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ISSUE 6

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ISSUE 6 CONTRIBUTORS

QUICK WATER

Joe Boyle, Lieutenant, Engine 69 FDNY remind us that even in urban areas with an abundant supply of hydrants, quick water is not a given.

RON TROUT

Tim Anderson, Firefighter, Engine 16 Philadelphia Fire Department introduces us to Ron Trout. Trout, a fire photographer, is a person who shares his love for a great urban fire department. Come see the Philadelphia he hopes the rest of you will see, too.

TRAINING DAYS

Dave Coker, Greensboro (NC) Fire Department takes us along to an event that celebrates the life of one of the fire service's icons: FDNY Lieutenant Andrew Fredericks (9/11). Come see why the Andrew Fredericks Training Days is becoming one of the premier and most memorable training events in the Country.

CROSSFIT FOR THE FIRE SERVICE

Erich Roden introduces us to a new level of firefighter fitness: CrossFit. Come see how this cultural and inspirational fitness program is changing the lives of everyone who gives it a chance. And why it's important that every firefighter discovers the importance of functional fitness.

PHILLIP KNIEP

Erich Roden continues Urban Firefighter Magazine's advocacy of CrossFit by introducing us to one of its champions: Phillip Kniep. Kniep, a Lincoln (NE) firefighter describes CrossFit's importance in making firefighters better, and what it entails to take it to a competitive level. Come see what makes Phillip a remarkable firefighter on the competition floor and fire floor.

VENTING THE ROOF? MASK UP!

Nick Martin, Sergeant, Washington, D.C. Fire Department discusses a real-life close call that became very personal for him on the roof. Nick describes the purpose behind wearing the SCBA that's on your back to accomplish what you're supposed to, every time. Check out the story to see why it also makes you 'battle-ready.'

SCRUFFY WALLACE: THE DROPKICK MURPHYS

The Dropkick Murphys have a very large area in their hearts for firefighters. Erich Roden sits down with their piper: Scruffy Wallace, and finds out why. The 'Dropkicks' produce inspirational and energetic music with strong messages, and that the firefighters' message can be heard in every song. Come meet Scruffy backstage and perhaps hear a few more.

COMING TO GRIPS

Aaron Fields, Firefighter, Seattle Fire Department has a 'crooked' perspective when it comes to effectively advancing hoselines. Aaron depends on people he can lean on, and after reading this excellent hoseline management technique, you'll be looking to lean on your fellow firefighters more often, too.

PEOPLE IN FIRES

Erica Kuligowski, Ph.D. National Institute of Standards and Technology, likes to take the stairs at work. She also likes to see how you take the stairs, too. Erica studies and develops evacuation modeling in an attempt to better quantify how people move, and don't move when it's time to exit. Studying evacuation models assist the fire service in determining what our life hazard actually is when we arrive.

PHOTOGRAPHER CONTRIBUTORS

Front Cover Photo: **Gabriel Angemi**

Ron Trout
Erich Roden
Mandy McGowan
Matthew Negedly

Photo By:
Ron Trout

Six fantastic issues of Urban Firefighter Magazine have been created and gifted to you, the reader. We ask something in return: We ask that you continue to read and share this magazine with your fellow firefighters. We ask that you get something from each issue which should be easy enough, even if it's a smile.

We are covering new ground again in Issue 6 with the inclusion of fitness, but not just any style of fitness: we're talking functional fitness which is directly related to firefighting. Discover some of the hardest workouts you'll ever want more of. We never stray far from our roots of experienced urban firefighters sharing procedures, tactics and tips. We always try to provide a focused look at things that impact the urban fire service and our readers.

We are one year into the decade which holds the promise of some interesting tactical developments, many good, and some bad. The urban setting is where many ideas originate and where some just land. We owe future firefighters a legacy of operational tactics that places them in the best position for success. Our ideas for the future – gained by countless extinguishments – needs to be the foundation upon which future firefighters operate. The culture of extinguishment is a model that does not evaporate like steam, instead it surges through urban hoselines across the country, dispersed in many forms to obtain the ultimate goal: extinguishment.

Keep Fire in Your Life

Ray McCormack

Publisher and Editor, Urban Firefighter Magazine

UFM ISSUE 6

LETTERS FROM THE EDITORS

Issue 6. We have packed everything you have come to expect from Urban Firefighter Magazine into this issue. You will meet new people and learn a few things from the ones you know. We strive to introduce you to people who are making a difference, either in their professions and actions, or through their writings. Either way, the urban firefighter in all of us should celebrate the collective of culture, duty and training; in the urban fire service, all three are synonymous and equal in their importance. And nothing is more important than the people that make up the fire service. At a time when we are losing this greatest resource to influences outside the purview of the firehouse and fire department, respectively, we need to understand that the culture we subscribe to and support is the one the next generation will want to be a part of. So come, take few minutes away from the newspapers and punditry and read why our culture is alive and well. And that the fire service will be, too.

Erich Roden

Publisher and Editor, Urban Firefighter Magazine

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Friends of Firefighters, Inc. (FoF) is a New York City not-for-profit corporation that b
group in response to the events of September 11, 2001. Our preliminary efforts focu
practical support to the firefighters and their families in the New York City area.

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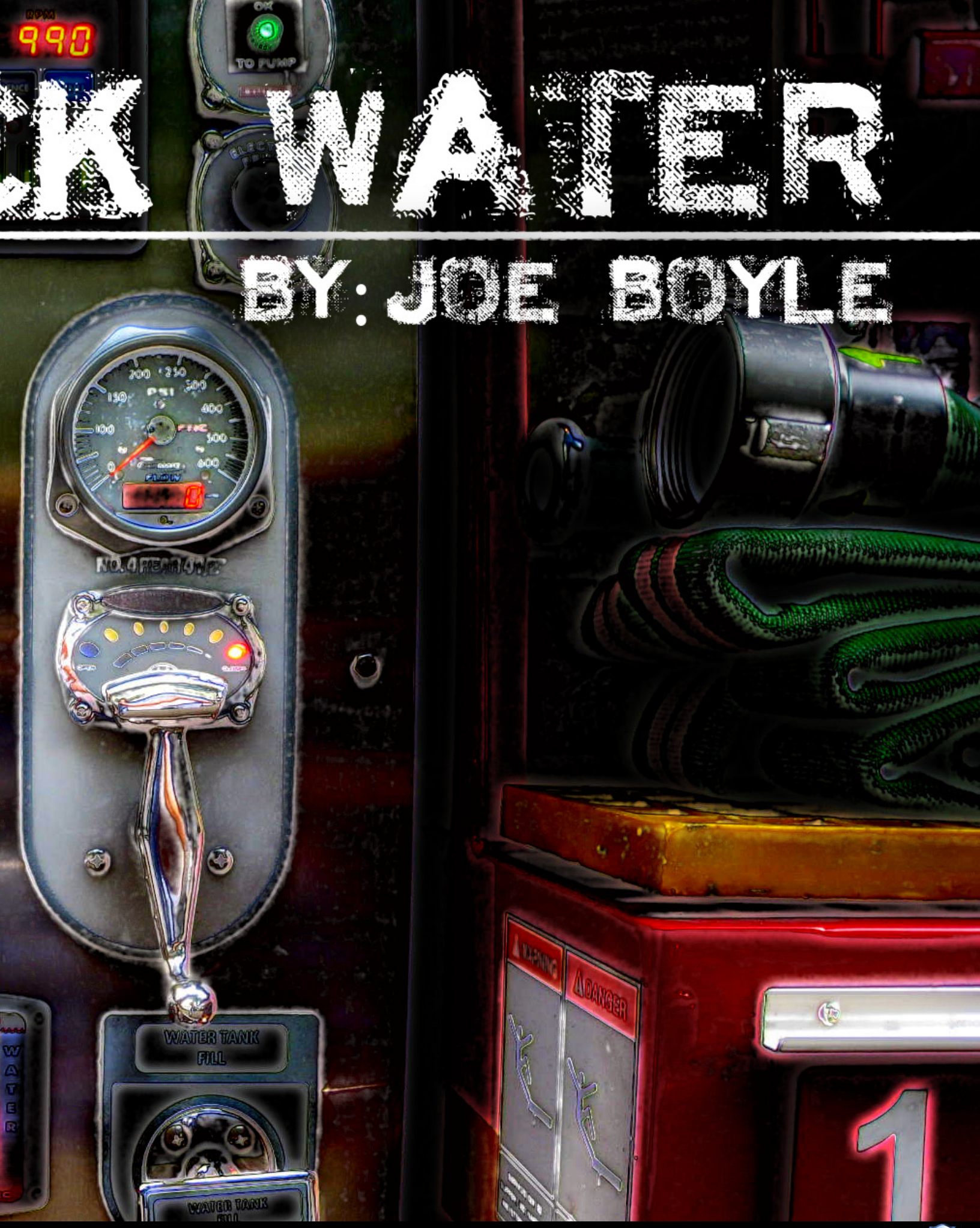
K WATER
BY: JOE BOYLE
WATER TANK FILL
DANGER
1

In the urban environment – with a well established water delivery system, and a network of fire hydrants – establishing a quick and constant high-volume supply of water is rarely a problem' however, it may not be so quick. While for the most part it is true that urban areas usually have water supply grids and hydrants at regularly spaced intervals, the key word in that statement is "quick." Even junior members come to realize in short order that many problems arise when an engine company is trying to establish their water supply while getting the first handline into place.

Hydrants can be, and often are in some areas, blocked by parked vehicles. Poorly maintained hydrants may have stripped threads or may not operate at all. They may also be filled with litter or debris which can clog pump intakes. In cold weather climates, hydrants that do not drain properly can freeze or may be buried in snow. When these or other unforeseen problems are encountered, an engine company must rely on the water that is carried in the booster tank for the initial handline.

So what are the considerations regarding operations using booster water?

How much water do I have?

How long will it last?

How much fire can we extinguish?

We may also seek answers to some tactical questions such as:

How aggressive an attack can be mounted?

Should we try to conserve water?

What are our communication considerations?

The purpose of this article is to provide an analysis to those questions.

A good engine company must have confidence to operate on booster water. When an order is sent to charge the handline, the pump operator should immediately drop any other tasks (such as hooking up to a hydrant) and supply booster water. The reason for this is simple: a life may immediately hang in the balance and charging the line with booster water is an order, not a request. The pump operator can immediately return to securing hydrant water once the line is charged with adequate pressure. Communications here is crucial to a successful operation. The hose team must be made aware that they will be on booster water. Just as important are communications to other incoming units if any problems are encountered with establishing hydrant water.

Once an engine is pumping, it is committed to that location. If a problem is encountered with the original hydrant of choice, the pump operator will almost surely need some help. This may mean calling for another member from another incoming unit to help, or it might require the service of an entire company to relay water using large diameter hose from a more remote hydrant. In all cases, the pump operator must remain calm, focused and communicate clearly with concise messages to the hose team and other incoming units of what the problem is, and what form of assistance is required.

Assuming that an engine is going to be operating on booster water, the answer to the question of how much water do we have and how long it will last is something that all members should know, and have an innate practical feel for. In order to meet National Fire Protection Association (NFPA) 1901: 5.4 guidelines, pumping apparatus must have a minimum of a 300 gallon water tank. The vast majority of pumping apparatus in urban areas usually have tanks that hold between 500 - 1000 gallons. Let's assume for analysis that the booster is 500 gallons.

The next question is what size hose are we going to use. Again, for analysis, we will use 1 ¾ " hose with a flow of 180 gallons per minute (gpm) using a smooth bore nozzle with about 50 pounds per square inch (psi) at the nozzle. An automatic combination nozzle may flow 200 gpm or more depending on nozzle specifications. Keep in mind that these nozzles may require 100 psi at the nozzle to produce such flow rate, and result in greater nozzle reaction. When confronted with the higher reactions, nozzle firefighters often gate down at the nozzle for better control. Unless flow meters are used, it is often difficult to establish an accurate flow rate using automatic nozzles.

A 180 gpm nozzle will flow will last for 2 min and 46 seconds if all 500 gallons are available. In reality however, the whole 500 gallons are not available. Consider, for example, the water volume needed to fill the hose and the water left in the tank and pump.

