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Hello, B Shifters. Welcome back. It was a hot, busy summer, and we just now feel ready (and excited!) to attend our 4th Annual Hazard Zone Conference at the lovely University of Notre Dame Oct. 21-23. We hope to see you there. It’s always a nice turnout, and I truly enjoy meeting everyone.

If you look at the photo to your right, you’ll see a picture of my younger self staring back at you. Check out that old gear. One piece of equipment you won’t see in any of the pictures from this particular point in time is a portable radio. Back then, we had to yell (a lot) and shine our flashlights at one another to communicate. What a gift it’s been to have portable radio devices. The radios we have now are much better than the radios we didn’t have back then, but there is (as always) room for improvement. None of us can say the radios currently available to the fire service always hit the mark. In fact, several LODD deaths can be attributed in part to failed communications systems. If there is any way to prevent tragedies of this nature, we’ve got to do it. Looks like help is on the way. The NFPA is developing a standard that will improve portable radio performance in several capacities—including the radios ability to withstand high temperatures. In his article Radio Rehab, Mike Worrell discusses how the current radio standards fall woefully short, what those shortcomings have meant to the fire service and ways NFPA 1802 will improve and standardize radio performance.

In this episode of our online journal, we turn over our Command Training column to David Piper with the Orland Fire Protection District, which sits just southwest of Chicago. David and the folks at OFPD have a lot of irons in the fire, so to speak. Not only do they have formal automatic-agreements with five neighboring departments (where they are first due) but they are part of three MABAS divisions. OFPD created a fantastic Command Training Center, where they trained both their internal staff as well as their response partners. It was a large-scale task, and they made it look easy.

I always enjoy reading our Managing a Fire Company column by Chris Stewart. Company officers play such an important role—they are the leaders our troops connect with in the most meaningful and most real way. In this issue’s column, Excuse me. Your Complacency Is Showing, Chris talks about what it means to be an enlightened company officer. By his estimation, “enlightened” means strong, focused, present, calm and safety-oriented. I think we all know what it’s like to work for a company officer who is none of those things. It doesn’t make for a very effective (or happy) crew.

Thanks for tuning in to B Shifter. If you have any comments or questions, please email us at editorial@bshifter.com.
A HISTORY OF INNOVATIONS

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I was watching a presentation about the performance characteristics of lightweight construction under fire conditions. The instructor showed a picture of Trus Joist I-Joists (TJIs) that were burned beyond recognition after just a few minutes of fire exposure. “If these structural members are the ceiling of a basement,” he said, “the best initial water application is from exterior positions.” He qualified his statement with scientific findings that show water delivered with a straight stream doesn’t push fire and operating directly above these structural conditions has a tendency to dump you into a burning basement.

After the presentation, I exited the room with a very experienced company officer. He shook his head in disbelief and said, “All this new research runs counter to everything my department has been doing for my whole career. What’s your take on it?” Being unable to do the subject justice, I settled with, “I hear you. During my career, the transitional fire attack might as well have been a rainbow-colored Pegasus. Neither one of them existed in my world. In fact, I could have described and define the winged horse, but “transitional attack” was meaningless gobbledygook. To be honest, at this stage of my life, I’m too far removed from the thrill of interior attack to care one way or the other.” My response left both of us quietly contemplating the meaning of life.

His question was a legitimate one. During my recruit indoctrination, I learned 1) to attack structure fires from the unburned side; 2) very aggressive air-management practices; and 3) the difference between a diabetic coma and insulin shock. There was no mystery as to when, where and how to apply water to the fire—never into smoke, only up close and from the inside, preferably whipping the nozzle in large circles while flowing 125 GPM from a 60-degree fog pattern. You could have an empty cylinder of air on your back with your helmet on backward, but only cowards opened nozzles from outside positions and applied water through windows. We were much more flexible and forgiving when it came to the EMS side of our ledger. As an example, diagnosis for all diabetic emergencies eventually fell under the catch-all term “sugar-betes.”
Many of us quickly confused the signs and symptoms for diabetic coma and insulin shock. In the end, terminology didn’t make very much difference when you consider that our standard BLS treatment protocol for all diabetic emergencies included high-flow oxygen followed by a mouthful of honey.

On the first day of our academy, we were issued long turnout coats, ¾ day boots, a Nomex hood and an SCBA. We learned the preferred form of structural firefighting was built around a fast, aggressive, offensive interior attack. The cornerstone of this tactic was a 1½” attack line with a 125 GPM turbojet fog nozzle. The only time we ever operated on the exterior of burning buildings was if the fire was so intense that our gear started smoking or if the building started to fall apart. The operational requirement of interior water application had a powerful, unifying effect. It didn’t matter your ethnicity, sexual preference, gender, religion or political belief. Our baseline was your ability to press an attack on the inside of burning buildings. Everything else was negotiable.

*You could have an empty cylinder of air with your helmet on backward, but only cowards opened nozzles from outside positions.*

I learned firsthand how effective outside water application could be during the first few years of my career when my old captain transferred to another station. Our new fearless leader was the department’s most recently promoted company officer. He previously worked as the engineer assigned to the ladder company that ran out of our station. I had first laid eyes on this individual three years earlier. I was riding the tailboard of a staged second-due engine company at the scene of a small house fire. The first-in engine company quickly brought the fire under control with an interior attack. The ladder company was venting the roof. They had the hole cut and pulled and were attempting to punch out the ceiling with a 16’ pike pole. This seemed odd to me for a couple of reasons. First and foremost, the fire was out—to the point that the first-due engine company had pulled their attack line outside. The second puzzling thing was that the 16’ pike pole they were using was taller than the house.

The house had lathe-and-plaster ceilings, and the pike was so long my future captain could not use the hook end as a handle. Basically, he was using a smooth fiberglass pole to punch through a 2” ceiling that was equal parts wood, steel and cement. He shouted to his partner on the ground to get him a shorter pike. His partner told him the fire was out, so they didn’t need to punch out the ceiling. This quickly escalated into a screaming match regarding proper tool selection. The engineer on the ground picked up the attack line and playfully sent a short, two-second burst of water at the roof crew. My future supervisor’s response was to throw his 16’ pike pole like a javelin toward his fellow truck-company engineer. Usually, this level of passion is reserved for the fire-attack phase of the incident operation. It explains why freelancing companies typically don’t hurry to lay supply lines or charge into the scene to perform salvage operations. We rush to risk, not to support.

**The Insiders**

It was organizational folly that allowed a former peer to transition directly from worker bee on the ladder company to officer of one of the engine companies that ran out of the same fire station. We did not really think of our new captain as our boss. It was kind of like waking up to find that your kid brother had become your father. The honeymoon period for our crew ended when the firefighters trounced our hyper-competitive engineer and new captain in the board game Trivial Pursuit. This is when he turned the corner from “buddy to boss.” He began to micromanage us on EMS calls and forced us to lay supply lines when we were first in on working fires. The final straw came when
we refused to comply with his directive to assemble in front of our apparatus and await his orders prior to taking any action at the scene of structure fires. This would have effectively eliminated us from the initial attack of every structure fire we worked. Within hours of this autocratic edict, some anonymous scoundrel blew up his locker. This felonious act took place in a fire station that housed 20 firefighters. I maintain it was his former truck-company partner taking advantage of the situation to get payback for past tool-throwing incidents.

It Was Over before It Started...
No one can hurt you like those who know you best. Our fearless leader knew that saddling his crew with stupid orders to demonstrate his power would lead to a stalemate at best. He finally gained the upper hand by attacking the very thing that made us members of the cult. This began one night when we responded to a fire in an old, large, single-story commercial building that housed a machine shop. Our company laid a supply line to the Charlie side and pulled a large-diameter attack line to a set of double doors our ladder crew was forcing open. The nozzle hissed to life as we bled the air out of the smooth-bore tip. As the ladder crew swung the heavy doors open, we spotted The Perfect Fire. The back wall was framed in a solid sheet of flame. The large, broken front windows vented most of the heat and smoke, providing us excellent visibility. Before we could advance our line across the threshold, our captain climbed on top of the rig and opened the deck gun, hitting the fire with a 1,000 GPM smooth-bore master stream. Within a period of 30 seconds, he extinguished the fire, eliminating our fast, aggressive, offensive interior-attack field trip. He shut down the deck gun, stood tall on top of our rig and laughed at us. He stopped just long enough to say, “Get used to it, assholes. Mr. Deck Gun and I are running the show now.”

What followed was a war of attrition that we firefighters could never win. For the next couple months, our captain and Mr. Deck Gun held us hostage. We watched the pair extinguish dozens of fires in less than a minute with one 500-gallon tank of water. Our captain and engineer commented that they only needed the three firefighters to take blood pressures on EMS calls, check hydrants and wash dishes. The other companies we ran with teased us at first. Things changed when it became apparent that our captain’s new tactical approach was also eliminating their chance to play in the land of fast, aggressive, offensive interior attack. Every multi-company response became an intervention. Firefighters from other companies pleaded with us to make amends with our captain in an effort to put a sword through his too-effective Mr. Deck Gun attack.

Looking back, it’s pretty easy to see that our attack philosophy wasn’t a best practice—it was an addiction.

All Pride Aside: Use What Works
This era in my young firefighting career came to an end when our engine company was converted from BLS to ALS. Our company traded Mr. Deck Gun’s tactics for a pair of paramedic firefighters and a 30 percent increase in call volume. The two medics coming in displaced one of the firefighters (me) and our captain’s favorite engineer. I ended up assigned to a neighboring company where I was re-immersed in the world of fast, aggressive, hard-hitting, offensive interior operations. This pilgrimage allowed me to once again test the limits of my gear and training, returning me to the holy practices of our cult.

Looking back on all of this, it’s pretty easy for me to see that our attack philosophy wasn’t a best practice—it was an addiction. During Mr. Deck Gun’s
three-month reign, there was never a time when we pushed the fire or killed victims trapped inside. In every instance, blasting 1,000 GPM with a 2" stream of water immediately extinguished the fire. It turns out that my former captain’s payback scheme was 30 years ahead of its time. Today’s science and research clearly demonstrate that we are no longer responding to our fathers’ (or even my) structure fires. The fact that we are responding to half as many structure fires as we did a decade ago yet maintaining the same injury and fatality rates bears this out. New buildings are the product of more engineering and less mass. That, combined with today’s plastic fire load, has structure fires burning hotter and faster, and buildings falling down more quickly. More heat release requires more GPM. These increased hazards require us to manage our safety more vigorously.

Maybe it’s a product of surviving my days on a company and promoting to a position where I was responsible for the safety of fire companies. I scratch my head when I hear firefighters condemn an effective tactic that will outperform every other in certain tactical situations. Writing this off as a “coward’s tactic” is every bit as misplaced as taking the attack lines off the rig. One thing remains unchanged: The fastest water application will generally win. Sometimes that water should come from the outside in.

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Nick Brunacini joined the Phoenix Fire Department (PFD) in 1980. He served seven years as a firefighter on different engine companies before promoting to captain and working nine years on a ladder company. Nick served as a battalion chief for five years and in 2001, he was promoted to shift commander. He then spent the next five years developing and teaching the Blue Card curriculum at the PFD’s Command Training Center. His last assignment with the PFD was South Shift commander; he retired from the department in 2009. Nick is the author of “B-Shifter—A Firefighter’s Memoir.” He is also the co-author of “Command Safety.”
Buildings are classified into five construction types: Type I fire resistive; Type II noncombustible; Type III ordinary; Type IV heavy timber and Type V wood frame. When we evaluate a building’s fire hazard, we consider both the combustibility of the structural materials and the contents. The amount of combustible material used in a structure varies in the hierarchy of the building classifications. Type I has the least amount of combustible material built into it, and Type V has the most. However, certain fuels often present in Type I (high rises) and Type II (new or remodeled commercial structures) require careful consideration:

- Combustible asphalt roof covering—asphalt or tar with paper and plastic insulation between the layers;
- Combustible electric cable insulation—electric cables covered with combustible insulation that winds throughout a building’s concealed spaces.

