 1600 Class A foam system.
Delivered by Fire Connections, Inc.

☚Emerald Isle
2009 E-One Typhoon Custom Rescue Pumper w/E-One chassis, Cummins ISC 360 hp engine, 1500 GPM Hale Qmax pump, 1030 gal. poly tank, ROM LED lights, Will-Burt 4500 watt light tower.
Delivered by Fire Connections, Inc.

☛ Brogden Rural Volunteer Fire Department
2009 E-One Typhoon Resuce Style Custom Pumper w/E-One chassis, Cummins ISC 330 hp engine, 1500 GPM Waterous CSU pump, 1030 gal. poly tank, 8 kw Smartpower generator, Brow lights.
Delivered by Fire Connections, Inc.

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