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STOP

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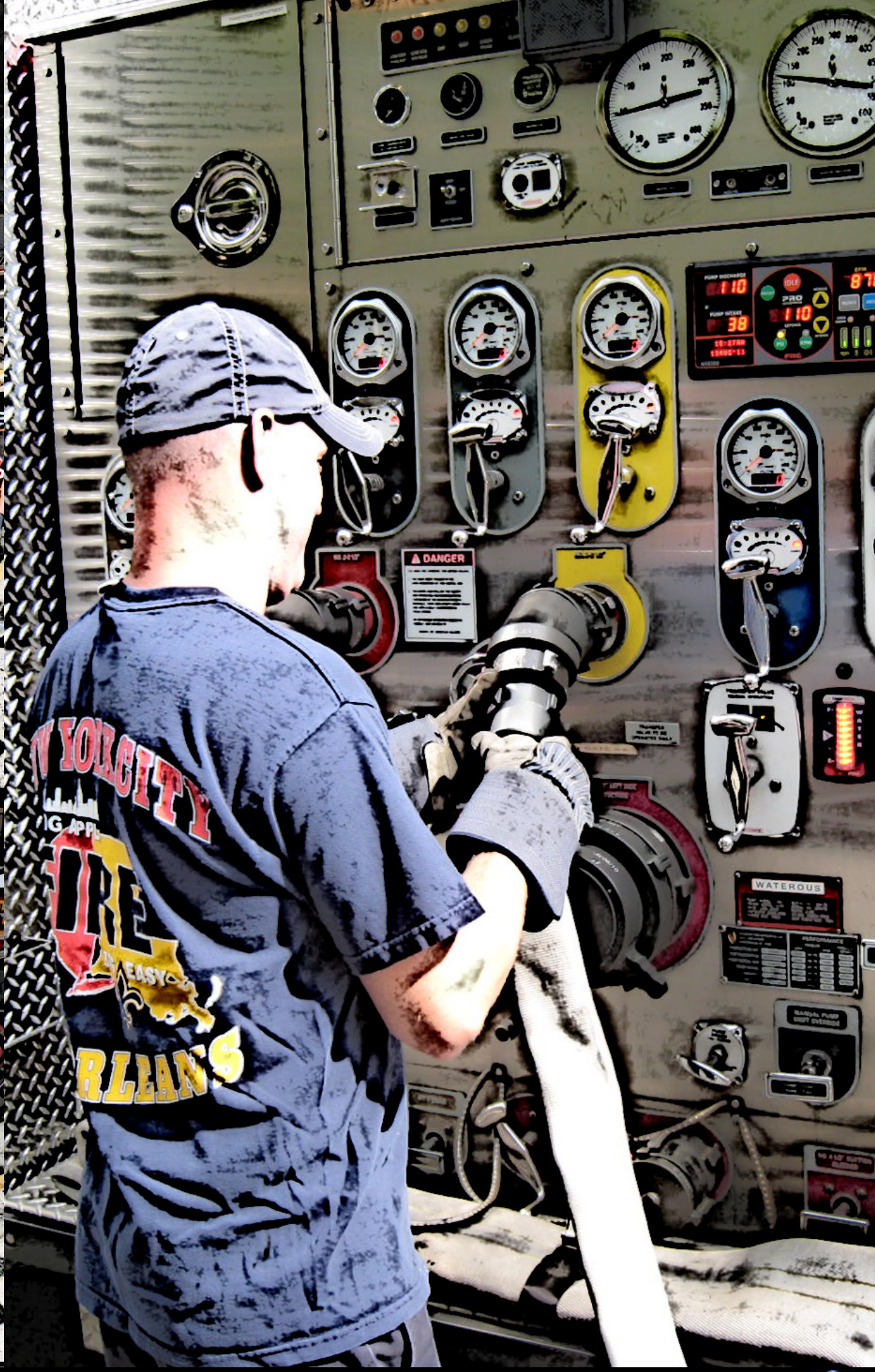
DANGER
WATEROUS

So how significant is this water volume and does it affect our operation time?

To calculate the water volume in the hose, we can apply the mathematical formula for the volume of a cylinder and apply that to the hose diameter and length. Without losing your interest to mathematics, the rounded off results are 6 gallons per 50ft 1 ¾" hose and 13 gallons per 50ft 2 ½" hose. So how long will the stretch be? In urban areas where private dwellings prevail and engine companies use an in-line supply from a hydrant, a 200 foot stretch may be the most common. A 200 foot stretch of 1 ¾" hose means there is up to 24 gallons of water in the hose. In urban areas where walk up apartment buildings are common and engine companies use a back stretch to a hydrant, it is not uncommon to see stretches of 6 lengths of 1 ¾" hose filled out with another 5 lengths or more of 2 ½" hose for a fire on a top floor. With these stretches, we are looking at a more significant 100 gallons of water in the hose!

It is also possible that there may be water left in the tank that does not reach the pump. Such may be the case if the pumper were parked on an incline. It seems, however, when compared with the water in the hose on a long stretch, that this amount is probably negligible when factoring operation time.

Using the scenario of operating a line at 180 gpm, a long stretch, and 500 gallons, our operation time has fallen to 2 min and 13 seconds. In my mind, this length of time of continuous operation is still "a lot of time" and it is worth drilling on to get a real world practical feel for it. Even if it still "feels like" a lot of time, how much fire can we extinguish with that line? Is it possible to actually calculate how large a body of fire can be handled with our booster water based on the heat vaporization properties of the water we have available.

There have been a number of studies conducted which aim to give some idea of water requirements to extinguish structural fires. According to chapter 6 of Fire Service Hydraulics and Water Supply by Michael A Wieder, three formulas commonly used by the fire service in the last fifty years are presented and explained. They are: The Iowa State Formula, the National Fire Academy Formula and the Insurance Services Office Formula. After analyzing these formulae, it becomes clear that they are aimed at providing estimates for fire flows necessary to develop preplans rather than to provide for tactics at working fires[1]. What's more, these results are only approximations of fire flow requirements at best.

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WATER TANK
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TRANSFER VALVE
MANUAL OPERATION
ELECTRIC

The NFPA Fire Protection Handbook 20th addition sums it up as follows:

Currently no broadly accepted methods exist for prediction of energy release rates based solely on basic measurements of material properties. In addition, in any enclosure fire, the actual rate of heat release is dependent not just on the burning fuel but also on the fire environment, i.e. enclosure geometry and ventilation, the manner in which the fuel is volatized, the efficiency of the vapor combustion and other physical and chemical effects[2].

All this is technical jargon states is that there is no sure way to predict the amount of heat produced at a structural fire whether it is one room or numerous rooms that are involved.

So where does that leave us in determining how far our hoseline flowing booster water will go in putting out fire? It can be summed-up with one word: experience. I have always found it fascinating how little water it sometimes takes to extinguish a fire when it is applied directly to the burning fuel. A room of fire in a residence is quickly knocked down in seconds when the nozzle is positioned at the entrance or inside the room itself. I remember one such fire as a probie where, dare I say, that I was disappointed at how quickly the fire was knocked down. Conversely, I have had the experience where the line was open for a considerable amount of time just to extinguish a one room fire.

In that case, the line had to advance through a very large apartment in practically zero visibility just to reach the burning room. Flames could be scene in the heavy smoke even as the line advanced, but the fire was not being knocked down. This of course was a classic case of not actually getting water on the fire. The fire in the room was sending flames and high heat into the hall. Although the line had a cooling effect and afforded some protection as the line moved in, the main body of fire could only be extinguished as the final turn was made into the fire room. Needless to say, there is also the scenario where more than one room is involved and the line will need to operate longer.

All of your experience must come into consideration, as well as general size up measures when making a decision on how aggressive your attack can be using only booster water. The life hazard is always the primary consideration. When a known life hazard exists, we need to be as aggressive as possible. When performing a size up, it is very important that we try get a good idea of the size of the area involved in the fire. Companies operating on the perimeter of the building should report and relay what they observe to those on the inside.

We must also be aware of the risks to members associated with a seemingly routine operation. Running out of water without a knockdown of the fire can have, in certain situations, devastating results. One of the more dangerous scenarios is advancing down a long narrow hall to get to a burning room. The nozzle team may find it necessary to keep the line open for protection down this hall. If they were to run out of water with fire extending out of a room, they might find themselves in a very dangerous position. Gusts of wind through vented windows, or sudden flashovers in adjacent rooms, will create extreme heat in that hallway very quickly. In the ensuing high heat, the nozzle team may find in necessary to open the line fully in order to protect them and their exit.

As always, the pump operator has a critical role in informing the nozzle team of how much water is left at various intervals, and when hydrant water is finally obtained. The most common benchmarks are at half and a quarter tank of water remaining. The pump operator must get confirmation from the engine officer that these vital messages have been received. Members operating in the fire area such as a search teams, must also process this information and conduct their searches accordingly. Without proper knowledge, a search team may think that fire knockdown is imminent, and may unknowingly put them in an overly dangerous position if water runs out.

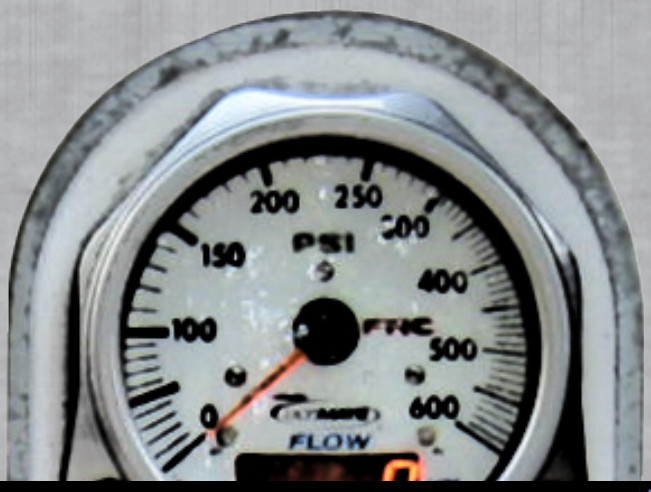
The question may also arise as to whether to try to conserve water while operating the line. Without getting too technical, the general theory of fire extinguishment holds that it is not only how much water is applied, but more importantly the rate at which it is applied. The more water we can apply in a shorter amount of time, the better our chances of getting a knockdown.

As a rule, I would say that if we can put ourselves in a position with the nozzle where we can effectively reach the main body of fire, conservation of water should not be a consideration. If however, the line cannot hit the main body of fire, and instead is being used for defensive purposes or for protection of a position until hydrant water is obtained, a more conservative use of water should be considered.

Ideally, all handlines should have a constant source of water, but in reality, it's only a matter of time before an operation using booster water alone will arise; that event will test the limits and judgment of the engine officer and firefighters involved. With some forethought, drilling and preplanning, engine companies will be better prepared and have added confidence to effectively handle these situations. UF

[1] Weider, Michael A. (2004). Fire service hydraulics and water supply. Fire Protection Publications: Stillwater, OK.

[2] National Fire Protection Association. (2008). Fire protection handbook 20th edition. NFPA: Quincy, MA.



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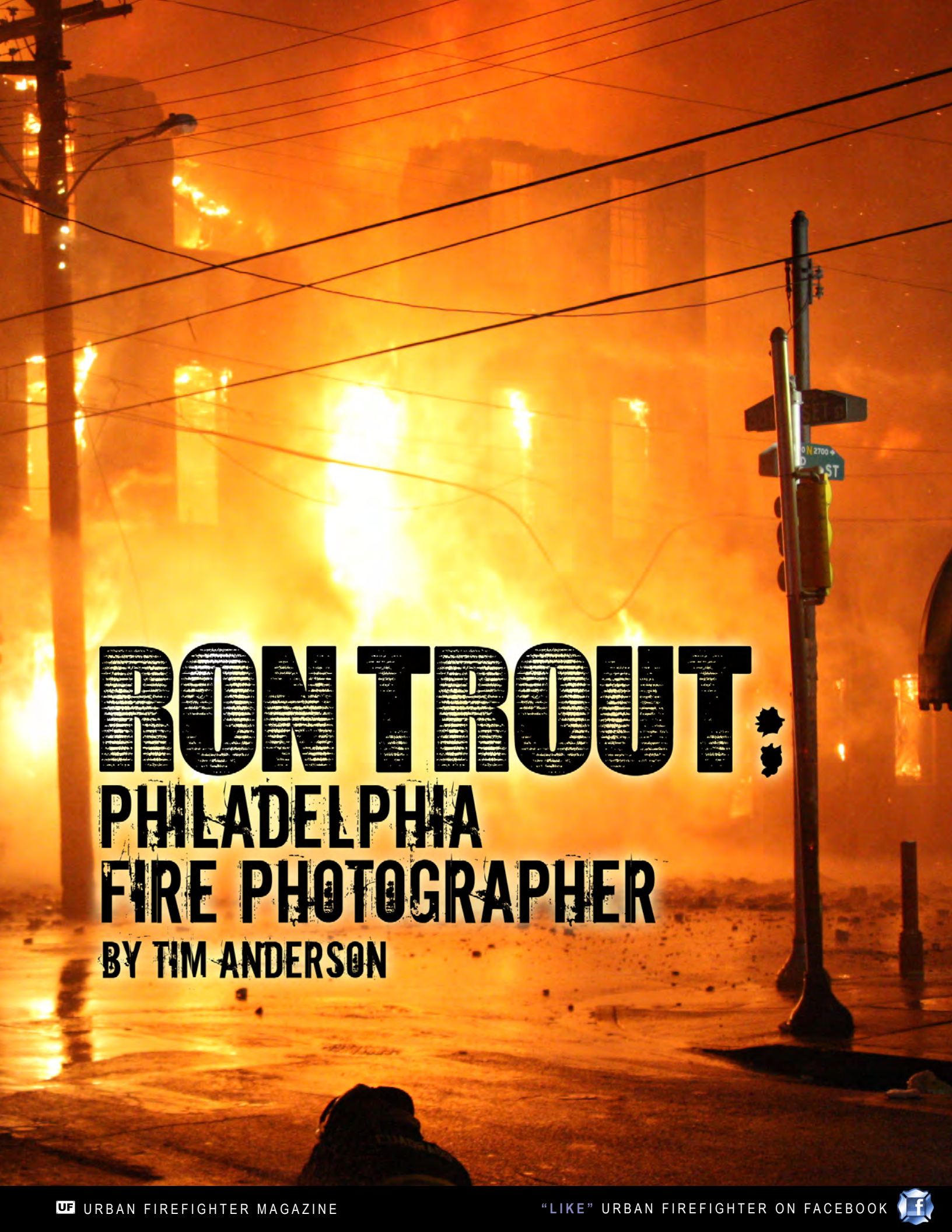

RON TROUT:
PHILADELPHIA FIRE PHOTOGRAPHER
BY TIM ANDERSON

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RON TROUT: PHILADELPHIA FIRE PHOTOGRAPHER

Despite his relatively short career in fire photography, Ron Trout has made a noticeable impact documenting fires in the Philadelphia area. He got his start in 2006 with the Philadelphia Second Alarmers Association, an outstanding 100% volunteer outfit that provides vital relief from heat, cold, and hunger for the members of the Philadelphia Fire and Police Departments at major jobs in the city. Responding with the Second Alarmers, he began carrying a camera and later submitted his photos to the local online fire site, www.phillyfirenews.com. It did not take long for the phillyfirenews owners to notice Ron's talent and dedication to fire photography; they took him on as a staff photographer in 2008.