An IC’s major goals when responding to a contents fire in a Type I or II building is to keep flames from spreading to either the combustible roof covering or to any concealed space where combustible electric cable might be hiding. Firefighters can easily locate combustible roof covering and check it for fire spread, but miles and miles of combustible electric cable can remain hidden in the spaces behind walls, above ceilings, under floors and beyond closet doors. Further complicating things, the insulation covering these cables can include PVC, which produces thick smoke and highly acrid, irritating fumes (hydrogen chloride). Additionally, the cable insulation used before 1979 can also include polychlorinated biphenyl (PCB). PCB is known to cause cancer; if an IC suspects the fire might emit PCB, they must declare the fire a hazmat incident and request environmental protection personnel to the scene. Firefighters exposed to PCBs must undergo decontamination procedures.

Most firefighters know the strategies to employ for a burning asphalt or tar roof; fewer know what strategies to use when dealing with combustible electric cable insulation. This article will review those strategies and discuss the many places this cable can hide and cause trouble.

**Ceiling Spaces**

Electric cable enters Type I or II buildings through the cellar utility room via the foundation. It rises up the building through encased utility closets, spreading out on each floor either above suspended ceilings (in the plenum) or below the floor (in the interstitial space). These concealed spaces also sometimes house the HVAC system.

When suspended in the plenum, the cable’s flammable covering can...
ignite if fire spreads up during a contents fire. Fire can also start in the cable itself if it overheats due to a short circuit. In either of these cases, the fire spreading along the cable in the concealed space can melt the plastic and rain flaming droplets onto remote areas of the structure. If the heat from a fire in the plenum destroys the ceiling supports, the entire suspended ceiling can collapse on firefighters working below.

Large volumes of smoke can develop during the initial stages of a fire that has burned undetected. In these cases, falling ceiling tiles can displace the thick, blinding smoke, sending it in a rush to different levels within the structure. This can prove disorienting to firefighters and can impede their escape. When fire and smoke are suspected in a ceiling space, raise a ceiling panel with a pike pole to check the area above the ceiling. If fire is discovered, notify the IC.

**Floors**

A fire in a suspended ceiling can also spread up through the floor in Type I and II buildings. Floors in modern Type I and II structures can be constructed of two or three inches of concrete poured on top of corrugated steel sheets. If a fire burns in a suspended ceiling for a long time, flames can spread through the floor via cracks or “poke-through holes.” At some serious multiple-alarm fires, the steel underside of floor above the hottest part of the fire can sag, and the concrete above the steel can crack open several inches, heaving upward or downward. Flames then spread through the crack. Here's how one eyewitness described such an incident at a high-rise fire:

*First, the floor above the fire filled up with smoke, heat and combustible gases. Next, a so-called “pilot” flame rose up through a crack in the concrete floor. It rose up several feet and suddenly ignited the combustible superheated gas cloud that was descending down from the ceiling.*

Floor after floor, this cycle recurred: A floor filled up with superheated combustible gases, and then the “pilot” flame came up through the cracked and sagging floor, igniting those gases. As we can see, fire can spread through the floor in a Type I or Type II building during a serious fire. Even at minor fires, check the floor or rug for scorch marks. They can indicate fire spreading through a crack in the floor.

**Fire in the (Man)Hole!**

As explained previously, electric power cables for Type I and Type II buildings feed into the structure via underground transmission wires. When a fire occurs in a manhole due to arcing or a short circuit, it can spread to the buildings receiving the electrical supply. The larger and taller the building, the more transmission wires it has feeding into it. The more transmission wires it has, the more likely it is that fire can spread from a manhole. Firefighters must check any buildings near a manhole fire to ensure the burning street cables haven’t spread fire to the cellars. Check the basement electrical supply rooms whenever a fire or explosion occurs in a manhole, underground vault or utility pole.

Let’s say a short circuit occurs in an underground cable and starts a fire. The cable’s insulation releases noxious gasses as it burns. The fumes build up, and the manhole explodes. Firefighters are dispatched to the scene for the explosions, unaware the fire has already spread via the underground conduits to a nearby structure’s basement utility room. After size up, the IC calls the utility company to shut off the building’s electrical supply. This may take awhile,
depending on the utility company’s response time. During this period, large quantities of toxic smoke rise through the building. Loud explosions echo through the cellar as trapped people yell for help or make their way down the stairs through the choking smoke. While awaiting the utility workers and evacuating people, firefighters should stage in the cellar near the utility room, using a hose to protect exposures. A charged hoseline must be ready and positioned out of the smoke area if possible. Firefighters should keep the door to the utility room closed to contain the smoke. Vent the room to the outside at street level. Because the toxic smoke proves such a major hazard, ensure firefighters wear breathing apparatus—even when only light smoke conditions exist.

Utility Closets
When electrical cable fire is suspected, firefighters must check for vertical fire spread within the shaft that rises up through the utility closets on all floors. The wire, cable, piping and conduit rise up through poke-through holes in these closets. These openings allow fire, heat and smoke to spread. This type of fire can move flame and smoke 10, even 20, floors quickly. In fact, fire can spread vertically in a utility closet as quickly as fire spreads in the combustible lath-and-wood furring found in ordinary constructed buildings. However, there will be much more smoke.

Flames consuming the electric cables in a utility closet can skip several floors and then break out. In his book, “High Rise Fire and Life Safety,” John T. O’Hagen explained how one fire spread rapidly through an 11th-floor utility closet, made its way through louvered vents and quickly spread to the 41st floor.

To be thorough, firefighters must check the utility closet on every floor of a high rise, including the cellar. In addition to spreading upward, flames can also spread downward via poke-throughs in the floor. Smoke and heat can break out of an upper floor while the original fire is in the basement. The firefighting strategy is the same as any shaft fire: one line goes to the source of ignition, and another line goes to the upper floors to cut off the leading edge of fire spread. Then check all intermediate floors above and below, including the cellar utility room. Before attempting extinguishment, confirm the power has been shut off with building management or the utility company.

Curtain Walls
When a combustible cable fire occurs in a suspended ceiling, search the floor above, including the outer perimeter, for fire spread. Modern Type I and II buildings sometimes have an exterior curtain wall that encloses the structure, like an outer skin. It can be constructed of aluminum, stainless steel, glass, masonry or plastic. It extends over the entire face of the building and is bolted to the outer edge of the floor slabs on each level. However, there can be small spaces between the outer edge of the floor slab and the inside of the curtain wall, through which flame can spread to floors above. This space at the edge of the floor slab must be examined. If this concealed space is not fire-stopped with noncombustible filler, fire and smoke can spread vertically from a suspended ceiling below. Open up the outer wall partitions below the window on the floor above the fire and check them. Some older Type I or Type II buildings do not have curtain-wall construction. They have an exterior panel wall: a nonbearing brick wall that rests on the outer edge of the floor slab. There is no small space in these panel walls that allow fire to spread.
Computer Rooms
When searching an office building, firefighters must look for a concealed fire in the space below the computer room’s floor. Some computer rooms have raised floors over an interstitial space that contains lots of combustible electric cable. If a building manager states there is fire in the interstitial space, or if you enter a room to search and you see smoke coming up from the floor, start pulling up floor panels to check the space below. Fire might occur in this space and fill a room with smoke. This interstitial space might also serve as an air-handling space similar to a ceiling plenum, and if the HVAC system is not shut down, it will force-feed the fire the oxygen it needs to thrive. Any time an electrical fire is suspected in a concealed space, ceiling or floor, the IC must ensure the air system is shut off or it will force feed the fire oxygen.

HVAC
As mentioned previously, electric cable is often placed in the air-handling space above or below the floor, so the IC must have the HVAC system shut down. Many HVAC systems are connected to the smoke-detector system, and when a smoke detector activates, the air system automatically shuts off. However, this is not always the case. Upon arrival, the IC must confirm the system is off. If not, the system will pump smoke throughout all floors connected to it. Even when shut down, smoke will still spread throughout the ducts by normal convection currents. Smoke dampers inside the ducts are required by law and are designed to close during a fire. However, these dampers are heat activated, and even deadly smoke might not be hot enough to activate the dampers. Notify the IC if smoke is seen coming from an air-system outlet and ensure the system is shut down.

Conclusion
Combustible cable fires increase a structure’s fuel load, and their presence will only increase as technology progresses. In some instances, old combustible cable remains in concealed spaces even when it is cut and deactivated. This means thousands of miles of new and old combustible cable is stuffed in closets, behind walls and above suspended ceilings. Just take a look behind your desk, and you will see a small version of a growing fire problem. Combustible cable can spread flames rapidly and generate smoke in great quantities. When inspecting new construction, consider the following:

1. If combustible plenum cable is installed in a building that has automatic sprinkler protection, the sprinkler should be extended and installed in the spaces containing the combustible cable.
2. Encase combustible cable in metal conduits.
3. Replace the combustible plenum cable with noncombustible. BS

Chief Vincent Dunn, FDNY (ret.), is a 40-year veteran. He is the author of “Collapse of Burning Buildings” (Fire Engineering, Revised 2010); “Safety and Survival on the Fireground” (Fire Engineering, 1992); “Command and Control of Fires and Emergencies” (Fire Engineering, 2000); and his most recent textbook “Strategy of Firefighting” (Fire Engineering 2007). He can be contacted at vincentdunn@earthlink.net or 800.231.3388. Visit him online at www.vincentdunn.com.
The Friendly Audit

Audits have a bad reputation. Let’s reclaim this positive safety-review concept to make our departments better.

BY FOREST REEDER

I was just about to board a flight recently, and as I was standing on the jetway, a little index card posted near the controls caught my eye. It was titled, “Random Safety Audit,” and it was marked with that day’s date. It had three bullet points highlighting the proper steps for positioning the jetway in relation to the plane, along with a note about confirming these steps with the flight crew before passengers or crews entered or exited the aircraft. I figured that a boss-type person or safety inspector would drop by and verify the steps were completed or maybe review the audit information with the crews. I also considered that maybe a regulatory agency (the FAA perhaps) or the local airport authority had created this process as part of an on-the-job training or reinforcement program. The people in charge probably selected the skills, job duties and other things included in this audit after near-miss incidents, or perhaps these are high-frequency tasks that require personnel to verify several steps prior to travelers using the jetway. Although obvious teaching opportunities exist when employees skip steps or fail to complete them properly, I would hope that the boss looks for chances to catch the crews doing things right and lets them know they were successful. This is likely the most important part of this random safety audit.

What I liked about the audit concept is that the boss didn’t just visit the jetway and make an “inspection” of the task being (or having been) performed. The system was frontloaded for the crew’s success! Frontloading in this context means that the system provided employees with the necessary resources before the audit took place—in this case, a list of what would be checked. Similarly, the Blue Card System is all about frontloading the incident response so the IC can put resources to work as needed instead of delaying tactics or reinforcing positions due to time delays. As a trainer, you should always attempt to frontload your training efforts by providing information ahead of time. I refer to these as outcomes instead of objectives. It’s a basic element of adult learning—adults usually prefer to be prepared for learning by knowing what they are going to do ahead of time. Most adults dislike being put on the spot—especially firefighters in a peer group who watch and listen to each other to find any misspeak or misstep that can be used against the victim for the rest of the shift or career. If the jetway folks suddenly saw a boss watching them put the jetway into position with a checklist in place, lots of internal questions would fill their brains (many not pleasant), which could lead to errors and omissions. Instead, the card in front of them was very clear and specific as to what they must do or must know, which are critical parts of training needs.
assessments. Needs assessments identify necessary training, skills or knowledge and are most effective when kept in plain sight, so to speak. It’s almost a subtle marketing message—keeping the steps or information out in front of the students to ensure consistent outcomes. Line cooks often receive photos of how food needs to be placed onto serving plates so the same things come out each time. This probably happened because some corporate executive who traveled to many restaurants in the chain discovered sloppy or inconsistent plating. What better way to achieve consistent outcomes (and then accountability in performance) than to have a photo of the product (similar to the airline crews’ index card of the steps) in front of the cooks all of the time? In our world, the skills and knowledge that fall into the must-know or must-do categories are usually things that if not known or done might result in death or injury.

Like many things from outside the fire service that scramble through my brain, I thought, “How can we use this simple, random safety audit to catch people doing things right and find opportunities to improve skills and knowledge?” A bunch of questions and concerns flooded my brain: How can we get buy-in? Who’s the boss-type person who will perform the audit during the shift? How frequently would this take place? What about the content and references piece and the all-important documentation component? Since this was to be a safety-based program in this first stage, I thought our department Occupational Health and Safety Committee (OHSC) would be great “auditors” who would serve as the audits’ eyes and ears. We have an easy companion to this new audit program called the Weekly Skill Drill, which is a company-based, hands-on drill that we do on a regular basis. The content of this audit program would be more on-the-job or in-the field application of safety-based tasks and operations. Remember the outcome statement, we are focusing on skills and practices that enhance our safety and potentially remove hazardous acts that might contribute to accidents and injuries.

As far as implementation goes, I don’t want to put something into the mix that complicates the workload or adds yet another check-off box to the crews’ days. I want this to be meaningful and frontloaded for success. Over time, I would think that exposure to the audit process and the elements it monitored could reduce injuries and build a better safety culture. Obviously you’ll have to do some training with the auditors on what to watch for, but a simple task statement that references your standard practices or SOPs should provide enough guidance to complete the audit. When we implement this program, I plan to use an online survey program, such as Survey Monkey, to allow the auditors to report and document their audits in an easy-to-use step in the process (another way to get buy-in). At scheduled OHSC meetings, the results of the audits could be discussed. The department safety officer could review the data along the way in order to identify any gaps that needed more timely discussion within the department. The program should be very transparent and the results evident to the membership. Many efforts like this can fail if the results are not shown and outcomes not discussed.

To kick off this program, I reviewed our department worker’s compensation duty-injury logs, examined contributing factors to notable accident and LODD reports and spent a lot of time reviewing data available on the Firefighter Near Miss reporting system. NFPA 1500, along with a bunch of other standards, could also provide audit ideas as well. As these were pretty important things to monitor, I don’t think the list should be never ending, but focused on critical elements that we should constantly revisit if we want them to be part of the culture. The weekly safety audit will focus on 26 tasks/practices/elements/operations that the OHSC and training division staff will audit twice a year and documented using a simple 2–3 minute online survey tool. On the following page, let’s look at some possible audits that you could complete in your department.
Safety Audit

The 26 potential audit items listed here are just a place to start. Consider your department’s needs & adjust accordingly.

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<td></td>
<td>Storage of all loose equipment in any passenger compartment of vehicles</td>
<td>Use of company identifier on each member’s helmet shield and passport</td>
<td>Members showering or quick decon after smoke exposure</td>
<td>Physical fitness program participation and fitness equipment inspection</td>
<td>Thermal imaging camera being taken into ALL Incidents by at least 1 crew</td>
<td>PPE being worn correctly and completely at all incidents and training</td>
<td>Back-injury prevention during all activities</td>
<td>Road safety practices—blocking/vests/cones/positioning</td>
<td>Seatbelt usage</td>
<td>Safe driving practices during all responses</td>
<td>Hosebeds and nozzles secured to bed and apparatus</td>
<td>Proper and consistent radio size-up procedures</td>
<td>Exhaust removal system use</td>
<td>Vehicle backing practices</td>
<td>Body substance isolation practices</td>
<td>Eye protection equipment being used as needed</td>
<td>Slip-and-fall hazards identified and marked</td>
<td>SOPs or best practices referenced in every training or drill</td>
<td>Hearing conservation methods in use</td>
<td>Hand Protection Equipment in Use</td>
<td>Lock-out/tag-out procedures and equipment available and used</td>
<td>Fuel-storage safety</td>
<td>Small tools and equipment—secured, sharp, clean, tight, inventoried</td>
<td>Electrical cords and GFCI use and safety</td>
<td>Training and incident rehab practices</td>
<td>Documentation of equipment failure, breakage or maintenance</td>
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*The Trainer's Workout continues pg. 17*
There are many other potential elements that can be observed, and your department will have to conduct a needs assessment to determine which are the most critical. The OHSC members will need to get out in front of this and champion the program with the membership. An important organizational note is that the OHSC members doing the audit are not “narcs” or secret spies who will use this punitively. This is really about data collection and working on organizational awareness of important safety practices. As far as evaluation and feedback, the audit might contain these questions:

- Did you observe this audit element during the assigned week? If so, how many times?
- Was the element completed/performed/present/used in accordance with accepted department or other standards? If not, provide a description for future training and awareness efforts.
- Is there a better or safer way of completing the task or element that our current policy and practice does not include?

As a training tool, each audit item can be quickly converted into a safety poster or quick drill for reinforcement and information. The data collected from the audits should be available and accessible to the OHSC members and the organization on a regular basis, as would be follow-up on any improvements or observations noted. Programs like this die a quick death if follow-up does not occur or if we fail to take a results-driven approach. Let us know if you have other topics that can be placed into the mix and how your department is implementing programs like this. Leave a message for us on the Blue Card Facebook page, or email us at editor@bshifter.com. Keep an eye out in even the most unexpected places, like that jetway, to find new ideas that can help you make a difference in your safety and survival program.

Click here! Visit B Shifter’s forums!

Forest Reeder began his fire-service career in 1978 and currently serves as a division chief of Training & Safety with the Des Plaines (Ill.) Fire Department. Forest writes the weekly drill feature at www.firefighterclosecalls.com and www.fireengineering.com, and was a contributing author of “Fire Service Instructor, Principles and Practices,” published by Jones and Bartlett. Forest was awarded the ISFSI’s George Post Instructor of the Year at FDIC in 2008.
Baby on Board

A group of firefighters take excellent care of mother & child.

BY B SHIFTER STAFF

This issue’s Be Nice submission comes from corporate Fire Chief Bill Ewing with Pro-Tec Fire Services based in Green Bay, Wisc. Pro-Tec is the largest U.S. provider of aircraft rescue and firefighting (ARFF) services, with 16 airports under contract in the United States and one in Canada.

Chief Ewing attended Bruno’s leadership retreat in Charleston, S.C., earlier this year. Shortly after, he received the following letter from David W. Holmes, the fire chief at the Trenton-Mercer Airport in Trenton, N.J. Chief Holmes was appropriately proud of his firefighters and wanted to share their nice efforts with B SHIFTER’s readers.

Oh Baby!

I wanted to share some WOW customer service provided by one of our platoons. We had an inbound flight with a passenger in extreme pain, apparently due to kidney stones. She was traveling with an 8-month-old infant. I don’t know if you have ever had or witnessed kidney stones, but it isn’t a pretty sight. Due to a busy EMS system backed up with Priority 1 calls, it took the ambulance quite awhile to arrive.

In addition to treating the patient, our on-site crew had to care for the distraught infant. They fed and played with the infant, and even assisted in changing a dirty diaper. The Frontier Airlines personnel were very accommodating, allowing us to use the manager’s office to take care of the patient and the infant—assisting with the entire process. A real team effort. When I asked Capt. Berger to prepare a memo describing what they had done, he didn’t think it was a big deal. He said, “Just treating people the way I hope someone would treat my family.”

Brunacini would be proud. They get it!

David W. Holmes
Fire Chief
Trenton-Mercer Airport/Pro-Tec Fire Services Ltd
West Trenton, N.J.

Bruno’s Response

Our featured customer-service story for this installment is short, sweet and describes the nice outcome we work to achieve. The incident involved a response to assist an inbound sick passenger who was flying into the local airport. The customer was a woman with an 8-month-old infant. We get to practice our EMS skills a lot at the airport. The stress and confusion of being an airline passenger create a lot of welfare problems, and many times those physical difficulties produce a call that has us waiting at the gate for the passenger to arrive—like in this case.

Delivering service to distressed travelers creates an interesting set of opportunities for us. The traveler (customer) is stuck in an unfamiliar place,
which creates fearful anxiety in that person. They were planning on passing through your town (or over your town, if they were on an airplane), and they are now receiving treatment at the gate from a team of firefighter/medics. Sometimes, if their problem is serious enough, those caregivers will load them in an ambulance for a ride to a medical facility that is also very unfamiliar. This medical adventure creates even more stress.

The person being treated is essentially at the mercy of those caring for them. One minute, they are in their seat, zipping through the friendly skies. Next, they are lying on a gurney outside Gate 27C with six big, hulking firefighters hooking them up to a bunch of medical contraptions. The “visiting” customer is in a scary and uncomfortable position.

They will remember how the firefighters treated them. They will base that memory on the firefighters’ tone of voice and their body language; the patience extended to them; whether secure and supportive verbal (and nonverbal) communication was established and maintained; whether the treatment team indicated their concern and connection to the customer’s problem; and that they were going to stay with that person until they were stable and okay.

I receive a ton of letters from people who went through similar unplanned airport experiences (sent to the fire chief so he could commend the troops), and it was interesting to read what they remembered in addition to all the standard positive-service stuff. They remember, for example, a firefighter who held their hand or who called them by name; a “treater” who said something tastefully and appropriately humorous to them; or a firefighter who took the time to carefully and completely explain what the customer's medical problem was and the treatment that was required. Connecting to airline personnel in order to coordinate interrupted travel support, secure the patient’s luggage, notify family members and provide transportation back to the airport and on and on.

This example also has another major component that involves a really important group of people that we call the “withims.” These are the people who came with the customer. They are generally the family, friends and associates of the person we are treating. Positive customer service must consider providing support and kindness to these people. In many cases, the person we are treating is in la la land; they don’t remember anything until after they regain consciousness. In these cases, we are creating an impression and, in a way, actually treating the withims.

In this situation, the withim is an 8-month-old infant. The customer-service homerun here is how the troops treated the baby. Captain Berger led his team to feed the baby, play with the baby and change a diaper. Firefighters and babies go together very well, and baby stuff is another thing that showed up in many memory letters from customers. Pretty much anyone who has a baby really (and I really mean really) appreciates anyone who will protect that child while they can’t. In fact, virtually any parent will value someone doing that over any other human act, and they will remember that treatment forever.

While the description of the event is short and simple, it perfectly describes our delivering a smart, empowered combination of core service (treating Mom) and added value (helping and entertaining Baby-cakes). My heart soars like a hawk when I hear a story that seamlessly combines the two. In this case, the fire company that did this thought of it as “just another day at the office,” and this is reflected in the boss saying it wasn’t a big deal. I am glad that level of service is a regular event for that company, but Mom, Baby-Cakes and Alan Brunacini think it is a really big deal. BS salutes and thanks them for delivering that special Wow! Service.
My first exposure to fire-service communications was in the mid-1980s as a communications technician. My job required me to be on call and respond to first alarm and greater fires. On every response, I would pick up several radios that had gotten wet, distribute spare radios as replacements and return to the shop to “dry” out the radios. I was amazed that the radios being used were not suited for the environment. The radios were porous; they had knobs, buttons and switches that were not fire-service friendly and overall, they seemed fragile.

When our department purchased radios, the vendors referred to MIL-SPEC (military specs) or MIL-STD (military standards) when qualifying their products. The vendors would say, “This meets MIL-STD-810 A, B and C.” It sounded impressive! If it’s good enough for the military, it had to be good enough for the fire service, right? Wrong!

Do you really know the MIL-STDs for portable radios? To comply with the MIL-STD for operating temperatures, a portable radio must endure temperatures ranging from -30 degrees C to +60 degrees C—that’s -22 degrees F to +140 degrees F. How often do you think our radios are exposed to 140 degrees F in firefighting? On a hot summer day in the American Southwest, personal radios can be exposed to these temperatures while the wearer walks across a parking lot.