Ron's enthusiasm to "get the shot" is perhaps his best asset. His willingness to head towards a fire before he hears it confirmed over the radio has allowed him to get an earlier jump than most other photographers, sometimes arriving and snapping photos before engine companies have finished the stretch (See the October, 2009 cover of Fire Engineering Magazine). These photos provide a valuable tool to firefighters reviewing their actions, as well as rare photos showing fire operations from start to finish.

Ron has become a prolific photographer at a changing time in the fire service, bearing witness through his photos as the fire department awkwardly adjusts to its smaller shoes. The same year he went on staff with phillyfirenews.com, the first in engine company to his own home in the Port Richmond section of Philadelphia was permanently closed due to budget cuts. When Camden, New Jersey made deep cuts and layoffs in its fire department this past year, Ron crossed the bridge to help cover the fires.

The work pays off for Ron though, knowing he has captured unique images that show a side of life and the fire service few see. "That's the best part, knowing I got the shot." It is clear from a single glance through the photos on phillyfirenews.com that Ron Trout "gets the shots," and gets a lot of them. There are few fires of consequence in Philadelphia that are not documented by Ron's photos, and the fire service is better off for it.

P.F.D.

RON TROUT:
PHILADELPHIA FIRE PHOTOGRAPHER

RON TROUT:
PHILADELPHIA FIRE PHOTOGRAPHER

PHILADELPHIA
FIRE DEPARTMENT

RON TROUT:
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ANDREW FR
TRAINING D

REDERICKS AYS

BY: DAVE COKER

Photos by: Alex Capece

It is hard to recall when you first heard the name Andy Fredericks, isn't it? It is one of those names which has been synonymous with the fire service in New York City. It ranks among the likes of Dennis Smith, Vinnie Bollon, Ray Downey, John Norman, Paddy Brown, and Mychal Judge. They are names that belong to men whose legacy is woven not only into the fabric of New York, but into the American fire service in its entirety. Their legacies were here before an entire generation of firefighters came on the job and will likely long remain after the coming generations retire.

Like many of my generation, my introduction to Andy Fredericks was posthumously through his writing. The first article I remember reading was Andy's account of the Father's Day Fire that claimed the lives of three firemen in the Astoria section of Queens in 2001. A few short months after Andy's emotional account of that tragic day, he himself would be among the 343 FDNY members who perished in the collapse of the Twin Towers. Since that time, the post-9/11 generation of firefighters across the country have come to know Andy through his technical articles and Fire Engineering *"Bread and Butter"* series videos.

In 2009, a different kind of training event debuted in the small southern city of Alexandria, Virginia, just outside Washington, D.C. It began as a collaborative effort that spanned from the Potomac to the Hudson, aimed at furthering the technical knowledge that Andy championed while raising funds for the Fredericks family.

Andy Fredericks Training Days (AFTD) – now in its third year and officially hosted by IAFF Local 2141 – saw a near-capacity audience in the iconic George Washington Masonic Memorial this year. Firefighters from across the country came, in a manner of speaking, to pay their respects in the most appropriate way possible to a man that has left an immeasurable mark on the profession of fighting fires; they came to have a few laughs, share a few drinks with other students of the job and, most importantly, to further their knowledge in the basic tasks of structural firefighting.

Alexandria has a unique firefighting history: George Washington is said to have purchased the first fire pumper in this city that lays claim to being the home of the oldest continually operating fire department in the United States. The Alexandria Fire Department (AFD) also protects what is considered to be the most pristine eight blocks of existing Colonial America. Due to the almost immediate occupation by the Union Army during the Civil War, much of Alexandria was spared the destruction that many southern cities met during this period in U.S. history. The fate of the city's original fire companies, tell a different story of occupation. The U.S. Army Quarter Master Department, established the U.S. Steam Fire House right on Princess Street, and promptly went about the systematic destruction of the equipment of almost every other fire company in the city.

Given the distinct history of the AFD, it seems fitting that an equally distinct firefighter like Andy Fredericks would begin his career as a paid firefighter there. He didn't come to Alexandria green, however. By the time he came on the job in Alexandria, Andy had spent several years in upstate New York as a volunteer and an instructor. He had followed childhood friend Joel Kanasky to Alexandria while they both anxiously waited to be appointed to the FDNY. Andy's call came first; Kanasky was not far behind.

Andy soon found a home in the Bronx at Engine 48 with the likes of then Captain John Salka and firefighter John Grasso. Later, Salka would be promoted to Battalion Chief and Grasso to Lieutenant. In the first year of AFTD, Lt. Grasso recalled Andy's early days in the Bronx. Without revealing his several years of experience in the fire service, Andy tasked himself with knowing everything about the rig he was riding and the uses for every tool and appliance. When Grasso explained the purpose of the flow gauge Andy decided everyone needed to understand its use. Shortly thereafter, Andy delivered an article to Fire Engineering on the flow gauge. This would be one of many articles that Andy would write for various fire service publications and websites. These writings would offer a breadth of technical knowledge delivered in an easily understandable fashion. There is no doubt that Andy's time on Engine 48 helped shape his career and, consequently, have a tremendous impact on his department. During his time in the Bronx, Andy, Grasso, Salka, and the men of Engine 48, carried on in the tradition of the tough Bronx engine company. With that brawn brought brain, and the experience gained would subsequently go on to help revise the FDNY's engine company operations.

In 1998, the FDNY established seven squad companies in a move to respond more efficiently to hazardous materials incidents. Among those new companies was Squad 18, housed in Manhattan's West Village, where Andy found a new home. During this period, Andy would write what is probably the definitive technical article on nozzle selection entitled Little Drops of Water: 50 Years Later for Fire Engineering. In this two-part article, he challenged the conventional wisdom that proponents of the fog nozzle had championed for decades. He made sound arguments based on history, science, and his vast personal experience. He dug into the old technical manuals, text books, and industry press, and rooted out the misapplication of a tactic he regarded as one that "confused a generation of firefighters." As Kanasky would say of him at this year's AFTD, "Andy was meticulous. This was a guy that cleaned the baseboards in his house with a Q-tip!" It was this meticulous approach that landed him among a handful of influential voices that began to give growing credence to the use of the smooth bore nozzle. These guys were tired of getting boiled like lobsters during interior attacks, and Andy's work gave them the science and the practical application to avoid it.

It was also during this period that Andy was beginning to become a known personality in the fire service. He was writing articles, appearing in instructional videos, and speaking at FDIC. Given all that, and the demands of his full time job and family life, there is one consistent theme that prevails when guys who knew him or had personal interactions with him speak about Andy Fredericks: That theme is that he had time for everyone, no matter how big or small the department, or how simple or complex the question directed at him. He spent time talking with guys, offering them technical advice, and perhaps most importantly, listening.

After Andy's death on 9/11, it would be Kanasky, now assigned to FDNY's Rescue 1, and Dan McMaster, who also made the trip north from the AFD to the FDNY, that would manage the Andrew Fredericks Family Fund.

McMaster, who returned to Alexandria in 2001 and is currently a Captain with the AFD, explains that:

"At the time of Andy's death, the brothers in Alexandria collected a nice amount to benefit the families of those who were lost. A significant piece of that money was given to Joel Kanasky and me to create a fund specifically for Andy's family. At the time, we were too overwhelmed to think things through completely, so the money sat in a college fund for Andy's kids, Andrew and Hayley, for a few years. The fund was always something that both of us were aware of, but didn't discuss or plan for very often."

Reluctant to embark on yet another golf tournament, 10k run, or t-shirt sale to raise funds, it seemed a training event would be the most appropriate way to provide material support for Andy's family, as well as preserve the legacy of a man who gave so much, not only to individual firemen, but to the fire service as a whole.

In 2009, the first AFTD in many ways took on the character of a wake. All of the instructors that year had been personal friends of Andy's, and for many, it was an emotionally raw moment when Captain McMaster took the podium to offer opening remarks. *"It was hard,"* says McMaster, *"You're in front of 300 people and you're talking about a guy who is not around anymore."*

As a result, in the following year there was a conscious decision on the part of the organizers to lighten the mood and, perhaps, make it a bit easier on those who knew Andy personally. Very few words were spoken about the namesake of the event. Captain McMaster explained that, at the end of the 2010 event, many attendees, those with no personal knowledge of Andy, wanted to know who he was and why so many people were drawn to him.

While the technical instruction of AFTD has been second-to-none since its inception, the harder question remained of how to speak not of Andy the technically sound firefighter, but of Andy the man, husband, father, friend, and neighbor. The 2011 AFTD, however, offered a middle ground that warmly, yet soberly, remembered Andy through the recollections of his peers with stories from both on and off the job. Organizers and instructors alike seemed to hit their stride in honoring Andy's contribution on the job and still remembering him in his personal life. The mood had shifted from somber to celebratory.

In its three years of existence, AFTD has never offered any fire service buzz words. No classes about USAR, vehicle extrication, haz-mat, or swift water rescue. It's all meat and potatoes work: forcible entry, ventilation, high rise fires, and, most importantly, engine company operations. The Training Days have always been about the blue collar work that is the backbone of the fire service and the ability to use your head for something other than a place to hang your leather helmet. It has been about remembering those who have come before us and honoring their memory by sharing what they have left behind. Most importantly, it has been about rank-and-file firemen coming together to fellowship, learn, and spend time talking about the greatest job on the planet. Andy Fredericks Training Days can be summed up by Joel Kanasky's opening remarks as he warmly remembered the contributions of his childhood friend: *"This job has always been about two guys, one line, one hallway, and a good push."*

► Dan McMaster, Captain, Alexandria Fire Department on Andy Fredericks

You don't realize when somebody's your friend, when you see them all the time, how important he is or what a big deal he is to people in other parts of the country. I was standing outside the funeral home the day of Andy's funeral there in Suffern, NY. The church where the funeral was advertised was down the street and around the corner. Somehow all these guys kept trickling in to the funeral home from all over the country and they would just stand there and talk about Andy. The funerals at the time were very lightly attended. Lots of great men had low turnouts for their service because there were so many funerals and so much work going in the job. There were several other funerals the day Andy was buried and yet his turnout was amazing. The brief funeral home service was supposed to be a small private event before the actual funeral mass down the street that very few people knew about-- yet dozens of guys managed to find their way there. After weeks of heartbreakingly low turnouts for men who deserved better, it was amazing to see the turnout for Andy. It made a really tough day a little better.

The thing was that he was so unassuming that you would never would have imagined he would have had that kind of reach. When you talked to him it was just like talking to your neighbor. Every time you ran in to somebody that knew him it was the same thing, it was how much time he spent with them and how much time he spent talking about their issues and asking questions about their department. He knew more about most people's departments than people in the departments; what kind of fire trucks they had, what kind of lines they stretched, things like that.

► John Salka, Battalion Chief, FDNY, on Andy Fredericks

Andy was one of my men when I was on Engine 48 before he went to the Squad. He was always a great guy and always at the top of his game. Andy was sharp and he knew it. He read, he studied and he researched. He had his opinions and he really wasn't interested in yours but he did it in a very professional way. Andy was very confident and knew what he was talking about when he finally wrote an article or brought something to the table for a discussion. You knew he had his ducks all in a row.

His untimely death on 9/11 left a void in all of us. Andy Fredericks Training Days is one way of me thanking him and thanking his family for having known him and been a part of my job.

► John Norman, Deputy Assistant Chief, Special Operations Command, FDNY (ret), on why it is important for him to teach at AFTD

It's important for me to be here to remember Andy and his legacy. Andy and I never worked together in a firehouse but we certainly worked together at fires. He had a passion and a zeal for the job and doing things the right way all the time. He wanted everybody to understand the 'whys;' not just how we do things but why we do them. Once you can do that you're a well skilled firefighter. If you are just doing things because somebody told you to do it then you're not thinking. Andy was always a thinking man and that is probably my biggest impression of him. He was passionate about what he did and the reason was he wanted you to be better. Just knowing how good he was and the impact that he had on people I've been affiliated with is one reason why I owe him a debt of gratitude. Being here is one way of paying it off.

The other reason it is so important to be here is to all the people in the audience. Somebody else taught me everything I know today and I'm just here passing it along to the next generation. That is what all of us should do. Some guys take that seriously and others just go about their way. I'm just thankful somebody else saw enough in me to take an interest to make me better. If everybody goes through life doing that we'll all be a lot better off.

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ANDREW FREDERICKS
TRAINING DAYS

A little clip of John Salka at Andy Fredericks Training Days 2011. The Chief was discussing the importance of using limited personnel at a house fire appropriately. With four people are you leaving an officer outside to hold command or sending them all in on the line?

For more information on Andrew Fredericks Training Days go to:

http://frederickstrainingdays.com

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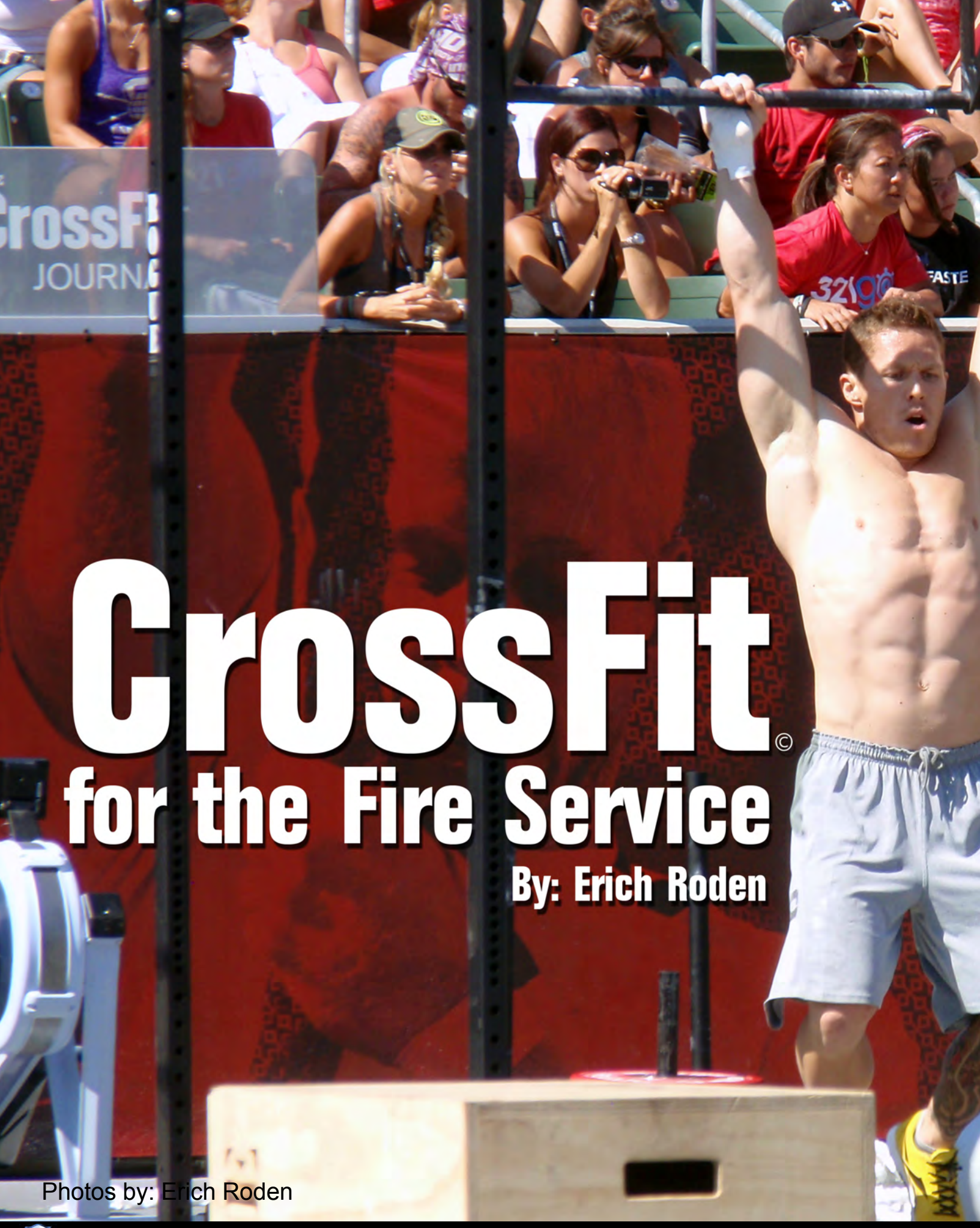

CrossFit©
for the Fire Service

By: Erich Roden

Photos by: Erich Roden

ROGUE
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FITTEST ON
ROGUE

Does firefighting sound like a constantly varied, high-intensity and functional movement[1]? I thought so too, so I took up CrossFit – which subscribes to varied intensity with functional movements - in April of this year. I have been hearing about CrossFit, the cult-following that ensues after you join its gyms – or 'boxes' if you prefer the vernacular – and that people often puke after workouts. I had to give it a shot because I was already in shape: I ran, biked, lifted weights, and ate "well;" and I wanted to up my level of fitness. What I came to realize after one workout, however, was that I was not 'fit.' Rather, I was so unfit that I almost didn't come back for a second workout. Being in shape, or simply well is not being fit, period. As I later learned in a recent CrossFit course: I was "failing at the margins of my experience[1]." What does that mean? Well, if you only bike, run or lift weights at specific distances or reps, you will only do well up to those specific distances or reps. In other words, you're selling yourself short based upon what you think you can do. Nonetheless, I'm a determined guy and an over-achiever, so I was going to give a CrossFit workout another shot. Thankfully, what I didn't know at the time was that I was on a rite of passage that every CrossFitter goes through: If you come back, you never leave…and I'm still coming back every chance I get.

What does CrossFit have to do with firefighting? Everything! What does CrossFit have to do with everything you do off-duty? Everything! Ever get gassed while pulling ceiling, performing long stretches, or pulling a victim out? Remember the times when you had to do everything you could to control your breathing after climbing five flights so you could hear what the boss was saying as you were getting ready to go in and get some? Or having less in the tank after running down a long block to get to the fire building because you were third-due? I do. And I hopefully never will again. I can't because it's all preventable. And CrossFit is the best preventive measure to keep these scenarios from happening.

What is CrossFit? CrossFit is a collective of functional movements taken from weightlifting, gymnastics and single cardio-respiratory modalities (cardio)[1]. These movements are then programmed into short, intense workouts aimed at improving work capacity in everyday life. Whether it's firefighting, shooting back at insurgents, loading groceries into your car or taking the stairs at work, CrossFit plays an essential role in the capacity to effectively do these things again and again. And your capacity goes up very quickly. Each workout is timed, scored, measured and documented. CrossFit gives its workouts names – usually female names for the benchmark workouts and male names for the Hero workouts named after fallen soldiers – to identify them in programming. The scores are posted on whiteboards for all to see; be sure to leave your ego in your car before you go in. There's a reason they do this: it's that you work harder at life if you're keeping score[1]…

I've seen tremendous results from CrossFit. In the very short time I've been doing CrossFit, my 'scores' have gone up exponentially, as have my deadlifts, squats, presses, and of

course, my capabilities on the fireground. Recently, I had to run a long block due to the aforementioned 'third-due' situation twice in one day. I had plenty left at both fires and I definitely knew why. The road to true fitness, I have discovered, is less traveled and I'm glad I'm finally on it.

CrossFit is evolving into one of the fastest growing sports and got the attention of Reebok® who recently signed a long-term partnership to help grow the sport even more. There's also an annual CrossFit Games held in Carson, California every year where the elite of the Crossfit world come together to find the "Fittest on Earth." I took advantage of a media pass this year to witness and document the event for Urban Firefighter Magazine. The amazing thing about the competitors is that they come from all walks of life. Some are former collegiate and professional athletes, some are or were Navy SEALS, others are those who simply became fit enough regular Joes after discovering CrossFit to compete amongst the best. And yes, several are firefighters. This was another reason why I had to make the trip: to give deserved press to these firefighters that epitomize fitness; you'll get a chance to meet one of them in the following pages of this issue.

CrossFit is for everyone. There are the young, elderly and those critically wounded in combat who have taken up CrossFit. The only excuse you have not to try it is the lack of a CrossFit gym in your area. It will change your life. Give it a shot, and you may be better able to save another one yourself someday. UF

For more information about CrossFit click on the following:

www.crossfit.com journal.crossfit.com
games.crossfit.com

[1]Glassman, Greg (2011). The CrossFit Training Guide. CrossFit Journal. [On-line]. Available: http://journal.crossfit.com/2010/05/crossfit-level-1-training-guide.tpl

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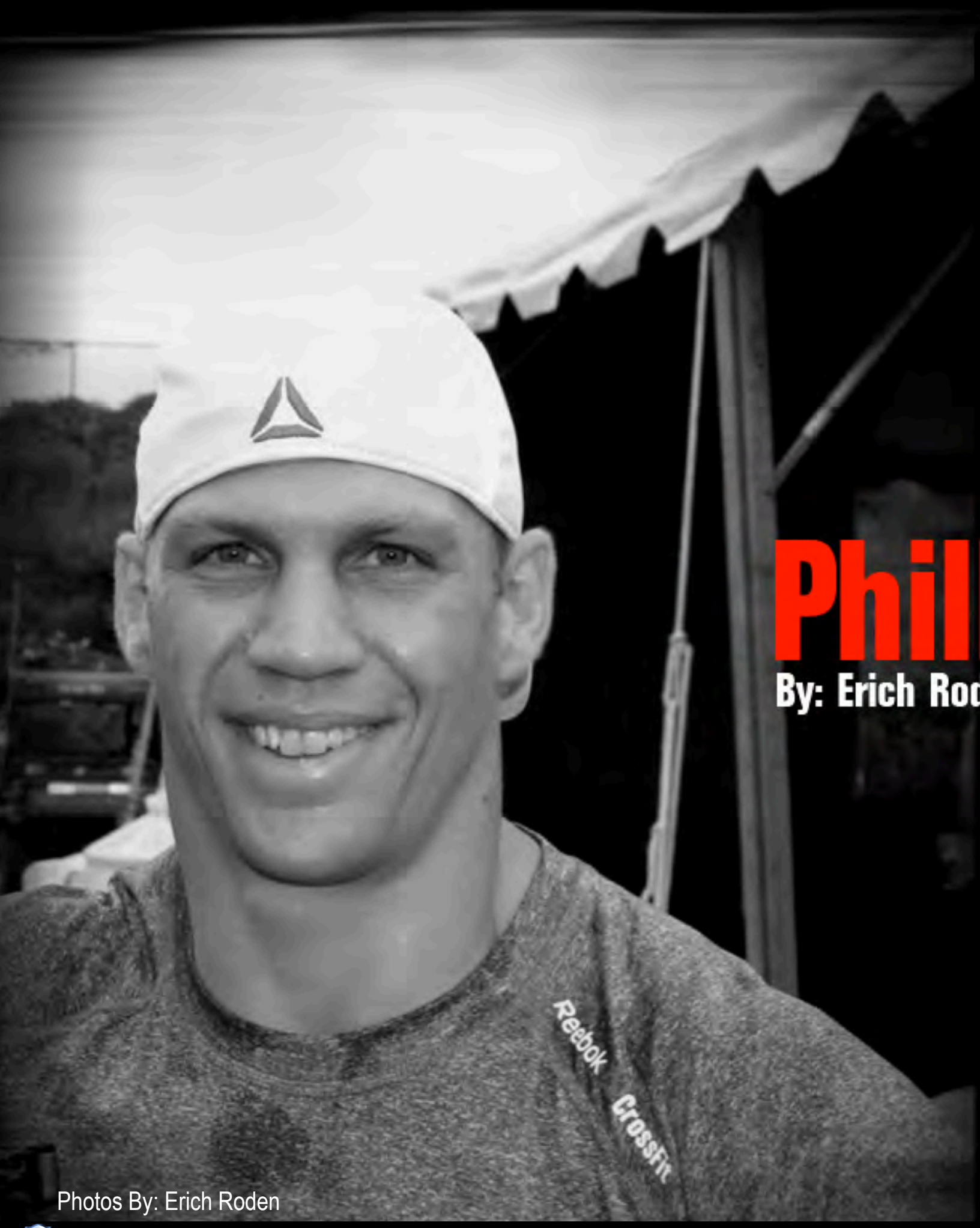


Phil

By: Erich Rod

Photos By: Erich Roden

Talk about your time playing ball for Nebraska. What are the parallels between playing college ball and the fire service?

I walked on the play football at the University of Nebraska in 2001 and played until 2004. While I was there, I had the opportunity to play with a Heisman Trophy Winner: Eric Crouch, and play for a national championship: the 2001 Rose Bowl. During my playing days, we experienced many ups and downs and dealt with much adversity. We went from playing in a championship to having one of the worst seasons in Nebraska Football history – within a single year. We grew more as a team during our 6-6 season than we did during our 12-2 season the year prior. We learned that we would have to work together as one unit in order to be successful. The next season, we finished with a 10-3 record! This team-first attitude directly correlates to the fire service: Everything we do in the fire service is team related. We go to the store together; we sit and drink coffee together. Everyone has a role on a medical call, fire call, fire alarm, etc. Everyone's role on the team directly correlates whether a call is successful or not. I learned early on while playing football to put my team first, rather than my individual needs.

What led you to the fire service? To the Lincoln (NE) Fire Department? What were the characteristics of the fire service that appealed to you?