It’s an unfortunate truth that many NIOSH Line of Duty Death reports identify issues with radio communications as a contributing factor. This year, the NFPA recognized that land mobile radios (LMRs) should comply with the same environmental standards developed for turnouts, personal alert safety systems (PASS) and thermal imaging cameras (TICs). To that end, the NFPA has assembled a group to develop the Standard on Two-Way, Portable (Hand-held) Land Mobile Radios for Use by Emergency Services Personnel: NFPA 1802. The NFPA standards that apply to turnouts, TICs and PASS require that they be able to operate at 500 degrees F. Using MIL-STD 810 as the standard for portable radios makes the radio the weak link in the firefighter’s ensemble. Adopting NFPA 1802 will provide consistency in the capabilities of firefighter equipment. As of now, the radios meeting the MIL-STD could potentially fail while the rest of the firefighter protective equipment endured. This should have been unacceptable to the fire service; the radio serves as the lifeline for firefighters operating in the hazard zone. This article explains what NFPA 1802 could cover and how it might improve fireground safety.

**Document Scope**

NFPA 1802 will identify the operating environment parameters, as well as the minimum requirements for the design, performance, testing, and certification of two-way, portable (i.e. handheld) land mobile radios (LMRs) for use by emergency services personnel during emergency incident operations. The standard seeks to outline these parameters without compromising compatibility with field emergency services communications networks.

The purpose of this standard shall also be to establish minimum requirements for the proper function of the electronics embedded in or associated with emergency services electronic safety equipment when exposed to thermal, IDLH, hostile and non-hostile emergency-scene environments.
NFPA 1802 is not intended to cover interoperability and is limited to the LMR’s performance in the firefighting environment.

This is a huge undertaking and will require cooperation from the manufacturers, NIST and the fire service. The LMR Standards Group consists of three subgroups, as described below.

**Physical Properties Task Group**
The physical properties subgroup is responsible for the radios ergonomics. This includes button and knob size, placement and feel. The objective is to make the radio controls easy to use with a fire glove and to standardize placement, creating consistency among manufacturers. The size and placement of controls is also important for consistency in training. If a fire department changes the radios they use, the standard would ensure that knob/button placement and functionality remain consistent among manufacturers. While the buttons and knobs are the obvious ergonomic challenges, other components warrant consideration. For example, speaker grille and microphone port design and placement can affect the user’s ability to communicate. For example, the speaker grille and microphone port must shed water. Some past speaker-grille designs did not shed water effectively, and the radio’s performance suffered due to low volume from the speaker or decreased audio-transmit levels via the microphone. Microphone ports were so small that a piece of insulation or a water droplet could block the microphone opening, making radio transmissions from an affected unit unreadable.

Another challenge for this group is the remote speaker microphone (RSM)—the function that theoretically allows the user to talk and listen without removing the radio from the radio pocket. In some NIOSH Line of Duty Death reports, the RSM has been identified as contributing to the user’s inability to communicate. Because the RSM has been identified as part of the communications system, it will be included as part of the standard.

**Environmental Task Group**
The environmental group has the daunting task of determining/defining the firefighting environment. The operating environment, which includes temperature, humidity and water intrusion, will then be replicated so communications devices can be tested under these conditions. While this sounds easy, it is not. Some of the work was already done while developing the NFPA standards for the TIC and PASS. The LMR standards group might adopt the operating environments as defined in those standards; it makes sense that if a PASS or TIC can operate in temperatures up to 500°F, the radio should, too. The difficult part will be designing the testing methodology to assess the devices. This is where NIST (National Institute for Standards and Testing) comes into play. The scientists and engineers at NIST, in cooperation with radio manufacturers, will develop testing methods they can replicate and document in the laboratory. These tests will be complex, gauging much more than temperature. For example, the tests might include exposure to temperatures of 500 degrees F, but for how long, at what humidity and what vibration? What about drop tests? What is the ambient temperature, and what is actual temperature of the radio’s internal components? What needs to be tested when that radio reaches the specified internal temperature? Does the radio speaker maintain its ability to generate audible sound pressure waves? Does the microphone maintain its ability to turn the sound...
pressure wave spoken into it into an electrical impulse?

This environmental situation is of special concern to me. This past year, many jurisdictions spent a lot of money to upgrade their radio systems to meet new FCC regulations that pertain to frequency use and frequency licensing. The radios are now more efficient. However, the new FCC regulations have tighter tolerances for radios to be “on frequency.” What this means is the radios are less forgiving to being a little off frequency. We know that when a radio’s electronic components are heated, the radio can tend to drift off frequency, so these tighter tolerances mean radios will drift off frequency more often. If everyone on the fireground is on the assigned channel and your radio heats up and drifts off frequency, you may have poor communications or no communications at all. After the radio cools to normal operating temperatures, the components that regulate frequency return to normal and the radio operates correctly. Sending these radios out for testing after they have cooled won’t identify a problem. Our department has had instances when the firefighter complains that the radio didn’t work while they were operating inside a fire, but when tested days after the fire, it passes all technical testing. What would happen if the radio were tested in the environment where it failed?

The subject of the RSM surfaced again in the Environmental Task Group. As mentioned previously, there have been NIOSH LODD reports that attribute communications problems to the RSM. The RSM cannot be overlooked as part of the communications system. What good is it to create a new standard for handheld radios if we hold the RSM to a lesser standard, or worse, to have no standard at all? The RSM is an extension of the radio that brings the speaker, microphone and some controls to a more convenient location for the user. The RSM is often clipped to the lapel, exposing it to the environment to a much greater extent than the radio, which is often stored in a radio pocket. In some of the LODD reports, a failure of the speaker microphone cord connecting the RSM to the radio have caused the radio to constantly transmit, and in another instance, have caused a disconnect from the radio. (See photo above right.) The result is a failure of the firefighters communication system. The Environmental Task Group hopes that the new standard will eliminate cord failures in the future, providing firefighters with more reliable communications systems.

Programmable Features Task Group
This group is tasked with defining which programmable features must be included as part of the LMR standard. The difficulty for this group is the widely varying technical environments in which we use our radios. When I speak of the operating environment, I am referring to the infrastructure, or lack of infrastructure, the radio is operating in. For instance, a standard that only takes into consideration trunked radio systems would not work in a conventional system and vice versa. This group will have to take into consideration all of the system types deployed and develop feature sets based on these varying supporting infrastructures.

One of the biggest challenges will be the features associated with

NIOSH reports cite failed radio equipment as a contributing factor in the 2011 deaths of two San Francisco Fire Department members: Lt. Vincent Perez and Firefighter/Paramedic Anthony Valerio. NIOSH suggests the radios could not function properly due to thermal shock. To view the SFFD safety investigation for this incident, click here.
the emergency button (E-Button). This is due to infrastructure differences, departmental procedures and the personal preferences of whoever programs the system. Manufacturers have similar programmable functions associated with this button, but many of them are not obvious to the user. It requires a great deal of time and research to identify the functions and features in order to operate safely and effectively on the fireground. This often requires a firefighter or someone who really understands the business to translate the operational requirements to the technical features available and program the radios and radio system. When the E-Button is depressed, what signaling method does it use to send the radio ID information? Different manufacturers use different technical protocols/languages to send the information. If the radios and system don’t speak the same language, the ID cannot be translated. The goal of NFPA 1802 is to define a common technical protocol/language that is compatible with all radio systems. To make it more user friendly, display of the Unit ID and position on the unit (e.g., “Engine 50 Captain”) might be required. This would necessitate loading a database in the radio. The problem then becomes how to maintain accuracy when radios are changed or replaced.

Radio manufacturers recognize that radios must be versatile, so they have made almost all buttons, knobs and switches programmable. This means that every button push or twist of the knob triggers some programmable feature. One of NFPA 1802’s goals is to make the radios more similar and provide consistency. Another key area for the Programmable Features Task Group is what happens when the channel knob is rotated. Many in the fire service favor having the channel knob trigger the channel-announce feature, where the radio tells you that you have selected “Zone A, Channel 15.” It is hard to read a channel indicator while wearing an SCBA in a smoke-filled environment, so hopefully this will keep unwanted channel changes to a minimum. Today’s radios use many audible cues to let the user know when to talk, when the repeater has released, if a channel is busy, if the user is out of range and many others. All of the beeps, bonks and honks must be standardized. Some of these audible indicators may have standards and may be in existing technical documentation. The NFPA will utilize existing protocols or standards if they are applicable. All of this provides consistency with fire service communications devices. Can you imagine if every cellphone you bought had symbols, functions and sounds that were completely different? You would be very resistant to changing phones because of the learning curve required to transition to a new phone.

Better Communications in Our Future

Hopefully development and adherence to the new standard will result in more reliable communications equipment for the fire service and increased firefighter safety. That being said, the best equipment can’t overcome a lack of training. The radio is a complex device, and we rely on it everyday. Training on the radio and the system it operates in makes for a safer working environment.

Mike Worrell began his career with the Phoenix Fire Department in 1986 as a communications technician and became a firefighter in 1993. He promoted to captain in 2001 and spent time on many busy engine companies. Mike was assigned to the Technical Services Division to assist in the transition to a new radio system and is often consulted on technical issues. Mike co-wrote FEMA/USFA’s “Voice Radio Communications Guide for the Fire Service.” He represents fire service interest on the Public Safety Advisory Committee for First Net (Public Safety Broadband Network). Mike received his initial electronics training in the U.S. Navy riding submarines and later received an associate degree in digital electronics.
On Sept. 11, 2001, the U.S. Air Force considered shooting down Flight 93 before its brave passengers attempted to regain control of the plane and it crashed into the ground. If the Air Force had destroyed the plane, the death of all passengers onboard would have been justified as an acceptable life loss—sacrificing some people to save many more. It was shocking for people to hear U.S. government officials openly discuss this concept. However, this idea is common among military, police, fire and EMS personnel. Although seldom discussed, people in these professions make life-and-death decisions frequently, weighing what they consider acceptable or unacceptable life risks. In the fire service, we try to save every life. But sometimes we must choose between an acceptable life loss and unacceptable life loss.

In his thesis, “Considered Risk Casualties,” retired FBI Agent Robert Mahoney examines acceptable and unacceptable life loss decision-making in the emergency services. Mahoney explains how life-and-death decision-making has been debated and defined by theologians, philosophers and medical practitioners for centuries.

When describing their jobs, firefighters sometimes say, “I stretch hoseline and search for and extinguish fire,” or “I raise ladders and perform overhaul after a fire to make sure the smoldering flames are quenched.” What they should say is, “I make life-and-death decisions on every shift and in everything I do.” Most of our fireground actions have life-and-death outcomes. The fire service downplays the life-and-death consequences of its work. Veterans might not think about things in terms of life-and-death; rookies might not realize the profound impact of the tasks they perform. It’s not always emphasized during recruit training that their jobs will affect their own lives and the lives of the people they serve. When something goes wrong and a firefighter or citizen dies, the life-and-death aspects of our work come crashing down on us. In this article, we will discuss the principles Mahoney describes in his book and apply them to situations we encounter daily. It serves as a reminder for veterans and a lesson for rookies that our actions affect lives.
1 Save the Most Threatened
For firefighters, the principle of saving the most threatened individuals determines initial ladder placement when several people are trapped and calling for help from different windows. When the chauffeur of the initial ladder company starts to raise an aerial ladder for rescue, the most threatened victim must be taken down the ladder first. For example, perhaps one victim is closer to the fire, trapped at a window in a burning apartment with heavy smoke and flame showing. The other victim might be trapped at a window one floor above the fire’s location with only smoke showing. Both victims may feel equally threatened. However, the firefighter raising the aerial ladder must first rescue the person closest to the fire. Then the firefighter can rescue the person at the window on the floor above. If the less-threatened victim panics and jumps to their death, it would be a tragedy. However, we could consider the death an acceptable life loss. If for some reason the less-threatened victim is rescued first, and the most-threatened victims leaps from the window or perishes in the fire, we would consider this an unacceptable loss.

2 Scarce Resources
The principle of scarce resources applies to life-and-death decision-making at mass-casualty incidents, where a limited number of firefighters are on scene. In these cases, emergency responders establish a triage system and place patients into three categories: 1) Those who will die regardless of treatment; 2) Those who will survive regardless of treatment; and 3) Those who might survive if they receive immediate care. Firefighters should initially administer first aid only to those in Category 3—the people who might survive only if they receive immediate care. Emergency personnel must leave the others without assistance until additional resources arrive. At these incidents, firefighters will have to make acceptable and unacceptable life-loss assessments. The death of a victim who could have survived if treated but wasn’t would be an unacceptable life loss. The death of victims who would die regardless of treatment would be acceptable life loss.