I grew up in a very small town: Bryon, Nebraska. Bryon had a population of 150 people and I didn't realize being a paid firefighter was even an opportunity I could pursue. While attending the University of Nebraska, I really struggled to figure out what I wanted to do for a living. I switched majors three or four times, until I settled on getting a Bachelors Degree in University Studies, which essentially notes you completed enough credits to finish college. To complete the major, I needed four semesters of a foreign language. I was able to complete those classes at a local community college. While attending one of my classes, I noticed a flyer for the college's fire protection program. I grabbed the flyer, called the number and found out you can get paid to fight fire! I thought this was the perfect job for me; I love being active; I did not want an office job; I love team camaraderie; this was exactly what I was looking for! I signed up for three classes the first semester, loved it, and have never looked back. God led me to the perfect job!

lip Kniep

len

What firehouse are you at and what rig are you assigned to?

I'm assigned to Engine 3, A shift at Station 3.

How did you get into Crossfit? How many firefighters in Lincoln are taking it up?

I found out about CrossFit as a firefighter in Colorado. We were fighting a structure fire pretty hard and I was out of air before anyone on our crew. I thought, "What the hell? I'm in good shape. I lift every day and do 30 minutes of cardio and a solid two hours of workout out daily. This should not be happening to me!" I replaced my bottle and my crew and I went back in. Before I knew it, I was out of air again. Our crew came back out. I finished two bottles before most of them went through one. I was shot and thinking during rehab that I wouldn't make it if we went back in.

The next shift, I asked one of the firefighters on our crew what he did to stay in shape. I'd seen him workout before for only five or ten minutes and be done, and thought it was some kind of joke. Surely he had to do more on his off-days. He proceeded to tell me he was doing CrossFit. He offered me to workout with him sometime. I checked into it on the internet and the next shift, we did my first Workout-of-the-Day (WOD): "Death by Pull-ups." This workout consisted of performing one pull-up the first minute, two the second, three the third and so on until you couldn't perform anymore pull-ups in the round's minute; the goal was to go as long as possible. I think I made it to six minutes. He made it to fifteen or sixteen. When we finished, I asked him, "Is that it?" He said, "Yep," and proceeded to go take a shower. I thought, "This is a joke, that wasn't even a workout. I only did 18 pull-ups." I did a workout of my own for the next couple of hours.

I wrote Crossfit off for a couple of weeks, but continued to check out their website for workout ideas. One day, I ran across 'Filthy-Fifty." I did the workout and after fifty minutes, found myself flat on my back, exhausted and sore for the next five days. I was hooked after that. I programmed CrossFit into my normal routine three times a week, but did not make it my primary workout routine until I moved to Lincoln (NE). During my fire academy at Lincoln Fire Rescue (LFR), I recruited a few other guys to CrossFit with me. It was a perfect workout program for us and fit into our busy schedule. We could workout quick and still have time to go home, study and work on our fire skills. That's when I took CrossFit up as my primary workout regimen.

CrossFit Lincoln (CFL) was founded in the summer of 2009 by four firefighters and one personal trainer. We initially started as a group of friends getting together to CrossFit outdoors. We would go to parks, take our equipment with us and program some of our own WODs. We then started inviting other friends, family and girlfriends to come workout with us. Slowly, our small group began to grow. The five of us decided it would be beneficial for us to get our CrossFit Level 1 certificates so we could teach our buddies how to do the exercises safely. After getting certified, we decided to make it a formal group. CFL was initially called, "The Lincoln Outdoor Fitness Club." We held free classes in the park for almost three months until winter weather forced us to start looking for a building. In October 2009, CFL officially opened its doors with over thirty members. Since opening our doors, we've grown from 30 members to over 90, and are now in the process of opening in a new location. The owners now comprise of two firefighters and two personal trainers.

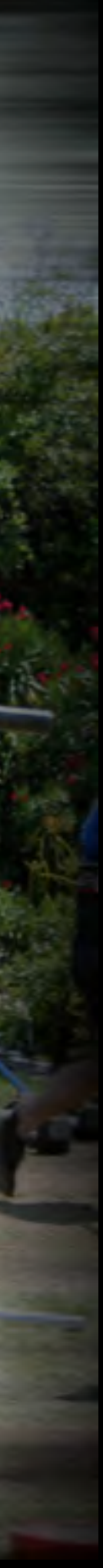
How can we get CrossFit incorporated into every firehouse across the Country?

That is a tough question and something all firefighters who CrossFit have been trying figure out for quite some time. CrossFit is the 'only' physical fitness program I've found that directly correlates to our job, yet so many firefighters are resistant to trying it. Our physical fitness is one of the few factors we have complete control over on the fire-ground. If I'm ever in the situation where I need to self-extricate or rescue a downed firefighter, I know in my heart if I fail it won't because I'm not in good enough shape, it will be because of factors out of my control. Not all firefighters can say that. I honestly believe the fire service needs to set a national standard for physical fitness and test firefighters every year or every six months. Not just a fluffy, pancake, walk in the park, physical test but a grueling and demanding test – a test that will truly test the demands of the job; a test that firefighters can't cram for two weeks prior and pass; it needs to truly show that they are in peak physical condition all year round. I bet you'd have firefighters walking into CrossFit boxes all over the country if something like that was implemented. Our box (CFL) is in charge of new recruits' physical fitness while in the academy. They come in three times a week for 14 weeks. We have a foot in the door with our department, but are still trying to get CrossFit as a standard physical fitness regimen for our guys. It would be great if affiliates everywhere would extend the same to the fire and police departments. It really helps us set a standard at LFR in physical fitness.

When did you decide to compete in CrossFit? How did you prepare? And what was it like to find out that you were going to LA for the big show?

I decided to try competition in February of 2010. Another firefighter and I had been doing CrossFit religiously for over six months and heard about the Sectional competition to qualify for the CrossFit Games. We signed up on a whim, essentially. Both of us figured we were average CrossFitters, but had no idea how we would do in competition. Our only training up to the qualifier was the daily (Main-Site) WOD's. We thought, "What the hell, let's give it a try." We talked another firefighter and one of our female members from the gym into signing up also. We all ended up doing fairly well, three out of four of us qualified for Regionals in Denver, Colorado. I was immediately hooked. I've always been a competitive person, but what drew me to competition was the heart of all the athletes. It was amazing to me how driven they were and how supportive everyone was of each other. Those who finished WODs first, although exhausted and hypoxic, would cheer on fellow competitors. It was so cool. I had never seen that before. During Regional competition, I was sitting in 6th place (only 2 places from qualifying for the Games) going into the final WOD, needless to say I did not qualify that year. That's when I realized I had the potential to be fairly decent at this sport. While sitting down for pizza and beer with my mom and girlfriend, I told them, "I will qualify for the Games next year." I dedicated the next year to working on weaknesses, studying other athletes, and perfecting movements. God lead me down a path that I would never have dreamed of.

"The atmosphere at the Games was incredible. There is nothing that I can compare it too."



Talk about being an athlete at the Games and the atmosphere when you were there.

The atmosphere at the Games was incredible. There is nothing that I can compare it too. There were so many great athletes, great fans and great competition. What I find most incredible is all the athletes' abilities to find times in their lives to train like professional athletes. I don't think most realize that these athletes do not CrossFit full-time. They are mothers, fathers, bankers, firefighters, coaches, officers, Marines and SEALs; some of them have even fought for our freedom. That makes their accomplishments even more incredible. The athletes at the Games are the most humble and supportive athletes you will ever meet. Having the opportunity to compete with those individuals is one of the most gratifying experiences of my life.

Who were your favorite competitors to watch at the Games?

Chris Spealler without a doubt; He has the heart of a champion. Chris is the most inspiring athlete I've ever seen. His body weight to strength ratio is incredible. It's unbelievable how much weight he can move around for his size.

How are you going to prepare for next year's Games?

I'm going to play with my nutrition a little bit. I currently eat strict Paleo and plan to throw dairy into my diet. I'm also testing Paleo/Zone proportions. I'm working with a Paleo nutritionist, Amy Kubal, to help tweak my diet and see what nutrients I've been neglecting. I essentially taught myself to CrossFit and feel I need a coach to help with form, technique and strategy. I started working with Games Coaches Ricky Frausto and Joe Westerlin from CrossFit Omaha last week. They are known for producing some great athletes and great teams. Their affiliate finished 2nd place in the 2010 Affiliate cup. I'm going to continue to attack my weaknesses and enter as many competitions in the next year as I can. Experience in competition plays a huge factor.

Talk about your WOD programming. How many WODS do you do in a day?

My workout volume varies dependent on my recovery and sleep I get at work. Leading up to the Games I followed a 3 day on/1 day off cycle. The first day of the cycle I was doing three metcon's with strength work first. On day two, I'll do two metcon's with gymnastics skill work beforehand. Day three consists of one metcon with either strength work or a gymnastic skill (I rotate between the two every other cycle). I rest on Day 4; my recovery works best when I follow a cycle like that. With my fire department schedule, my workout routine may not be that exact because I sleep if we don't sleep at work. You're really not doing your body any good by working out tired and poorly rested. Many times I'll go home after a shift and sleep for four or five hours and only get one metcon done in the afternoon. That's the way it goes and the nature of the job. Currently, I'm 'testing' a new workout cycle with a 1day on/1day off rotation. I'm doing two to three metcons in a day with strength work or gymnastics work beforehand, then resting a day. It works great with my work schedule and allows me to stay conditioned for competition.

What does your diet consist of? How can firefighters incorporate it into firehouse meals?

I currently eat a Paleo or "Caveman" diet. This means I stay away from anything processed, eat only meat, veggies, fruit, nuts and seeds. No grains, legumes, sugars or dairy. Essentially, the diet consists of anything a caveman would have access to. It's beneficial because it decreases insulin spikes by cutting down the number of sugars, carbs, etc that you are consuming allowing you to have more energy throughout the day. Studies have shown that spikes in insulin and blood sugar are the leading cause of many degenerative diseases, cancers and heart problems (a huge issue for firefighters). It's fairly easy to incorporate the diet into the firehouse. Firefighters like meat – lots of meat. So the guys generally cook steaks, pork chops, chicken, etc. If they plan to doctor it up a lot, I just ask them to leave all the salt and nasty stuff off of mine. Most firehouses like to have a pretty unhealthy side with their meat. Our house generally still makes the side, but I also suggest we have a big salad with lots of 'heavies.' I'll bring almonds, cashews and sunflower seeds with me to the station so I'll have some healthy fats to eat. Steam-fresh veggies are also a must have for the firehouse paleoist. If you're unable to have a salad with your meal, you can pop in a steam-fresh bag and have a side of veggies in less than seven minutes. If my crew decides to make something I absolutely can't eat, I usually bring food for back-up. 90% of the time I'm in on mess.

What's it like to be sponsored by sports giant Reebok? Any other sponsors?

They are one of the premiere athletic apparel companies in the world, and to be sponsored by them is surreal. I would have never dreamt in a million years I'd ever be sponsored by Reebok. It's a lot of fun and I feel honored to be part of the first group of athletes who get to test and help design clothing strictly for other CrossFitters. I'm also sponsored by CrossFit Faith, which is a team of Christian CrossFit athletes who travel and compete together all over the world while spreading the Word.

What do you think is the future of CrossFit?

CrossFit has shown that is growing rapidly and is going to be around for awhile. I only think it will get bigger and stronger, possibly in Olympic proportions in the years to come; not only as a community of fitness enthusiasts, but also a sport. The athletes will get better and better and it will get harder to qualify for the Games each year. Athletes will probably start getting paid professionally to do CrossFit for a living. Average Joes like me will probably not be able to work full-time and maintain the training needed to compete anymore. I see it as a good thing. Our country is 'unfit' and the more attention CrossFit gets the more people will start doing it and the healthier our country will become.

What advice do you have for future firefighter athletes as they prepare for their respective events, while working the unconventional fire department schedule? How can we squeeze workouts in so they're effective?

CrossFit is a universal fitness program and a killer workout that can be done in less than thirty minutes, so no matter what you're training for: a marathon, the Combat Challenge, a triathlon, the World's toughest competitor, to look good…you can get it done even if you don't have much time or running on little sleep. There are no excuses.

Who are your influences in life? CrossFit?

God is the most influential on my life. He's been with me in good times and bad and blessed me with so much. I'm in awe of what he's done for me. The biggest influences in my life have been the people of our box. They all have incredible stories of failure and triumph, which is inspiring every day I walk in the door. They epitomize what it means to never giving up no matter how tough anything gets. They've taught me to get right back up if you fail, dust yourself off and keep plugging away. UF

Phil Kniep Video 1

Phil Kniep Video 2

Check out more at: http://crossfit-lincoln.blogspot.com/

VEN

ITING THE ROOF? MASK UP!

BY NICHOLAS A. MARTIN

To wear or not to wear self-contained breathing apparatus (SCBA) on the roof is sometimes a contentious issue. I have gone back and forth on this question myself, and have operated in both manners; however, in recent years, I have been sold on not only wearing mine, but also on wearing my mask when cutting a vertical ventilation hole. My reasons are partly safety related, but also largely based on operational efficiency. A brief story from a fire a couple months ago will help illustrate my point:

We were the second-due truck and first in companies reported heavy fire conditions in the top floor and cockloft of several two story wood frame townhouses, with fire extending to the exposures. As the truck driver, my duties at this fire would be ventilation of the roof. We positioned the rig in the most advantageous position available, unfortunately, we would not be able to use our own aerial due to the positioning of earlier arriving companies; I would end up using the aerial of the first arriving truck – which had already been positioned.