3 Actual vs. Potential
The principle of actual vs. potential threat must be considered when an actual threat suggests other potential threats might exist. For example, when a single fire company arrives at a house fire and sees a person standing at the window calling for help, it is feasible that other people remain trapped inside the burning structure. In this case, the person at the window must be assisted first. After the victim is removed to safety, crews can continue to search the interior for potential victims. A firefighter knows there could be many more potential victims threatened inside a burning building, but the person at the window is a confirmed (or “actual”) victim and must be aided before any “potential” victims. This is one of the reasons multiple fire companies respond to an initial call for fire; firefighters must be able to perform simultaneous rescues. We would consider the death of the victim left at the window while firefighters searched for potential victims unacceptable. If someone unseen dies inside while we rescue a person at the window, we consider it an acceptable life loss.
4 The Greater Good
The principle of the greater good applies to situations when a firefighter must choose whom to rescue when many people need help simultaneously. For example, consider a fire where many people are trapped at the front exposure of a row of several dwellings. Firefighters begin rescuing these people through windows via ladder. Another firefighter ordered to check the rear conducts a 360 size up and discovers heavy fire at the rear of the buildings. A quick double-take reveals an open second-floor window in the rear with smoke showing. Several feet away, five people are calling for help. They are trapped on a wooden balcony directly above the quickly spreading fire, flame and smoke shooting up from a window below. A bystander tells a firefighter that a woman was seen at the open, smoke-filled window on the second floor. The firefighter decides to conduct a primary search and places a small ladder to the window. He calls into the room, and then reaches down with a hand to see if anyone is below the window. There is no answer, and no victim below the window. The firefighter reasons the woman might have escaped into the hallway to be rescued at the front. The people trapped on the balcony are screaming louder. The firefighter decides not to enter the smoke-filled room to perform a secondary search. Instead he repositions the ladder to the balcony and assists all the trapped people before it collapses. When reinforcements arrive, they make a secondary search of the room where the woman had been seen. She is found dead from smoke inhalation. This firefighter made a life-and-death decision based on the greater good principle. He rescued the greatest number of victims rather than leaving them to search a smoke-filled room to save one victim. Although it was difficult, the firefighter made the correct decision.

5 Closest Saved First
The principle of closest saved first has long been a part of search-and-rescue response to collapse situations. For example, when a building suddenly collapses due to a tornado or explosion, victims will be trapped in many different locations—some lying unconscious on top of a pile of rubble, others half buried and some buried deep below tons of structural components and wood. The collapse search-and-rescue plan teaches firefighters the principle of saving the closest first. Experts tell us that in saving the closest first, we rescue 75 percent of the incident’s survivors. The initial stage of collapse rescue is the most productive. Firefighters rescue the surface victims, then those who are half buried, and then those calling for help from the voids and crevices. After removing these victims, responders try to save those buried deep under the fallen structure. It may take hours of tunneling and trenching to reach one or two victims. If surface victims or those partially buried die because rescuers turned their efforts toward tunneling and trenching for buried victims, we would consider it an unacceptable life loss. The death of deeply buried victims buried who perish while rescuers save those closest to the surface is considered an acceptable life loss.
Saving Our Own

The principle of saving our own applies during mayday situations. Years ago, before we had a dedicated fire company standing by in the event of a crisis, firefighters in distress created great chaos. During a mayday, the drive to save our own can overwhelm everything else; a mayday can stop an entire fire operation. There might be an over commitment to the search for a trapped firefighter and an under commitment to save civilian victims. Everyone wants to search for the trapped firefighter, and the original fire and rescue operation can suffer. Incident commanders today order the rapid-intervention or on-deck crew to save the trapped firefighter; everyone else can continue the firefighting operation. The death of victims trapped in the fire because most firefighters abandoned their assignments to search for one of their own is considered an unacceptable life loss. Although tragic, the death of a trapped firefighter who is not rescued by a rapid intervention or on-deck crew would be considered an acceptable life loss by theologians, philosophers and medical practitioners.

Limiting Losses

We can find the principle of limiting losses in the FDNY’s book of regulations where it describes who responds to reported bomb incidents vs. a fire response. A fire response gets four engines, two ladder companies, a rescue vehicle and a battalion chief. A reported bomb gets one engine and one deputy chief. This is intended to limit losses if the bomb actually detonates. If there is an explosion, then more fire companies are dispatched. The death of a full first-alarm assignment responding to a reported bomb incident that explodes is considered an unacceptable life loss, while the death of the deputy chief and the engine company is considered acceptable life loss.

A Healthy Perspective

As stated previously, the fire service strives to avoid life losses. Acceptable and unacceptable life losses are terms used by theologians, philosophers and medical practitioners, not firefighters. No one who chooses to serve as a firefighter wants to allow any victim to perish for any reason. However, if a firefighter must make a life-and-death decision, the information in this article can be a guideline. It can also help us make sense of the sometimes tragic circumstances we face daily.

Chief Vincent Dunn, FDNY (ret.), is a 40-year veteran. He is the author of “Collapse of Burning Buildings” (Fire Engineering, Revised 2010); “Safety and Survival on the Fireground” (Fire Engineering, 1992); “Command and Control of Fires and Emergencies” (Fire Engineering, 2000); and his most recent textbook “Strategy of Firefighting” (Fire Engineering 2007). He can be contacted at vincentdunn@earthlink.net or 800.231.3388. Visit him online at www.vincentdunn.com.

Special Agent Robert T. Mahoney, FBI (ret.), served 24 years in the FBI. He was in the World Trade Center on Sept. 11, 2001 and a supervisor in the FBI Crisis Command and Recovery Center. He was general manager of Security Programs for the Port Authority of New York and New Jersey and a member of the Lower Manhattan Counterterrorism Advisory Team. He holds a master’s degree in national security studies from the Naval Postgraduate School. He wrote the book, “Deciding Who Lives: Considered Risk Casualty Decisions in Homeland Security” and multiple articles on counterterrorism for emergency services. He has been an EMT and the commanding officer of a rescue squad. He frequently conducts risk and security assessments for major critical infrastructures. He can be reached at rmahoney@manageemergencies.com.
Danger and tragedy are a regular component of our everyday professional lives. We show up to work every shift with the intent to prevent harm. We realize our job is to make the day better and safer for our customers when they need us. Most important, we do our best to ensure we complete our mission without causing harm to our fire companies or ourselves. Unfortunately, bad things happen to firefighters. It is essential to educate our responders, lead without fear and recognize what is operationally preventable. Looking past the tears, grief and fancy funerals, we can recognize that these principles offer the best way to keep us safe. The enlightened company officer plays a critical role in preventing tragic events.

Enlightened=Strong, Calm, Focused, Handsome

Enlightened is my choice of word; it’s probably not one ever mentioned around the firehouse kitchen table, but it’s the correct term in my opinion nonetheless. To me, enlightened is the ideal state for a company officer—a state where the hazard zone really slows down, critical factors don’t trigger panic and we manage risk with a clear head. (I am pretty sure enlightenment comes with the grizzled good looks of Ben Cartwright and the voice of Josey Wales.) Many of the company officers I have worked for and with truly have strived to become an enlightened fire-company boss. An enlightened company officer remains incredibly focused on risk and is able to cut through the crazy hazard-zone distractions (the fire, panicked customers, out-of-control chief officers) to ensure their crew works well within the risk-management plan.

As I have stated before, managing risk does not mean that when things are scary, we hide under our bed and pray for it to go away. It means effectively sizing up the situation, busting ass when the conditions are right or attacking from outside the hazard zone when it isn’t worth the risk to our welfare.

The Other Ugly C Word

As amazing as enlightenment can be, I believe it is transient, and the skills involved are perishable. Much like the fundamental skills taught to new recruits or the fundamental skills of being “mayday ready,” truly enlightened company officers must continually and consciously acknowledge risk and actively manage it. In my experience, it is also necessary for the enlightened to be wary of the very real presence of complacency. Complacency is the kryptonite of the enlightened company officer. The Merriam-Webster definition of complacency is: “self-satisfaction, especially when accompanied by unawareness of actual dangers or deficiencies.” Complacency can cause a clearly exceptional company officer to enter into a situation without effectively managing the risk, leading to dire consequences.
Complacency is a danger to all firefighters working in the hazard zone. This includes the incident commander, tactical-level bosses and company officers as well as individual firefighters. I have personally succumbed to complacency a few times in my life as a firefighter. Fortunately, the most severe consequences I faced were embarrassment or answering my captain or battalion chief when they asked, “WTF?” Unfortunately, the consequences are much more dire for some—with life- or career-ending repercussions.

**Battle Complacency with Consistency**

During my department’s company-officer testing season, I usually get a few calls from aspiring company officers wanting to speak about our testing process and the job of a company officer. While I certainly am not the poster child for company officers, I always feel compelled to talk to them—if for no other reason than to help them really understand what it means to be a company officer. I am ready to discuss the nuances of leading by example, the art of customer service and taking charge in the hazard zone. I feel obliged to talk about the responsibilities of managing a crew’s welfare—especially managing risk in the hazard zone.

Finally, I like to explain complacency to them and discuss strategies to prevent it. Complacency doesn’t always present itself in obvious ways, such as laziness or apathy. Complacency can manifest through long-term experience. For instance, when working at traffic accidents, my department requires firefighters to wear a traffic vest to increase our visibility to passing traffic. (Duh, right?) However if my crew and I consistently work these accident scenes without our vest without any adverse consequences, someone might assume that traffic vests are unnecessary. They seem unnecessary until one night, we are working a simple traffic accident at 0300 when an inattentive driver mows one of us down simply because they didn’t see us. Complacency led to this negative outcome, pure and simple.

The surest way to defend against complacency is consistency in action from the beginning. A company officer that sets a consistent tone for following simple procedures and creates an atmosphere of informal accountability among the crew can make great strides in reducing complacency. (Don’t even think of using a “do as I say, not as I do” system; your crew will eviscerate you.) A simple example is the insistence that your crew will always wear seatbelts when in the apparatus, regardless of whether they are responding or just driving around visiting the first due. This consistency creates a regular, easily predictable environment for risk management. I have found that crews love consistency in action as well as environment. They also love knowing exactly who you are and what you stand for.

Consistency accomplishes a lot. It establishes the formal and informal norms under which you and your crew operate. This environment will not just stay in your firehouse. Word will get out about how your firehouse and crew is managed and your general expectations. I have suffered with the name “Dudley” (as in Mr. Do-Right) simply because of how I managed my crew. I wasn’t really impressed with the name at first. However I came to relish it because ultimately we are safe, we have more fun than the public should know about, and it has kept like-minded people around me and my crew. When one of my regular crewmembers is off, the fill-in firefighter is usually already aware of the basic expectations. Very rarely do I have to say, “That shit don’t fly here.”

Not all company officers will start in the perfect position. In my department, many times the company officer will be the fill-in member of a crew or a “rover.” Essentially, this officer is the substitute teacher. As a rover, I was very cognizant of the informal nuances within the companies that I would work with. I can pretty much go along with most in-station rituals/habits (specifically the ones that won’t land us in jail). I simply draw the line at things that can
pose real physical risk to us and our department. I have never felt compelled to control PT (exercise), chow or house chores. But I do expect that we (and our rig) will be ready to go on a call, and that we work safely to return intact and breathing.

It is inevitable that we will all manage at least one renegade along the way. Some of us will encounter more than others. Most renegades have little regard for standards or risk management due to their self-recognized superior intelligence in comparison to the rest of the world or their belief that the laws of physics don’t apply to them. The trick to their management is simple: Be consistent. Don’t change your personality, standards or expectations. When managing a known renegade, lay out your expectations in the same manner as you normally do. Be fair and clear. In my experience, willingness to be open and address things directly and respectfully is usually successful. There are few who are really willing to push beyond and directly disrespect the system and standards. In these rare cases, I love to channel my inner “Bruno” and hear the words, “I will gladly fire you to save your life!” play over in my head. Granted, I am not in a position the fire anyone (probably a good thing), but my job is to hold everyone accountable for their safety and the welfare of other crewmembers.

Conclusion
All new company officers are continually working toward the day when they see incidents more clearly, recognize risk more predictably and have the credibility and skill to efficiently manage them. This is a journey, and each one of the skills is learned at a different pace. Some of these skills can be taught, some require scars and bruises, and others just take the guts to stand up. A great deal of effort goes into becoming enlightened as a company officer. No officer has ever been handed enlightenment. And once enlightenment has been earned, it is incredibly important to maintain it. By definition, an enlightened company officer has a level of insight and calm that should create an environment of confidence for that officer and their crew. Be warned: This confidence can become very dangerous. It can become complacency. Complacency has ruined many lives and careers simply because risks were not acknowledged or effectively managed. Maybe true company-officer enlightenment means we can recognize complacency, confront it and work to eliminate it from the decision making process.

Chris Stewart began working for the Phoenix Fire Department (PFD) in 1991. He became a firefighter in 1993, and has spent the majority of his career working on busy engine companies. In 2000, he became the company officer of an engine company. Chris has served as a recruit training officer at the PFD training academy. He has developed multiple procedures and training for the PFD including high-rise operation, air management and bulk fuel storage facilities. He is currently assigned to Battalion 3 on B Shift. Chris was fortunate enough to marry his high-school sweetheart and is proud to have two sons who take after their mother.
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In this installment of Command Training, we invite the Orland Fire Protection District (OFPD) to share how it developed a command training program. In addition to having formal automatic-aid agreements with five neighboring departments, OFPD is a member of MABAS Division 19 and associate members of MABAS 22 and 24. OFPD’s challenging, high-volume response area demands continual training—especially where multi-agency hazard-zone management is concerned. Thanks to the OFPD for sharing their successes as well as their lessons learned.

Organized in 1894, today’s Orland Fire Protection District (OFPD) is a career, suburban agency with 171 members, including 111 full-time sworn personnel. OFPD operates six stations, a regional training center, a maintenance facility, and an administration/regional dispatch center (for more on OFPD’s dispatch center and its protocols, see What’s Your Emergency? pg 33).

OFPD is located 25 miles southwest of Chicago, and its primary response area covers approximately 33 square miles. Located within the OFPD are the Village of Orland Park, the Village of Orland Hills and unincorporated Orland Township. Two regional shopping malls in Orland Park and a planned third mall present unique target hazards. The resident population is 75,000, but this can swell to more than 150,000 during the day due to a large number of shoppers who visit the area, depending on the season.

In 2012, OFPD answered more than 8,393 calls—an increase of more than 17% from the previous 10 years. The department answers calls for structure fires, EMS, auto extrication, hazardous material, water rescue, high-angle rescue, trench rescue and building collapse. OFPD’s average response time for fire and EMS calls is 4 minutes and 20 seconds. OFPD achieved ISO Class 2 in 1994 and reconfirmed in 2010.

The department has formal automatic-aid agreements with five neighboring agencies, where OFPD is first due. This automatic-aid agreement extends OFPD’s response area an additional 91 square miles. These neighboring departments also have critical infrastructure, including several hospitals, several nursing facilities, a large concert venue, crude-oil storage tanks and major highways. In 2010, the OFPD and the five neighboring automatic-aid departments responded to 15,000 calls total.

OFPD is a member of the Mutual Aid Box Alarm System (MABAS). MABAS is a prearranged inter- and intrastate response system for emergencies including, fires, mass-casualty incidents, hazmat, technical rescue, and dive incidents. For example, the MABAS platform was used by Illinois fire...
Honing Old Skills & Facing “New” Fires

As one can see, our response area and various aid agreements keep it busy and present several challenges. Although our members are highly skilled, a few fires in 2009 did not go as well as we would have liked. Certain aspects of our response model weren’t always working. A couple of examples:

1. The safety chief would get pulled into operations. Our protocol had the second-due chief pre-assigned to safety. This chief would begin a walk-around, get to the Charlie Division and the IC would start asking him for reports from the rear.

2. We used a typical “rehab” process with mixed and sometimes frustrating results. Our first-in companies would arrive at a scene and begin an interior attack. Once that first-in company ran low on air, we would have them exit the structure and go to rehab. Staged companies would deploy to finish the interior attack. The companies in rehab were not released until the fire was out and it was time to clean up. This system proved frustrating to our companies and did not make good use of our manpower.

We also realized we did not coordinate companies as well as we should. With three shifts and six stations, it seemed as if we were trying to coordinate 18 different “departments” and have them operate seamlessly; this is always a challenge.

While further assessing ways to improve fireground operations, we examined NIOSH’s top line of duty death and injury causes and identified several common themes:

- Inadequate assessment of risk vs. gain;
- Lack of IMS—command and control;
- Inadequate SOPs, not following SOPs;
- Lack of effective incident communications;
- Lack of adequate training;
- Lack of accountability/crew integrity;
- Inadequate PPE & SCBA management;
- Improper tactics for situation; and
- Lack of situational awareness.

What’s Your Emergency?

OFPD’s dispatch center keeps pace with intense regional demand—By David Piper

Orland Central Dispatch Center provides medical, fire and rescue dispatching service not only to the community it serves, but also to Oak Forest and Calumet City, who contract with OFPD for service. In 2012, emergency communications dispatchers for OFPD processed nearly 19,000 incidents for those two communities and OFPD combined. Orland Central Dispatch is the primary dispatch center for MABAS 19, 22 and 24, the three divisions covering much of the south and southwest suburban area. At the time these southland communities request assistance for incidents beyond their resource capability, communications are passed to Orland Central Dispatch, which channels the alerts and requests for mutual aid. In 2012, there were nearly 300 incidents within the three divisions that required the activation of the MABAS system for assistance through Orland Central. As one of only two fire/EMS/rescue dispatch centers in the state, Orland Central serves as back-up to the primary statewide MABAS Communication System operated out of the Regional Emergency Dispatch (RED) Center in Northbrook. In the event of a large incident or disaster in the state or states surrounding Illinois, activation for assets and specialty equipment/teams is processed through these two centers. Orland Central is also the back-up dispatch center for Chicago Fire Englewood (South) Communications. Orland Fire employs 11 full-time employees, including a supervisor, and eight part-time personnel to operate Orland Central Dispatch, and three of these positions are staffed 24 hours a day.
A note on situational awareness: As many firefighters know, the fire environment is changing dramatically. (Thank you to UL for identifying and studying our environment.) If we don’t continue to study our craft and practice it regularly, we might not recognize the changing environment quickly enough. How many times in training have we heard, “I know how to do that”? I realize our people do know, but my question is, “How proficient are we at making critical decisions in a rapidly changing environment?” We can walk our members through situations in the classroom and everyone seems as if they are on the same page. However, at 3 a.m., does each person recognize the situation and make those critical decisions quickly enough?

It was clear to us that we needed more training, and, most important, we needed to standardize fireground operations. We identified three viable training options: 1) Use training that was already available; 2) Develop our own program; and 3) Consider the Blue Card Incident Management Program.

Available Training
The Fire Officer 1 and Fire Officer 2 certification series are offered through the Illinois State Fire Marshal’s Office. Fire Officer 1 certification comprises five training classes. Fire Officer 2 comprises four classes (see below). All of the classes are 40 hours in length. OFPD fire officers hold a minimum of a Fire Officer 1 certification. The training, while extremely valuable, did not meet our need to develop consistent fireground operations.

<table>
<thead>
<tr>
<th>Fire Officer I</th>
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<td>Leadership 1 &amp; 2</td>
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<td>Tactics &amp; Strategy 1</td>
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<td>Instructor 1</td>
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<td>Fire Prevention Principles</td>
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Developing Our Own Program
We looked at developing our own program, but the time and work necessary to create one complete with lesson plans, teaching aids and support material proved too great. For this reason, we rejected this as a viable option.

Blue Card IMS Program
Finally, we looked at the Blue Card Command Training & Certification Program. Blue Card teaches company and command officers how to standardize local incident operations across their organization. The program uses a combination of online and in-class simulations. What appealed to us was Blue Card’s standard format, which included a teaching curriculum along with the ability to practice fireground operations repeatedly.
through simulations. Blue Card would enable our organization to hit the ground running. In late 2009, we sent two people to a Blue Card train-the-trainer program at Clay Fire Territory's Command Training Center (CTC) in South Bend, Ind. A CTC provides an ideal setting for Blue Card training, with classroom space; six to eight computers with appropriate software for simulations; a set of radios; a projector; and a white board. Some CTCs also include mobile command-vehicle props.

**A Homegrown CTC**

Once our instructors finished the trainer class, we began to investigate various methods to deliver the program within our organization. The first choice was to send our officers to another Blue Card department's CTC, but this was an expensive option due to travel expenses. Sighting the long-term benefits of ongoing simulation-based training, we decided to construct our own CTC.

Our timing couldn't have been better. We had just completed construction on a new building at our training facility, and we decided the building's second floor would be a good location for our CTC. We researched many different options for simulators and finally decided on one that would have a total immersion feel. We believed the simulations should seem as much like a real incident as possible. Our CTC has eight individual kiosks, along with a stationary command car and a drive-in bay. Each kiosk has its own computer, speakers and lights. Our command car is a four-door cab that closely replicates our current command cars used in the field.

Since our ideal CTC would cost approximately $150,000, we looked for ways to help offset the cost. Our workers compensation carrier, Illinois Public Risk Fund (IPRF), recognized the many benefits associated with incident-command training. Funds from IPRF, in addition to a grant from Motorola, helped finance our project. IPRF also offered to reimburse their member departments 50 percent of the cost for online Blue Card training.

**A Training Plan**

While constructing our CTC, we developed a plan to train all of our members. We decided to have our chief officers begin the online portion of the program, and then work our way down through the rest of the organization. *Lesson Learned:* We didn't do a good job of communicating the training program, so some of the officers rejected it. They complained that no one understood what was really going on, and that the program would get someone hurt. They complained about the program in class and discounted it.
in the firehouses. If we had a chance to start the process over, we would focus on communicating the program’s main objectives prior to starting the training.

After our chief officers completed the online training, Nick and John Brunacini came to Orland to conduct the three-day practical session for them. (By this time, the CTC was functional though not complete.) The class went very well, but it took us about seven days to finish the three-day practical session. We spent extra time discussing our departmental issues and trying various solutions in the simulator. One challenge was how our alarms are dispatched. Example: We respond with one truck, one engine and a battalion chief for all sprinklered, alarmed buildings (a 1 and 1). Structure fires get two engines, two trucks, an ambulance and a battalion chief (a 2 and 2). As our alarms escalate (working fire, full still and then box level), we dispatch more resources. Our chiefs identified that we had not addressed what we request to go from the 1 and 1 response to the 2 and 2 (balance of the first alarm). They began working on a training plan and testing it in the simulator.

Next, we had our 30 company officers go through the program’s online and practical portions. This is where we made another mistake in our deployment model. Because our chiefs and some of our officers had completed the program, they began using Blue Card terminology and processes on the fireground. We had expected the officers to take the information to the stations and educate their companies, but this did not occur across all shifts and stations. The firefighters who had not learned the new terminology and processes (on deck, recycle, etc.) became frustrated and rejected the program. As a result, several members resisted the program. Subsequently, we developed a training program to explain the terminology and processes to our firefighters. Since then, we have been able to work through these hurdles and have provided this training to our entire organization, including dispatch. [Click the paperclip at right to view and download the terminology sheet.]