As my crew split to perform their duties, I donned my personal protective equipment (PPE), including SCBA, grabbed a hook and chainsaw and proceeded to the roof via the first due truck's aerial. I could see that a good deal of smoke was pushing from the roof of the end two rowhouses, so about halfway up, I stopped to flip my SCBA mask on. For a second, I thought about just putting my mask on and not my hood, thinking what I was really looking for was protection from the smoke and not the heat. Something stopped me though, quite honestly, I thought to myself, "You spend all your time preaching how people should stay 'combat ready', if you don't put this stuff on someone will get a picture and you'll never hear the end of it" - so I pulled my hood up had flipped my earflaps down, fortunately.

Stepping on the roof, I was glad I had my mask on, as the smoke was pretty thick and I would have been choking on it without the mask. I often hear firefighters say they don't want to wear their SCBA facepiece on the roof due to visibility reasons. Personally, I don't get that. In my experience, it's a lot more difficult to cut a quick, appropriate hole when you're tearing-up, squinting, and choking. Furthermore, if it's not smoky when you start the hole, it ought to be when you're done - the purpose of vertical ventilation is to let the smoke and heat out, so if none comes out of the hole, you probably didn't need to cut in the first place – or you're in the wrong spot. Having your mask on will keep your eyes and lungs clear and make quick work of the hole. This would allow you to get on to other pressing truck company duties.

The benefit at this fire went past visibility.... From the roof's peak, I did a quick louver cut. When the cut was done, I secured my saw on the pitch by sinking the blade straight into a section of roof next to me. This technique allows you to secure the saw while keeping it running should you need to make another cut, all the while keeping yourself protected from the blade. I took my hook and punched down on the louvered section and then through the ceiling below. Instantly, it got very hot and very orange. I could feel my left side heating up, I quickly pulled my hook out and retreated towards the aerial managing to save my saw on the way. Moving back towards the aerial took only a few seconds, and when I turned around to look at the vent hole the area was completely engulfed in fire.

At the bottom of the aerial some firefighters greeted me with great concern, at the time I wasn't sure why. It was then that I noticed that my entire left side was charred, along with my hook. My SCBA facepiece was bubbled from the heat on the left side and the left side of my earflaps had burned through. My radio, which was underneath my coat, was partially melted.

What would I look like from the neck up if I hadn't been wearing my mask? What if I had been wearing leather work gloves instead of firefighting gloves? The shell and lining of my relatively new turnout gear was charred and ended up being condemned.

This is the first time in many years that wearing my bottle on the roof has saved me from injury, but the other point is operational efficiency. Being able to see and breathe clearly let's you work faster, and deal effectively with increased smoke development. Choking on smoke and having to move away from your cut delays ventilation and increases your chance of not completing your assignment. It's easy to be lulled into complacency by your years on the job, or that fact that nothing bad has happened to you yet.

Roof operations are a necessary component of the initial operations at many fires. The roof is inherently dangerous because you are always above the fire. When performing vertical ventilation, you cannot reliably predict how and if conditions will change. When working on a pitched roof, your options for retreat may slow. In this scenario, trying to put my mask on after the fire vented would have been too little, too late – this all happened in seconds. In my estimation, had I not had my mask on, I would have in the best case scenario to receive significant burns to my face; and in the worst case scenario fallen off of the roof or into the fire.

I am not a fan of walking around the fireground with my SCBA facepiece on. One of the best skills I was ever taught was how to quickly flip my facepiece on and pull my hood up. With practice, I have the technique down to about ten seconds, with my firefighting gloves on. I would advocate that every firefighter acquire this skill as it will serve you at every fire, regardless of your position.

As firefighters, we must endeavor to stay combat ready; It's a simple concept. Everything we do in our firefighting career should be guided by one simple question: "What is the most operationally efficient thing to do?" Think about working smarter, not doing what makes you look "cool." UF

SCBA

the dropkick murphys' SCRUFFY wallace

Photo by: Erich Roden

by: erich roden

The crowd's been chanting, "Let's go Dropkicks! Let's go Murphys!" for a while now, 'anxiously' awaiting for the Dropkick Murphys to finally come out on stage: they're the headlining act on the Harley Davidson® stage at Summerfest 2011 in Milwaukee tonight. I'm standing on stage left, behind the guitar tech, anxiously waiting myself. The lights finally go out on the empty stage; "Foggy Dew," the Dropkicks' live-show intro song comes over the sound-system, signaling to all that the show's about to start. It's a powerful song, performed by The Chieftains, and sung by Sinead O'Connor. Her incredible and recognizable voice is nearly drowned-out as the crowd, already lined-up from the stage to the lakefront (thousands!) erupts as the intro-hymn comes on – the wait is over. The lights come on, the Dropkick Murphy's back-drop curtain falls behind the stage and the band comes out from all sides of the stage swinging with "Hang'em High." It's on!

Just a few hours earlier, I'm driving to a local hotel in Milwaukee to meet up with Jim Sewnig, a Chicago fireman, and another friend that I've been fortunate to get to know over the years: Scruffy Wallace. Scruffy is the piper for the Dropkick Murphys and I always try to catch-up with him when he passes through Milwaukee for their gigs. He's been on the road for six weeks already and it's time for the Dropkick's swing through Milwaukee to play at the "world's largest music festival:" Summerfest. Dropkick Murphys shows are always epic at Summerfest: the crowds are enormous and it seems that every firefighter from Milwaukee and all parts of the Midwest come out to see them; in fact, every firefighter within a thousand-mile radius of any Dropkicks show seems to show up when they play. I've been telling Scruffy for a couple of years now that I had to interview him for Urban Firefighter Magazine the next time he swung through my town. Although he's not a firefighter, he's someone every firefighter needs to meet, and I needed to get that into a profile of Scruffy. Ergo, Scruffy and I grabbed a table in the hotel bar and I was happy that he let me pry into his life a bit – it's a humbling story.

A transplant from the U.K .at the age of 11, Scruffy picked up the bagpipes at the age of 14 after joining the Cadet Corp. The (pipes) were an important part of his heritage as they're the predominant, timeless instrument in the U.K. More importantly, his grandmother stressed upon him that they were (the) instrument that would sound (loudly, of course) homage and respect for his family roots. And roots seem to be were Scruffy's grounded to: it begins in the U.K., to the United States where he had no problem finding even more humbling roots.

Scruffy joined the Military in 1992, and was assigned to the Canadian Army's 11b (infantry), 3rd Batt. PPCLI. He spent nine months in the European theater in Yugoslavia where he endured a rite of passage many soldiers today are experiencing: combat. While this profile obviously has a firefighter-centric bias, Scruffy's never forgotten about the soldiers he's hunkered down in cold, harsh and unforgiving conditions with; and those that are serving now that he would hunker down with again – in a second. His affinity for those that willingly perform selfless and self-sacrificing acts as their ethos is echoed by the rest of the Dropkick Murphys as well. After leaving the Military, Scruffy returned to civilian life and joined the Steelworkers' Union. Never one to lose perspective, he discovered and fought with another fraternal group who he and the Dropkicks still champion today: the union worker.

The Dropkick Murphys have been behind union workers since their inception. Why? Perhaps it's because they were all union members themselves at one point in their lives. Their music and political action ensure that the worker always has a voice; and they were approached by several unions recently during the recent war on collective bargaining in several states. Scruffy says the band, regardless of past or future fame, will always be a 'working-class band.' This, he says, keeps them grounded to their roots and is why they play music in the first place. As such, Scruffy only buys American-made products and vehicles and, most importantly, enjoys an occasional Miller High Life! Disclaimer: the latter helps keep the author employed as it's made in Milwaukee…

Paralleling their incredible music and talent, it's these common-man roots that seem to draw firefighters to the Dropkick Murphys. Furthermore, once you get to know Scruffy, you discover that his support of soldiers and the working-class become, perhaps, the most important of his virtues. For instance, Scruffy relayed a story to me about his recent tour stop in Tempe, Arizona:

"It's 110º out and the A.C. on the tour bus goes out. Everyone was getting hot and I tried several times to get the generator on the bus started, but it would just keep going out. I was about to start complaining about the heat to everyone when I stopped myself and thought, 'what the hell do I have to complain about? I'm riding in a tour bus going to play music throughout the Country and do what I love to do. I wonder how hot it is in Afghanistan and Iraq right now.' I thankfully realized that I really didn't have anything at all to be bitching about."

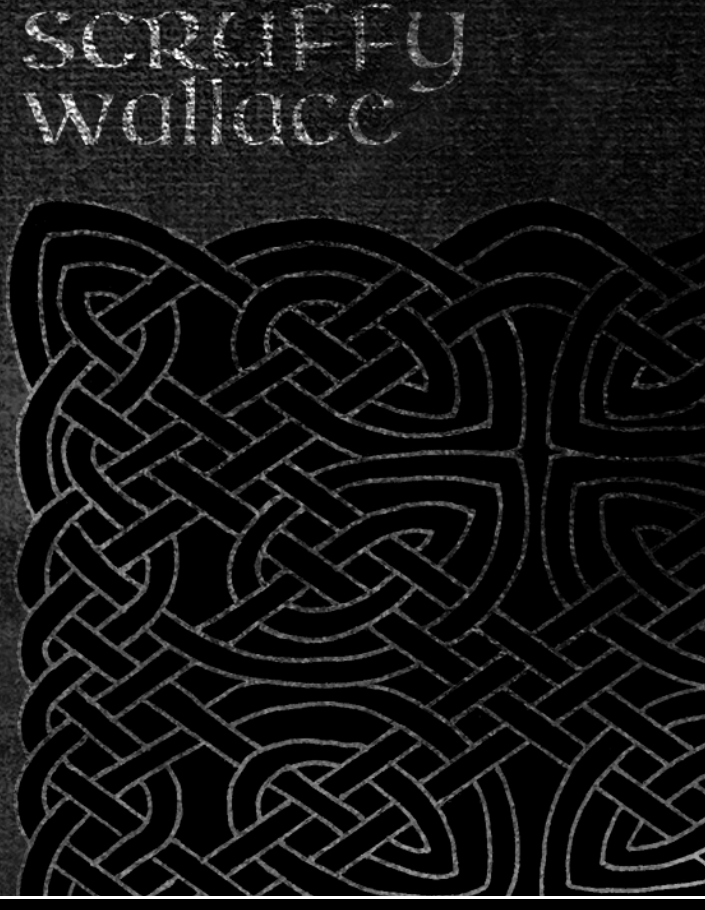
This story's point was not a self-righteous one by any means, he meant it, and I've had enough discussions with him over the years to know it – roots…

Scruffy's music resume´ includes gigs with several famous bands: Not Guilty, Grounds-for-Dismissal, Caber-Toss and The Mahones. He joined the Dropkicks in December of 2002 and has been fortunate to have recorded some of their most recognizable and identifying work. I asked Scruffy why it's been four years since their last album. He stated that the Dropkick Murphys have a strong commitment to their fans. This requires them to reach as many cities, towns and stages throughout the world as possible, and the trade-off is less time in the studio; it's been "go-go-go" as he says. They decided last year, however, that it was finally time to get back home, take a six-month break and get into the studio to record a new album.

Their music is always written around the aforementioned support of the working-class and also family traditions: Scruffy states that family always makes you a better person and it definitely exudes through their music. This is another appealing quality of the Dropkick Murphys' ethos and further validates their appeal to firefighters, soldiers and police. These are fraternal groups, and so are the Dropkicks. Their draw of these groups to their shows notwithstanding, the Dropkick Murphys established a charitable organization to ensure they are never forgotten, even after the stage and crowds empty: The Claddagh Fund (claddaghfund.org). This organization is an eclectic cause: each member uses the fund to support their own respective causes: soldiers, workers, recovering substance abusers, etc. – no one is left behind by the Dropkick Murphys. Scruffy also maintains contact with his old Army Unit and is deeply connected with the U.S. Army's 75th Ranger Regiment, Ranger Battalion. He also supports the Knights of Columbus and Wounded Warriors causes.

I asked Scruffy what was next for the Dropkick Murphys and him. His answer: "Non-stop touring." In fact, they are going to play yet another epic show on September 8th and 9th at Fenway Park: "Hallowed Ground." Oh yeah, they're also favorites of the Boston Red Sox organization, too. The Dropkicks were as determined as anyone to bring a World Series Pennant back to Boston. They were big fans of a Red Sox fan-base group formed in 1903 called the Royal Rooters. The 'Rooters' used to sing a song after they won about a parrot named 'Tessie.' The Dropkicks were asked to record a new version of the tune about a parrot and they said, "no way;" however, when they dug into the history of the famed bird, and the fact that the (Sox) haven't won a series since the last time the tune was sung, they decided to give it a shot. And a shot it gave the Red Sox: the song was recorded, played, and the Pennant came back to Boston, after an 86 year slump. The song is now the second of three songs played every time the Red Sox win. I guess you could say that the Dropkicks are here to take care of the common-man and his past time, too…

It's almost time for the band to get ready to head up to the stage. I'm sitting in the Dropkick Murphys' tour bus while Scruffy is showing me a ton of family and friends photos on his laptop. I'd be a wreck before going on stage in front of thousands, he's flipping through photos with a sense of calm, and we're only 10 minutes to show time. Band members are milling around, getting ready, and they are treating me like I belong there. There's not a sense of elitism anywhere on this bus, on stage or in any conversation with these guys – true class-acts. I sit back for a second and enjoy the nice air-conditioning in a real rock-star tour bus (it's a hot summer night in Milwaukee). Scruffy chuckles and repeats how he almost bitched about being hot in Tempe. That's when I realized that I wasn't just sitting across from a famous rock-star, I was sitting across from a regular guy with the greatest sense of humility…the band is on the second song of the set, and a union worker in the crowd throws a union shirt (or banner, couldn't tell where I was standing) onto the stage. Scruffy goes over during the song, picks it up and places it over one of the amps, taking care to ensure it's visible to everyone; always one to keep the Dropkicks' and his perspective out in front. UF



Photos by: Mandy McGowan

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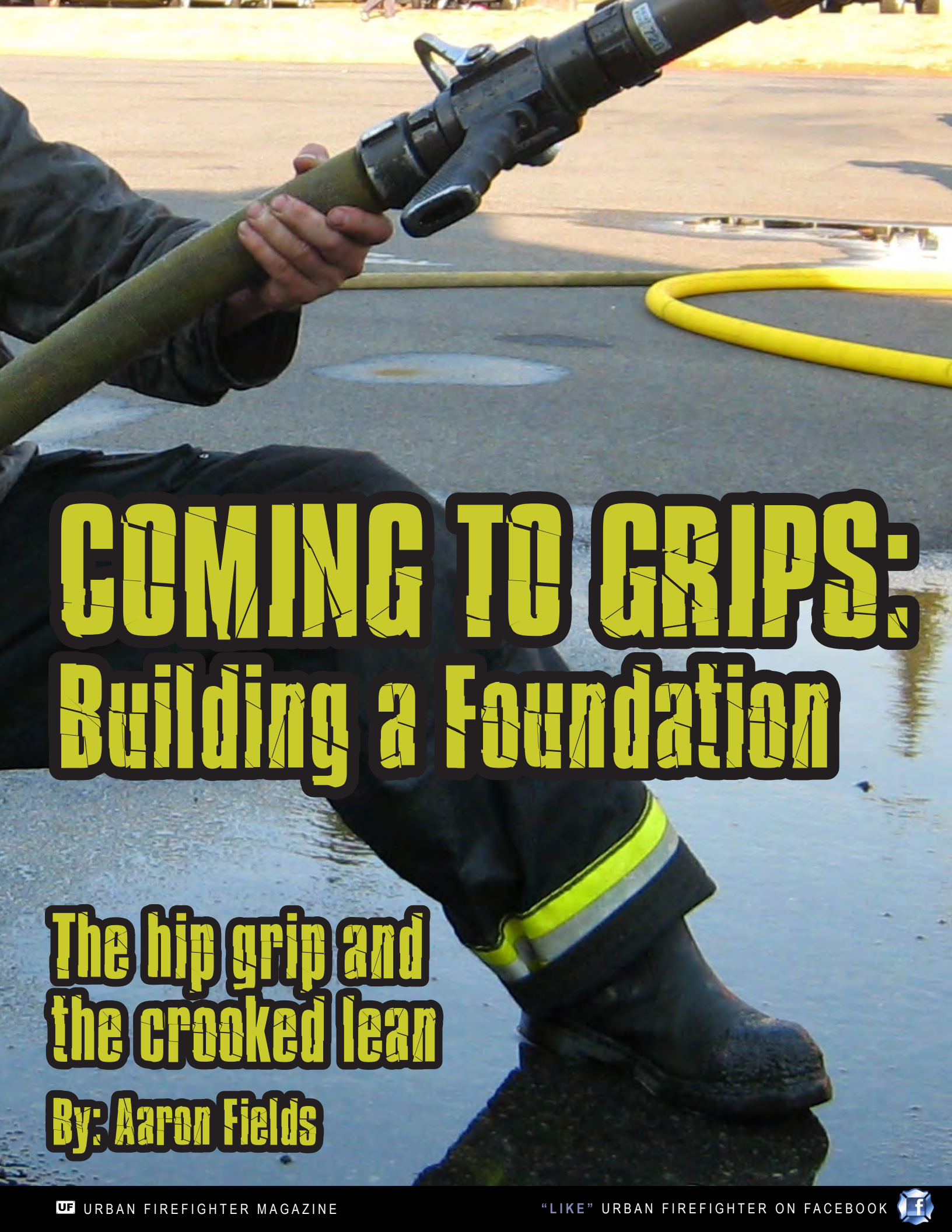


COMING TO GRIPS: Building a Foundation

The hip grip and the crooked lean

By: Aaron Fields

Good engine work starts with good hose work. Being able to use our tools effectively increases function and ease. We are fighting fire, not fighting hose; mechanical advantage is our friend.

Throughout my career to date I have only really wanted to be a good engine guy. Over the years I have done what everyone does, take classes, read journals, trying to stay up on the job, trying to refine my own skills, make my own small contributions. I have done this by mostly listening and sweating.

History makes everyone humble, (if we are paying attention,) nothing is new. Nevertheless we can all leave an imprint on the mold from which we are borrowing. Over the years I have tweaked and adapted methods to fit my environment. Originally I worked for a department that staffed rigs with three bodies. Today, working for the Seattle Fire Department, we get off the rig with four.

Despite the logistical differences between departments, the objectives of engine company work don't vary. My focus on hose work stems from originally doing with fewer bodies what many places do with more. I needed mechanical advantage; I needed a model that would allow the line to make the push towards the seat, I needed to overcome the lack of backs with technique.

In regards to the following article, the terminology is simply an effort to be descriptive. Take what works, call it what you will, fit those things into your own skill set.

At the worst, we should be able to advance a line while keeping the nozzle in a "combat ready position." Hoisting it over your shoulder and crawling isn't always an option. The ability to apply water at any moment is a critical skill.

We need to commit enough folks to the line, create nozzle teams, (as compared to nozzle a nozzle person,) moves quickly extinguish the fire. The following positions are two of the three foundation positions that we work.

(Before a safety chief somewhere blows a gasket, the lack of gloves in the following photos is so the hands stand out clearly. What you will find is that gloves don't hinder the grips at all, as the "grip" is coming from pressure and friction. I promise no hands were hurt in the photo sessions for this article.)

The ability to advance a line while controlling the fire-stream is a critical skill for every nozzle team. Simply put, the focus on the technique is often overlooked. With many companies across the country under-staffed we must adapt methods which allow us to reach our goals.

The two grips that are being discussed are tried and true deviation of several different techniques ranging from Oakland to New York, and many places in between. My variations are designed to give the nozzle team more function, control, and the ability to move and flow water at the same time, in addition to employing the same technique in a "hit and move" situation. Finally rather than simply a collection of techniques, these center around a principle of line use, a mechanic of positioning oneself to a line as well as another member. Of these principles the following are two

examples, the “hip grip” and the “crooked lean.” We should have one skill-set usable for both hand-lines.

As a firefighter riding an engine with four members, the need to increase mechanical advantage on the line, while allowing for the same accomplishment of tasks was my motivation.

The principle of this method is one of triangles. The nozzle-person and the number two, sometimes called the “heel,” must orientate themselves to the line and each other using a series of triangles. This gains mechanical advantage and will allow the nozzle to focus on directing the stream, rather than pulling hose. If we are fighting the line we are not fighting fire.

The methodology starts with the standard “hip grip” for the nozzle-person. The basic grip is the standard grip both standing and the ground. This grip allows for the greatest control and flexibility in line use.

This is the foundation grip for both 1 ¾ and 2 ½ hand-lines. No matter if we are standing or kneeling, the technique is the same. Create a “corner” or “shelf” between our hip and the top of our thigh and press the line into the shelf.

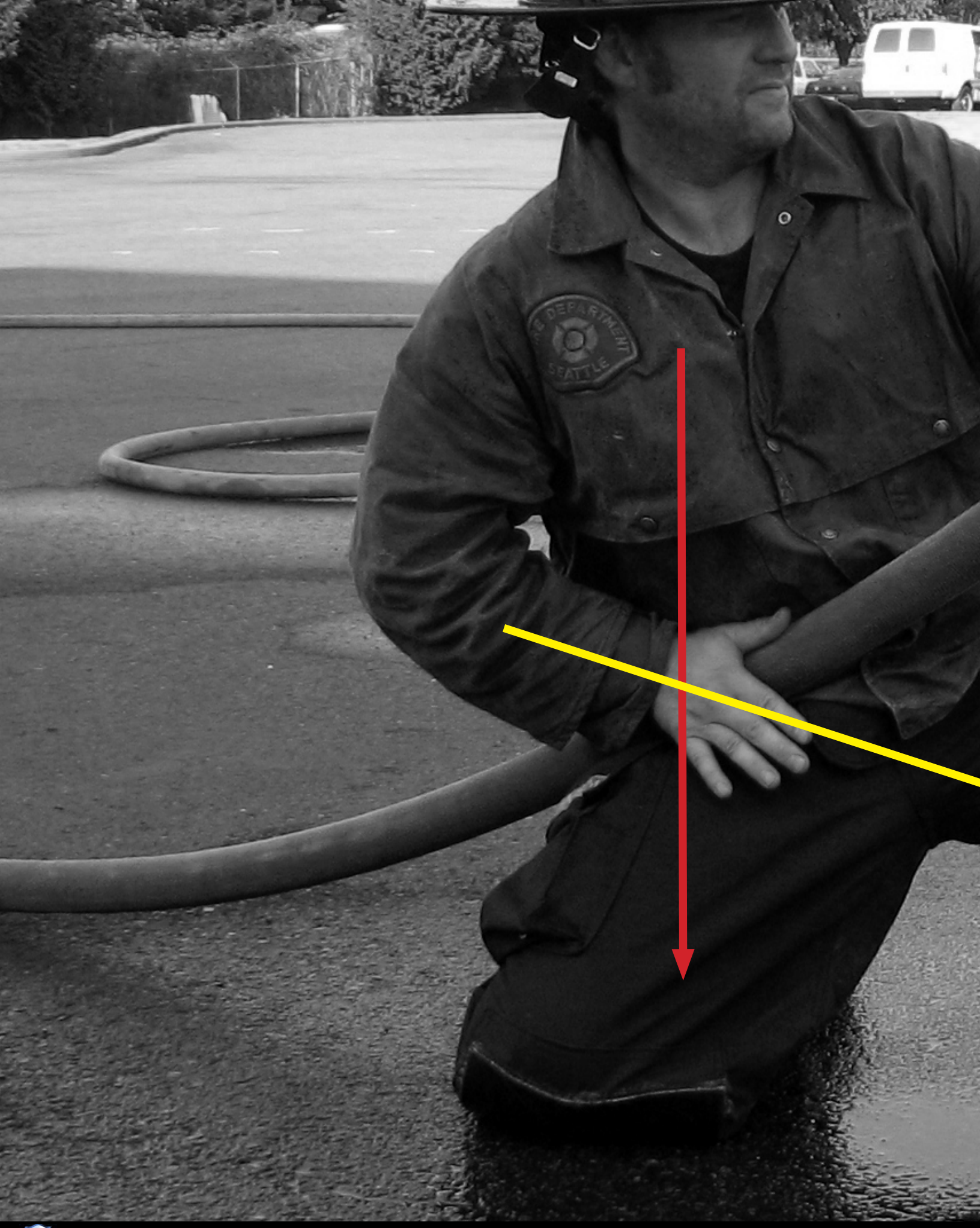
In cases where the line is a low pressure line, especially when using a 1 ¾ line, the nozzle person may need to adjust the amount of hose kept in front of them to prevent kinking. In addition, they may opt for a low pressure hip grip, where the rear hand elbow has taken the place of the back hand, allowing the hand to come forward on the line and add support.

An arm’s length of hose should stay in-front of the nozzle-person. If the nozzle-person can reach the tip of the nozzle with the lead hand, it is usually an accurate measure of correct spacing on the line. Nevertheless, each person will need to find their own ideal spacing. The hands never cross and never use pistol grips. Directing the stream is primarily done with the hips, leaving the lead hand to fine tune the stream.

The backhand keeps the line pressed in and down through the hips, usually the back hand is slightly forward of the hip bone. This grip gives the nozzle the greatest control over the line and application of water in addition to controlling the nozzle reaction.

The grip on the line comes from the friction created between the line and the “corner” we have created with our hip. The back-hand can increase and decrease the pressure as needed. Typically when the nozzle-person is standing the back-hand pressure is increased, when compared to kneeling.

In comparison to a more standard under the arm grip, the hip grip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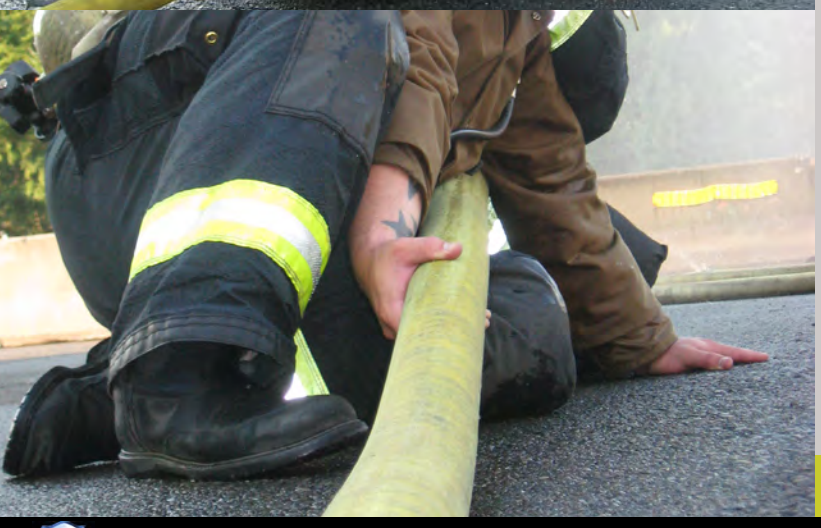

provides greater control as the nozzle reaction and weight of the line is taken up by the skeleton rather than relying on compression between the arm and ribs. In addition, by putting the nozzle in line with center mass, the skeleton takes the nozzle reaction.