**Mutual Aid/Mutual Training**

As explained previously, the OFPD utilizes automatic and mutual aid to meet its emergency response needs for some calls. The natural next step in our Blue Card training program was to include and train the departments within our MABAS divisions. The greatest limiting factor was the cost. To offset the expense, we applied for a grant from the Regional Projects Program of the 2010 Assistance to Firefighters Grant Program. We were awarded a grant in the amount of $354,000 for a program we call the Officers Training for Excellence Program (OTEPEP), which utilizes the Blue Card Command Hazard Zone Certifi-
cation Program to facilitate interoperability and efficiency among participating agencies. To help win the grant, we ensured the OTEP will assist departments in meeting the requirements for: NFPA 1026 Standard for Incident Management Personnel Professional Qualifications; NFPA 1021 Standard for Fire Officer Professional Qualifications; NFPA 1001 Standard for Firefighter Professional Qualifications; NFPA 1521 Standard for Fire Department Safety Officer; and NFPA 1061 Standard for Professional Qualifications for Public Safety Tele-communicator. OTEP also provides hands-on, instructor-led training in the top five causes of firefighter deaths: Inadequate or improper risk assessment, lack of incident command, lack of accountability, inadequate communications, and lack of established SOPs/failure to follow SOPs. Receiving the grant allowed us to train approximately 10 people from each of the 44 departments in OFPD’s three MABAS divisions: 19, 22 and 24. The program will also include a train-the-trainer class for 12 instructors, four from each of the three MABAS divisions. The instructors will assist in initial training and maintaining the training level of all of the commanders within the division.

Today’s Orland Blue Card Program
Our class continues to adapt as the fire service evolves. Although it maintains a consistent framework, we have developed many different ways to enhance the program.

Because we have attendees from several departments in our area, students are diverse in terms of experience levels. We have new recruits, 30+ year veterans and all stages in between. We encourage students to leave their rank and egos at the door for an optimal learning experience. We want them to be successful. For this reason, we use a coaching approach, not a testing one. Each student might leave class and respond to an incident like those shown in the simulations. If we can coach them to be successful, they will develop the muscle memory to perform at a real incident with similar success.

Whenever possible, we avoid teaching classes to one single department. When working among themselves, it’s very easy for students to get caught up in solving specific department issues. A diverse class gives many different perspectives, and by the end of day three, the class sounds and functions like they are all from the same department. This gives the program great credibility.

We limit our class to 12 students with a 3:1 student-to-instructor ratio. Our instructor group has been one of the greatest benefits realized by the program. The instructors provide different perspectives and solutions to various issues they have experienced while implementing the training program.

We teach our classes over three days. Below is a synopsis of what we accomplish and information on how we handle typical teaching challenges.

Day 1: We begin every class with a brief history on how and why OFPD adopted the Blue Card program and where are we now. After introductions, we ask students what they like or dislike about the program and whether they have any questions about it. This has been very beneficial because it allows us to address issues before we get started.

Next, we deliver lectures on the Functions of Command and Communications. During these lectures, we usually address the questions and concerns identified at the beginning of class. The lectures also allow us to make sure that everyone is on the same page, regardless of when they completed the online portion.
We split the class into two groups of six to complete sets and reps. This allows us to complete more repetitions with each student. The sets and reps allow the students to practice and ensure they are comfortable with the Blue Card system.

Lesson learned: In the early stages of the program, we realized that many students struggled with tactical worksheets and tracking resources. Now we review tactical worksheets and how to track resources prior to performing any simulations. We developed a sheet that serves as a guide for the size-up report and provides a way to track resources for the entire class. We then play audio from an actual incident and have each student track all of the resources and tactical benchmarks for the incident. We also have the students track the resources for the rest of the class so they can practice tracking and figure out what system works for them. This review has proven beneficial for students and instructors.

We keep the class split into two groups of six throughout day one. The groups alternate from simulator to classroom to complete residential simulations 1, 4a, and 4b with each group. We chose these specific simulations for their simplicity. Simulations 2 and 3 cover a house fire with an exposure, which can overwhelm some students who are still learning the process. Simulations 1 and 4 cover one structure, which allows students to learn the system at an easy pace, builds their confidence and ensures class ends on a high note. This rotation allows each student to complete more sets and reps and simulations.

Day 2: On the second day, we keep the groups separate for the sets and reps, but we merge them for the simulations. Lesson learned: In our first classes, we didn’t review sectoring, and our students struggled with the fire and exposures in these simulations. Many students have little or no experience with sectoring, staging or being a support officer, so we start Day 2 explaining how to sector an incident and describing the communication required when requesting resources. We also created vehicle cards to assist the students in tracking resources as sector chiefs. The cards are used like accountability tags to maintain an accurate list of resources located within each sector division or group. The students are placed in the roles of incident commander, support officer, staging officer, and sectors Alpha, Bravo, Charlie and Delta. The students then walk through a small-scale incident, demonstrating the necessary communication skills. Once the sectoring and support officer demonstration is complete, we finish the residential simulations utilizing Residential Simulations 2 and 3. We have seen a big improvement since we started reviewing sectoring. We finish Day 2 with the Residential, Multi-Family and Strip Mall simulations.

Day 3: We begin in a large classroom where we watch the Commercial Building Critical Factors DVD provided in the train-the-trainer video package. When it’s complete, we review the material and discuss how it relates to residential structures as well. During the classroom session, we discuss the new UL/NIST data. This part of the class has been very fluid as more data becomes available to the fire service. This discussion has been well received and documented as beneficial on class critiques.

After completing the classroom sessions, students perform the sets
and reps for commercial and big-box building types. The students soon realize the amount of resources needed to mitigate incidents of this magnitude and the need to expand the command team to manage these resources. At this point, we introduce the role of the senior advisor, and we cover command-van operations. To enhance command-van operations and resource tracking, we have developed a type of sticky note, which helps the command team track the resource needs within different sectors/divisions/groups (SDGs). The SDGs provide CAN reports and communicate specific needs to the IC, who passes this information to the senior advisor. The senior advisor then calls staging to fill the resource need and notes the assignment on the sticky note, which he passes to the IC for tracking on the tactical worksheet or board. The students used this system and the command van operation to complete the final simulations.

The final day concludes with the students completing Residential Simulation 1. By revisiting this scenario, students can gauge how much they have learned between Day 1 and Day 3.

**Future for our Training**

At the end of each class, we ask students to complete an evaluation form to help us improve future classes. Feedback has been extremely positive, regardless of the type of department (paid, volunteer, combination) or rank/experience level of the student. Quotes include: “Best class I’ve taken in 30 years”; “Every new officer should be required to take this class”; and “This should be included in the fire officer series.”

We have recognized many positive effects from the training program. After taking our class, many departments are working to develop standard SOGs and terminology. We have seen improvements in standardizing fireground operations. The training program has helped us achieve our goal of recognizing standard conditions, deploying standard actions and realizing standard outcomes. The use of this system and the associated training program is not a light switch. We cannot expect our members to complete the program and instantly utilize it perfectly. We must continue to train—not only on incident command, but in every skill in order to maintain the highest level of proficiency. Next time you’re asked to train, remember that training is not about whether you know how to do something or not, but how proficient you are while doing it.

Dave Piper has 20 plus years in the fire service and currently serves as the training and safety officer of the Orland Fire Protection District. Dave earned his bachelor's degree in fire science management from Southern Illinois University. He also holds a master's degree in public administration from Governors State University. He recently received the Chief Training Officer designation from the Center of Public Service Excellence.
The fire service probably uses thousands of different tactical worksheets. I grew up in a system where we threw the tactical worksheet in the trash when we were done with it. For larger, longer-duration fires, the IC and support officer would fill out and toss as many as five tactical worksheets. No matter what type of tactical worksheet you use in your system, there’s a good chance that many people in your department struggle with them for one reason or another.

As we travel throughout the country (Canada and Australia, too), we hear some grumbling about tactical worksheets. These grumblers have asked us to create a tactical-worksheet primer to help explain the process. To that end, this article outlines a tactical-worksheet training package, which we have built around the IC using a tactical worksheet to manage strategic-level accountability and to manage the incident action plan (IAP).

We have included a PowerPoint presentation, which provides a detailed overview and explains how to use tactical worksheets in a simple and effective way. We have also included five tactical-worksheet exercises, which you can download and use for additional classroom instruction. You can find all of these tools on the last page of this article.

A Word About Our “Worksheet”

Many departments use pre-printed paper worksheets. For several reasons, we are partial to using an 8.5” X 11” (or larger) whiteboard. Using a felt-tipped marker allows the IC to make changes to the tactical worksheet throughout the incident—no need to throw anything in the trash. Today’s whiteboard technology has semi-permanent markers that require a special spray to erase. This eliminates the possibility of having an errant swipe of the arm erase the IC’s treasure trove of tactical information.

As you go through this program, you will notice our tactical worksheet starts out blank. There are no tactical reminders, checkboxes or any other kind of checklist. The worksheet I used during my days as a battalion chief even had a space to identify the IC. This piece of information would only be handy if you forgot who you were while commanding a fire in a burning building. It wasn’t uncommon to hear young battalion chiefs read the boxes of the tactical worksheet over the tactical radio channel. I believe check boxes for water supply, ventilation, utility control, the incident address, 2 in/2 out and each tactical benchmark are often misplaced on a tactical worksheet. The details of an attack plan should not be a mystery to officers who serve in the role of strategically positioned IC. These ICs are typically the most qualified officers on the scene as it relates to command. The IC should know the incident operation is designed around the tactical benchmarks of “all clear,” “under control” and “loss stopped.” It shouldn’t be a surprise that the IC...
must manage water supply, ventilation, secure the utilities and verify that all seven sides of the fire have checked for extension. Note: This in no way is intended as an indictment for using check-off sheets and other lists to eliminate mistakes and increase both safety and effectiveness. If this is the system that works in your department, by all means, use it. However, it is important to remember that you use the checklist before you take off, not while you are actually flying—or managing an active hazard zone.

**Pay Attention to the Hazard Zone**

The IC can run into major problems when they pay more attention to the worksheet than the incident conditions. The IC uses the worksheet to keep track of companies and the completion of tactical priorities, but their primary responsibility is to manage the overall incident strategy. This is an ongoing requirement whenever firefighters are operating in or around hazardous conditions. The IC does this by basing the overall strategy (and subsequent IAP) on the critical factors. This evaluation is driven primarily by the visual information the IC views from the command post. The IC must not allow the worksheet to become a distraction from monitoring the incident conditions.

**Worksheets Have a Time & Place**

The initial IC is typically a company officer who will be involved in the initial attack (in the fast-attack position). It is impractical at best for this individual to use any type of tactical worksheet. For this reason and many others, structural firefighting operations require the fast-attacking IC to communicate the IAP via the tactical radio channel. The initial radio report for structure fires includes the chosen strategy, a basic description of the structure, the occupancy type, the fire conditions and location, and the action of the initial company. As later-arriving units stage, the IC gives them specific assignments that include a task, location and objective. This assignment is made over the tactical radio channel. The initial IC typically can assign up to three engines and a ladder company while operating in the fast-attack position. The initial wave is assigned over the tactical radio channel and successfully eliminates the fire the majority of the time. In instances when the initial attack doesn’t eliminate or control the fire, we must reinforce the incident operation by transferring command to a strategically positioned IC.

The responding chief facilitates the transfer of command by monitoring the tactical radio channel while responding, arriving on scene and confirming the position and function of each initially assigned unit. At this point, the strategic-level IC records the information on the tactical worksheet. The command transfer becomes seamless when the strategic IC is paired with a support officer. This allows the responding officer to monitor and record assignments during the response while referring to maps and other pre-plan info. If the responding chief (or whoever will serve as the strategically positioned IC) is responding solo (i.e. driving themselves), they can monitor the tactical radio channel during the response, but it is unsafe to begin filling out the tactical worksheet or to reference the mobile computer (think texting while driving on steroids).

**Let’s Get Started!**

In this training package, we complete the tactical worksheet using five different structure fires from the Blue Card simulation package: a single house fire, a two-house fire, a three-story apartment building fire, a strip mall fire and a big-box structure fire. See the box to the right to download the exercises and the PowerPoint Presentation.

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**No. 1 Single House Fire**

Please click the paperclip at right to launch Worksheet Exercise 1.

**No. 2 Two House Fire**

Please click the paperclip at right to launch Worksheet Exercise 2.

**No. 3 3-Story Apartment Fire**

Please click the paperclip at right to launch Worksheet Exercise 3.

**No. 4 Strip Mall Fire**

Please click the paperclip at right to launch Worksheet Exercise 4.

**No. 5 Big-Box Fire**

Please click the paperclip at right to launch Worksheet Exercise 5.

**PowerPoint**

Please click here to download the tactical worksheet PowerPoint presentation.
Earlier this year, the Supreme Court ruled on DOMA, the Defense of Marriage Act (or parts of it). I didn’t read the ruling, and I probably never will. Like most members of modern civilization, I can’t imagine how the institution survived before the Federal government arrived. The law itself, which sought to define marriage for us poor, helpless commoners, is remarkably short. I wonder if Congress will define other words for us, and how long those definitions will survive before the Supremes strike them down. I think we can all agree that having Congress operate as a dictionary is money well spent. The ruling on DOMA is far longer than the law itself, I bet. In my opinion, the Supremes should have said: “It’s none of our damn business who marries whom. It’s also not California’s business. How about everyone just butt out of everyone else’s business?” but they didn’t. Politicians don’t seem fond of saying, “It’s none of our business.” In general, our politicians think it is their business, and they’re not afraid of arm-twisting in order to get you to understand that. The term is authoritarian. In the relationship between government and citizen, the typical attitude is that the government is the boss.

That attitude is exactly backward. We all know government should be a servant, not a master, which is why we use the term public servant. It’s a term politicians and bureaucrats are quick to apply to themselves, although I’m hard pressed to see how the people telling us whom we can and can’t marry are servants. A skeptic might call that propaganda.

If there’s any government agency that actually operates as a public servant, it’s the fire service. We wait until we’re called. We show up. We solve the problem, and we go away. Our services aren’t based on a person jumping through hoops or having a partner with the proper plumbing arrangements.
There are no forms, and no lines to stand in. Unfortunately, the fire service is not yet entirely free of the “I’m the government, so I’m the boss” mentality. Maybe it’s the badges, or perhaps it’s our access to money obtained by the schoolyard bully approach of “fork it over or else,” but that attitude still surfaces from time to time. I myself once possessed it, along with a gross misunderstanding of what it meant to be tough.

I encountered the “I’m the government, I’m the boss” mentality in my fire academy. The academy is an especially dangerous time for firefighter brains. Cadets are explicitly told to keep their mouths shut, their ears open, and their minds functioning only as sponges. A cadet’s critical thinking skills are often set to zero. Good lessons like “try before you pry” tend to sink in. So do bad lessons, like “When we go to a fire, the house, car, warehouse, or whatever belongs to the fire department until we release it.” That lousy lesson, along with its superior attitude, stayed with me for years.

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In context, the instructor was talking about keeping people out of their homes for safety or investigative reasons. We weren’t being given license to abuse the property, and we were not taught to be rude. Well, not intentionally. It’s easy to see how that approach would set firefighters up for conflict. The properties to which we respond never become ours. The property owners clearly don’t see it that way, and if you tell a person trying to get into his home that it’s yours until you release it back to him, you’ll probably get an unfavorable response. It’s really a horrible way to phrase things. Words are important. Choose the right words.

The lesson collided at some point with the customer-service approach, when it finally reached my department. I’m a massive fan of semantics. Empowered with my authority, I balked at the concept of citizens as customers. We did not deal with customers, but with victims. I was pretty convincing, and pretty convinced. I was also supremely arrogant and wrong.

The “It’s our house” mentality diverges from nice, plotting a direct course to asshole. It sets the stage for authoritarian nonsense. It makes us like every other government organization, which is a crying shame. We can be the Mother Theresas of government goons, existing to protect life and property, kittens and orphans. The authoritarian approach simply isn’t necessary. People don’t want to pay traffic tickets or stand in line for permission slips; people do want to be rescued from fires, explosions or other nastiness. After years (YEARS!) of arguing to the contrary, I’ve moved around to the position that using “customer” sets the proper attitude of service. “Be nice” works in a similar way. That’s your initial approach. If you don’t want to be Mother Theresa, think of yourself as Sheriff Andy Taylor. Without the gun, of course. The proper attitude puts us in the perfect position to do the job and make friends while doing it.

But when we have the wrong attitude—the “I’m the government, so I’m the boss” attitude—the focus tends to change from bringing order to a scene for the purposes of protecting life and property to enforcing obedience. The difference in behavior is obvious. On the interwebs, there’s video of a fire chief unloading multiple F-bombs on a citizen who crossed the invisible danger barrier and entered a hazard zone. We can tell it’s a hazard zone because when the chief walks up to scream at the citizen, the chief is clad in a protective ensemble of ball cap, T-shirt, and jorts. When you’re dressed like you’re out for a walk in the park, don’t be surprised if you activate the bullshit sensor of citizens when they enter a restricted Zone of Immediate Death. Especially if, like the chief in the video, you didn’t put up any fire-scene tape. Point of fact: There are cold zones in which we might be dressed rather comfortably. Explaining this to the occasional skeptic need not involve yelling, epithets or badge-beating.
It embodies everything wrong with our government, that authoritarian badge-beating, and I can’t hate it enough. When we roll up on a scene, we may not be encountering people at their best, but we are also not entering a war zone. We might run into some real jackasses, and they might heap some abuse on us. In my experience, this usually is motivated by their fear. People like for the world to make sense and when disaster hits, when people see carnage to which they’re unaccustomed, they freak out. If we respond to their freakout (however it manifests) by being unpleasant or rude, we’re apt to destabilize the scene further. It’s like radiant feedback. Think of the customer as a burning building and yourself as an exposure to that heat. If you reflect it back it will accelerate them, which will in turn accelerate you, and you’re both apt to start free-burning. All you do is increase the work it takes to calm everything down, expending energy needed to solve whatever problem you were called for in the first place.

The “It’s our house” mentality diverges from nice, plotting a direct course to asshole.

Maybe the badge is part of the problem. It sometimes appears to shine with its own inner light, as if imbued with arcane powers. But it’s really only a lump of metal. The badge is just a means of identification. It’s not a magical talisman, it doesn’t grant rights, and firefighters are not the boss of the people they’re helping. We’re skilled labor, hired help. Hopefully, we’re authorities, but in the sense of being an authority on the situation at hand. We have the skills and training that make our actions legitimate. Most people will assume that the uniform/costume we wear signifies that we are experts, individuals whose advice should be heeded. Those few that don’t are more likely to be won over by someone who calmly and respectfully explains what needs to happen and why. If we choose the blustering route, we might manage to shut them down, but in general, control gained through aggression must be maintained by continued aggression. Start off with force, or rudeness, and you probably have to use the same approach for the duration of the scene. It’s easier to get people on your side by being nice. Which officers do you follow best? The ones who shout and swear and threaten, or the ones who calmly issue orders on scene?

A word about orders. What are they and what is their purpose? You could think of them as ultimatums (they are, in some instances), but their real purpose is to give order to things, to provide direction. Customers want to survive, or they wouldn’t have called you. All you have to do is point them in that direction, and you can do that nicely, without bluster. Think of orders as a means of accomplishing that objective instead of demands of obedience and the underlying attitude will shine through, and we can take full advantage of the cooperative relationship we naturally have with our customers. We can afford to be nice. In fact, it profits us to be nice.

I used to think that being nice meant being weak. Something about government authority makes so many possessing it forget that the government is just another entity that’s supposed to be providing a service, consequently, government types get upset when people don’t obey. That “Obey me or else” attitude leads to things like yelling at citizens who walk onto an unmarked scene. Remember: Badges don’t grant rights.

If I can’t convince you that being nice is the right thing to do, perhaps I can convince you that it’s a means of avoiding trouble. You cannot disagree that being nice will reduce your chances of a citizen complaint. I believe most fire departments expect members to be courteous on scene, so being nice is actually a job requirement. A citizen complaint can be a long experience in misery, culminating in disciplinary action that might include losing what has
been scientifically proven to be the best job in the universe. The public is becoming less tolerant of disrespect. Cameras are more and more common. There’s a good chance that if you decide to abandon the maxim of “be nice,” you will end up on YouTube. There are thousands of Internet activists happy to call organizations and demand action against rude employees. You see this frequently with police officers. People are deciding they have the right to be treated with respect, even by government workers. I personally welcome it, and I’ve developed courteous ways of dealing with people taking video. If a citizen is recording an emergency scene, I ask them to please respect the people we are coming to help—if they can hear people giving us their private information, I ask them to cover the microphone or step out of audio range. I also ask them to stay outside of our various hazard zones in order to make our job easier. If they want my name, I give it to them. If they ask for information, I explain the restrictions placed on us for sharing information and point them toward our Public Information Office. Within reason, of course. It’s not nice to let a scene fall apart while talking to someone who just wants a video to show their friends.

What if you do encounter a belligerent citizen? You can’t really be nice, then, can you? I think you can. The idea is to avoid losing your shit and getting into an ever escalating power struggle with the belligerent. It’s up to you to find the particulars on how to deal with this, but let me make a very unfavorable comparison to put you on the road to handling the problem, and also make my final argument that being nice does not mean being weak.

When you encounter an aggressive dog, the best solution is generally to hold your ground, avoiding both threatening moves and running away. That’s being nice. Being nice isn’t full retreat. It’s the middle ground between stepping in to slug it out and running away. Probably the most succinct response to give the oppositional customer is: “I’m here to help.” Being nice is simply about making that platitude true.

Johnny Peters is a captain with the Houston Fire Department, and one of maybe five members who actually live in Houston. He is capable of hiding in an open locker for several minutes in order to frighten a co-worker coming out of the bathroom, but only uses his power for good.
Little Red Love Machine

Originally painted yellow (on purpose), a 1954 Mack gets a chance at redemption.

BY JOHN VANCE

Purify yourself with the waters of Lake Minnetonka’s first fire truck.” Ok, Prince never said that in “Purple Rain,” and truth be told, this truck was near the end of its service life and painted yellow when “Purple Rain” was filmed in Minnesota, so maybe it is best he didn’t. Now restored beyond its former glory, this Mack can still “Pump 4 U”!

The gorgeous Lake Minnetonka Mack you see here was once painted yellow. This is what it sounds like when doves cry, kids.

The Minnetonka Fire Department (MFD) 1954 Mack fire engine served the Township of Minnetonka (later the City of Minnetonka) from 1954 until 1987. This truck was restored to its original condition (sans yellow paint) in 1994 and remains in our fleet as a “parade piece.” It’s always a popular attraction at community events.

MFD serves the City of Minnetonka, located in Hennepin County just 8 miles west of Minneapolis. Minnetonka is a fully developed suburban community of 51,451 residents, making it the 19th largest city in Minnesota. We protect our residents and visitors from five strategically located firehouses. Although our old Mack engine gets the most attention and adoration, our fleet includes several other great vehicles, including eight pumbers, five ladders, two light rescues, one air truck, one boat, two grass rigs, an off-road “ranger” 6x6 and various utility and staff vehicles. The MFD has an ISO rating of 3 and is staffed by a dedicated group of seven full-time and 80 part-time personnel.

While Minnetonka shares its name with the very popular Lake Minnetonka, the city of Minnetonka only includes the lake’s bay—Gray’s Bay—which forms the headwaters of Minnehaha Creek. The Minnehaha Creek flows into the Mississippi, which, by the way, is where Appalonia supposedly purified herself.

John Vance
Fire Chief
Minnetonka Fire Department
Minnetonka, Minn.

More pictures pg. 47>>>
Do you have a gorgeous restored emergency vehicle? Tell us about it! Please e-mail us a brief write-up that describes how you acquired the vehicle, what you’ve done to restore it and its original and current specs. We need several before and after pictures to help tell the story, so please include jpgs. Send your submissions to editorial@bshifter.com, writing “Rear Axle” in the subject.

Does your restoration project rival Bruno’s beloved Mack pumper, or the Mack engine featured in this issue? Prove it!