The bodyweight triangle of the nozzle-person should always be leaning forward or backwards when using the line. When kneeling the nozzle-person will lean back from the nozzle pressure, allowing the "heel" person or the ground to absorb the nozzle-reaction. In addition, the amount of line in front of us is often a few inches less than when compared to standing.

When standing the nozzle person will lean backwards into their heel person if that person is present. If it is a "quick hit" situation and the nozzle finds themselves standing without help, they will lean their bodyweight forward.

Nozzle reaction is a force that we should employ to help with balance. The ability to anticpate a correctly flowing line is by feel is critical.

Again, the line will be pressed into the "corner" but also should be pressed down toward the front of the hip.

Keep the hose coming straight into the nozzle-person's hip. The line should always come straight into the nozzle-person's, (or nozzle team's,) back hip from the ground.

The "Crooked Lean" is position for a nozzle team to employ when the need arises for two person nozzle work with either the 1 ¾ or 2 ½ hand-line.

The crooked lean works while kneeling or standing. In addition, it gives the nozzle team a way to advance the hose while flowing water as well as flowing water for extended periods of time without moving. Finally the position's use for a "hit and move fire" should not be overlooked.

Relying on mechanical advantage, it allows the nozzle team control and the ability to move quickly and without undo fatigue.

The heel person is angled forward with their shoulder, (or arm in the case of a 1¾,) pressing into the nozzle-person's back. The point of contact for the heel's shoulder is where the nozzle-person's bottle and shoulder meet. The nozzle should again, be leaning back into the "heel."

In the crooked-lean the bottles over-lap, adding stability to the position, especially when moving.

Pay attention to the triangles in the bodies, as well as the triangles within the individuals' positions. The nozzle team should be coordination and connected when moving. They must maintain their respective leans into one another.

The photo to the right shows the control that the nozzle team has with the "crooked lean," It is for demonstrative purposes only. Such "Tom Foolery" is clearly the actions of unsupervised firefighters.

While moving, (a "push",) the key is that the nozzle-person is lifted and pushed forward from the heel position. The nozzle's back leg should be light and their center of gravity higher than the heel's. The lead leg should be stepping when pushed forward allowing the back leg to "shuffle forward." Do not anticipate the forward push from the heel position, simply allow the bag leg to slide forward and then extend the lead leg.

THE "CROOKED LEAN"

The heel person should maintain the same position while moving. Keys to remember are:

1. Back leg stays up, lead leg stays down.
2. Back arm stays straight and drops down inside the back knee. The hose should never be lifted over the back leg. (Remember the line always comes from the ground to the hip.) Also notice the back-arm's grip. The under-grip gives better control and less fatigue than grabbing over the line. In addition, it reduces thetendency to try and pull the line with the arm. Consider this back arm a "cable."
3. The lead arm, (left arm in this case,) is on the ground when moving. The elbow of the lead arm assists the nozzle person in keeping the hose locked into a "hip grip." In addition, the drive when moving comes from the lead arm and back leg.
4. When moving don't pull the hose with the back arm. Maintain a "locked in" position, letting the body movement itself drag the line. As the heel, our goal is to move the whole "structure" without changing our spacing on the line.

When moving, regardless of kneeling or standing, one person is the "motor" for the movement.
When moving forward, the heel person is the push and the nozzle slides along for the ride.

When moving backwards, the nozzle-person is the motor and the heel person is sliding along for the ride.

One fine point to note as the nozzle-person's back leg and the heel's lead leg are not touching. Both members are leaning on the other. When the two legs come together the ease in movement is reduced. Also, the heel's back hand is kept in line with their up knee. Reaching too far back hampers their ability to lean forward.

Communication is a must, not only with each other, but also with the other members on the line. Take the time to get this position set up, prior to moving. Don't be in a hurry to get somewhere without getting the team situated correctly.

When moving through a structure and flowing water make a inverted "U" pattern up the walls and over the ceilings, brushing back and forth. Also, don't forget to paint the floor in front of you, clearing the floor of debris and embers. It should be noted that this position works well to advance hose without flowing water as well. All the same principles apply.

When in a crooked lean, the nozzle-person's job is to fight fire and maintain an arm's length of line in front of themselves. There are two options regarding hand placement.

In this photo you can see that the nozzle person has slid the backhand forward out of the standard "hip grip." This makes it very easy to maintain sufficeint line in front of themselves.

As you can see with the picture to the right, the nozzle-person and the heel person's arms are doing the job of the back hand found in the "hip grip." (The two arms are keeping the line pressed into the nozzle-persons hips and maintaining the fricition point on the "shelf" of the thigh.) The above position works very well for 1 ¾ lines, as the lines are more likley to kink than a 2 ½ line. The backhand being more forward gives the working portion of the line more stability.

The second position is a typical "hip grip" position that is described earlier. The photo to the right shows this option. The nozzle-person's backhand presses the line into the "shelf" created on top of the thigh and the hips. (Remember, typically pressing in and down slightly forward of the hip gives the best results. Also, notice that gripping the hose with the backhand is not necessary in a well-done hip grip. The control from the grip is still from the pressure in and down. Even when the fingers close around the line, keep the grip loose.

This photo illustrates how the nozzle person should prop themselves up on the heel. This helps the heel on the advance, by allowing them to not only push the nozzle forward as well us up, relieving the weight

This shot to the right shows a top view of the interlocking of the bottles. The bottles add stability to the position when properly positioned.

To the right is the “heel’s” position when recovering line for the nozzle or when the line is not moving but flowing water for extended periods of time. Notice the inside legs and the amount of space between them and how the lead arm of the heel and the rear arm of the nozzle are connected and keeping the line pinched on the nozzle-person’s hip.

When the nozzle-person has lost adequate hose in front of them the advance will stop and the heel will grip the line and pull, shoving line to the nozzle-person. Once sufficient line has been pushed forward, the nozzle team can begin the advance again.

Finally, here is a heel and the third back (door-man) using half of a “Crooked Lean” to move hose further back on the line. Notice the backhand has gripped under the hose and the arm is kept straight. These are critical points when using any variation of the “Crooked Lean.”

Move hose well, be able to direct water in any direction at any time and don’t fall into the “Metallica” trap. Firefighting is a smooth process not a frantic one. Competency and comfort allow us to work our environment; our tools cannot take focus away from what we are actually doing. By moving more like Marvin Gaye, smooth and efficient, we allow ourselves to pay attention to what we are doing. With regards to engine company operations it all starts with hose. Do good work. UF

PEOPLE IN

THE REAL STORY

By: Erica Kuli
Engineering Labo
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FIRES

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ratory
of Standards and Technology

Imagine that a serious fire develops in a high-rise building, initiating a full building evacuation. With ample time before the situation becomes dangerous, all occupants immediately take note of the information provided by the fire alarm, completely comprehend the situation, and move calmly and efficiently in single file lines to their nearest exit, familiar to them from recent and regular fire drills. Since all occupants in the building are physically-fit and fully capable of efficient stair usage, they evacuate safely and quickly via the stairs, leaving them open for use by incoming firefighters.

The idealized scenario above, enshrined in building codes and emergency plans across the country, is also the mental model used by designers and building owners for full-building evacuation. Unfortunately, the reality can be quite different. Practical experience and decades of research have illustrated that evacuations are not as efficient as they are assumed to be. For example, significant lengths of time can pass while occupants discuss the seriousness of the situation before deciding that evacuation is necessary. Additionally, assuming even distributions of occupants among all available stairs and providing enough stair capacity for the largest occupant load floor (independent of the number of floors serviced by the stairs), may not provide adequate capacity if and when a full building evacuation becomes necessary.

The evacuation of One World Trade Center in 2001 provides a useful example that is far from the idealized scenario described above [Averill et al. 2005]. The plane's impact at 8:46 am destroyed the public address system, eliminating the ability of building officials to communicate with occupants – occupants were left to make evacuation or shelter decisions amongst themselves. Some evacuated their floors immediately while others delayed evacuation for over 15 minutes. Since elevators were unavailable to occupants and firefighters, occupants were forced to traverse the stairs from floors as high as the 90th. Therefore, occupants were still descending the stairs at the same time as first responders were ascending. Also complicating stair travel were peers assisting disabled or injured individuals (sometimes even carrying people to safety) and occupants who needed to stop and rest on or just outside of the stairs during evacuation. Despite the scale of the disaster on September 11th, the problems encountered during the evacuation are far from unique.

The Engineering Laboratory (EL) at the National Institute of Standards and Technology (NIST) is conducting ongoing research to enable advances in fire fighter safety, fire ground operations, and effectiveness of the fire service to enhance fire fighting operations and equipment, fire suppression, fire investigations, and disaster response. The focus of any fire fighting operation is fire suppression and search and rescue of occupants unable to evacuate. However, interaction with and management of evacuating occupants can take significant resources as well. Improved understanding of human behavior during fire emergencies can help improve occupant response and evacuation efficiency, allowing firefighters to do their jobs as quickly, safely and efficiently as possible. The study of people during evacuations can shed light on meaningful improvements to building codes and evacuation procedures by answering the following questions: How wide should the stairs be for very tall buildings where firefighters may encounter evacuees? Should stair numbers or widths vary by building height, occupant loads, or occupant types? Who should evacuate and who should stay in place? Can we improve evacuation efficiency and emergency response by hardening elevators for occupant and firefighter use during high-rise fires? Are there other practical approaches to address the hazards? This type of research can reduce the barriers to egress for all occupants (including disabled or mobility-challenged) and improve access for firefighters performing both rescue and suppression operations.

NIST has been collecting information on how people evacuate buildings during fire drills of office and residential buildings. These data collections are specifically designed to provide a better understanding of occupant performance on stairwells to support optimal building codes and standards requirements and to build a solid technical foundation for evacuation design, planning, and modeling. As of Spring 2011, NIST has collected video data from 12 buildings in the U.S. ranging from six to 62 stories in height; ten are office buildings and two are assisted living facilities where stair descent devices were used for evacuation. In all of these buildings, occupant movement in two to four different stairwells was documented.

Prior to the start of the evacuation drill, video cameras were strategically placed at various locations inside the stairs in order to provide information on how people moved through the stairs. The video cameras were positioned out of the way of building occupants and firefighters to record an overhead view of occupant movement in the exit stair during the evacuation. Examples of the information collected from full-building evacuations include movement speeds of people down stairs, number and distribution of people within the stairs, travel distance within the stairs, time before entering in the stairwells, and door size. NIST researchers are also interested in how occupants stagger themselves over the stair geometry, body sway, body size, and the influence of firefighter counterflow on the movement speeds of both firefighters ascending the stairs and occupants descending the stairs.

In a few participating buildings, NIST also distributed a survey to building occupants to better understand their behavior before the alarm sounded, while they were on their floor, and during their stair or elevator evacuation – mainly the information not typically observable in the stairway videos. The survey is also used to obtain information on

occupant characteristics (such as gender, age, abilities, and management or fire safety role in the building), previous fire safety education and training, previous experience in fire evacuations, and awareness of the event in order to relate these factors to the decisions made and the actions performed by occupants during the building evacuation.

While there is no substitute for the value of data obtained during a real building fire crisis, the rarity of capturing that type of data necessitates that fire drill data be used as a proxy for emergency behavior [Peacock, Hoskins, and Kuligowski 2010]. A key assumption is that fire drill data can be used to approximate the response of individuals in an actual emergency [Proulx 2002]. This is, of course, dependent on whether the population is directly exposed to smoke and/or fire cues; meaning that fire drill data may best approximate the reaction and conditions experienced of those who are not close enough to the hazard to identify it as an emergency. In many high-rise evacuations, it is conceivable that a significant portion of the population would not have been exposed to significant fire cues to be able to determine the nature of the emergency, if in fact the event is a real fire emergency. Information from real emergencies can inform fire drill data collection and provide a check of the validity of fire drill data. For that reason, evacuation surveys can be tailored to evacuees of an actual fire emergency or other type of disaster to obtain information on how people responded in a real event.

NIST is providing information on its egress project via the following website: http://www.nist.gov/el/fire_research/egress.cfm. The website contains more information than just the evacuation data collection, including a description of the ways in which information on evacuation behavior was collected, NIST publications on human behavior in fires, infrastructure of building egress, the use of elevators during fire emergencies, analysis of information on evacuation movement and behavior during fire drills, and a review of current computer models used to calculate evacuation times from buildings. Also available on this website is access to the raw, numerical data captured from video observations of five of the twelve building evacuations. Numerical information on evacuation timing throughout the building is currently provided in spreadsheet form and can be downloaded by interested individuals by filling out a brief registration form.

Finally, in addition to the evacuation website, NIST summarizes recent research related to fire service safety and effectiveness through http://www.fire.gov. Ensuring that the latest research findings used to improve fire service practices will help to ensure that the U.S. fire service can continue to deliver the high level of services our communities have come to expect.

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