



April, 2019 Edition

THE FIRE LINE

Fond du Lac Fire/Rescue Monthly Newsletter

FIRE LINE - DO NOT CROSS

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FROM THE BALCONY

A message from Chief Peter O'Leary



The Friendships That Endure

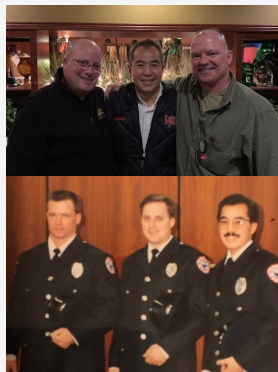
The firehouse is a special place where many friendships have been cultivated since the first fire department was established in 1736 by Benjamin Franklin. Last week I had the chance to bid a farewell to one of my firehouse friends at his retirement party after 27 years on the job. Seeing him and many of fire service friends made me realize once again how lucky I've been to be part of this incredible calling.

There were several retirees from Wheaton, but interestingly to me was all the firefighters and chief officers from neighboring departments which spoke volumes of the respect and admiration the greater fire service family felt about my buddy Lew and his career. We shared many laughs and renewed our friendships that sometimes suffer after leaving the job. There were three of us who got hired on a cold December day in 1991; it was great to get the three of us back for another photo-op of how we look 27 years later!

Our firehouse friendships are worthy of cultivation and continued watering even after we leave the firehouse for the very last time. I.A.F.F. Local 3706 (which I am proud charter member) put the party together and they did it with a ton of respect for an Assistant Chief; my buddy Lew. Funny how I didn't know any of the newer members (having been gone 13 years), but had fun introducing myself and seeing the new wave of firefighters who help to make up the Wheaton Fire Department. However, I was sad of how many active members (and recent retirees) that were noticeably absent. These gatherings are rare and despite the differences some may have had over the years, retirement gatherings are a good time to step forward and leave the past. I hope those who missed Lew's retirement party can make it to the next one so they can experience the laughter and comradery we have when we get together.

We are often reminded by our families and friends that as firefighters we are away from home a lot of our careers and that we really have a "second" family". For career firefighters that equates to one-third of each year. In rough numbers, Lew spent over 77,760 hours at the firehouse spanning over his 27 year career. This of course doesn't account for overtime and special events. Of course time off for vacation, injury, illness and family matters reduce this overall number, but you get the picture. We spend a lot of time away from home and the time spent at the firehouse is significant. As I peered around the room I saw mentors, teachers and friends all in the same room. Two of my company officers were there and I owe them both my gratitude for how they helped shape me. It was a treat for me to get time with them and for me the night went by far too fast. Although it was not my party, I felt incredibly proud to have been in attendance surrounded by so many gifted fire service leaders. The three young, naive firefighters who started that December day in 1991 endured and had some fun along the way. Best job ever I say and this weekend helped remind me of that.

Until next month, Be Safe and Be Well!



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UPCOMING EVENTS

Friday, May 3rd
IAFF Local 400
Brat Fry



Fdlfire.com has a new look!
Check it out!

FOND DU LAC FIRE RESCUE OPERATIONS

By: Assistant Chief Erick Gerritson



Barn Boss Leadership: The Dirty Secrets of Leading

The fire service has an incredibly rich history of training men and women. Engine company work, special service companies, specialized training such as technical rescue and hazardous materials, just to name a few—there is no shortage for the need to train to learn new skills and maintain proficiency in old ones. This training serves as both the lifeblood of our organizations as well as a historian—connecting today's firefighters with the lessons of those who came before us and as a means to pass the knowledge on to those who are still to come.

Look at any organization, whether in the firehouse, fireground, or call for service, and you'll find leaders. Whether formal or informal, it's obvious to see which men and women feel strongly compelled to ensure the legacy of the fire service's mission. This job demands technical proficiency, and it does not hesitate to punish complacency. As such, we all have a strong drive and want for training in fundamental fireground skills—i.e., hoseline deployment and advancement, forcible entry, ground ladders, etc. These are commonly known as hard skills or "getting your hands dirty" skills.

The fire service holds no place for someone who doesn't know their job, and this is only magnified when someone has a leadership role. To lead our men and women, our departments create promotional processes to seek out those among us who are the most technically competent individuals. These individuals must be capable of motivation and critical decision making and must meet our highest expectation—know your job.

Throughout our careers, we spend countless hours preparing for operating efficiency in the hopes of becoming the *go-to* on the fireground and firehouse. Who wouldn't want to work for the leader who lives up to this standard? Firefighters who are into this job and seek out hands-on-training and classroom sessions to make them better on the fireground are also the same ones we long to lead us. But leadership classes, also known as *soft skills*, aren't typically fun or sexy, so we don't flock to them.

Many departments are getting it right and creating a structure to improve the leadership abilities of their members. This structure is designed to prevent leaders from engaging in an assortment of problems unprepared, such as coaching and counseling a toxic employee. Another problem associated with this unpreparedness is the tendency of disengagement or burnout in the leader. Whether it's having to lead up around a bad boss, engage a difficult team member, or support an unpopular policy, proper engagement of others can be both tricky and exhausting.

Compounding this problem is the reality that when leaders give up, they can surrender caring-- as opposed to their rank. Still armed with all the formal obligations of leadership to their team, yet none of the motivation, they often become negative and at times even actively undermine the organization's other leaders. Even the best of us are subject to this burnout, combined with a lack of the self-awareness to realize when we are doing this. So, what are the common dirty secrets of leading, and how do we fix them?



Problem # 1: We reap the leaders we take the time to sow

Leadership development in many cases is a reactive state of mind for departments. Congratulations! You're promoted, and now we choose to start developing you and hope you don't make too big of a mistake in the interim.

So, what training should you provide or seek access to? Important in answering this question is an organization's ability to determine what is plaguing an organization and what threats lay in the future if they choose to disseminate the information proactively. This concept does not mean develop an overwhelming number of formal classes and checkboxes. However, it could be the development of a mentoring, officer development, or individual leadership program. Don't forget, one-on-one sessions in an informal manner are some of the best "training" opportunities that exist and often occur

FOND DU LAC FIRE RESCUE OPERATIONS

By: Assistant Chief Erick Gerritson



Barn Boss Leadership: The Dirty Secrets of Leading, continued...

Problem # 2: Great leaders care ... a lot (and this can hurt us at times)

Most good leaders have a strong sense of fairness and want to do what is right. When issues fall foul on this radar and something seems unfair (especially when the action is absent an explanation), it's easy for even the most engaged leaders to have their buy-in challenged. Unfortunately, compounding this issue is that we typically lack the self-awareness to know that we have gotten off the right path—it usually takes a great friend or mentor to do it for us. It's no secret that the fire service needs to spend more time breeding mentors and less time creating complainers.

The ability to communicate effectively is often a learned trait that requires practice. As such, organizations should strive to create responsibilities prior to the promotion day, allowing them to build experience. We do this when training for hard skills, such as riding in the front seat. But when it comes to having an opportunity to improve on soft skills, leaders often fail to communicate effectively or they fall into the category of "It made perfect sense to me when I said it."

The other component to communicating effectively is learning how to interact with your team. The fancy word for this is emotional intelligence. We must prepare our leaders for how to understand and lead people, which includes understanding what motivates, inspires, scares the hell out of them, etc. By altering leadership and communication styles for the specific individual, you can more effectively build relationships and hopefully avoid interpersonal conflicts altogether. Your firehouse team will also learn these traits by observing your actions. Modeling is extremely important in today's fire service, as our new hires often lack the life experience that teaches this.

Problem # 3: Leaders think humility and owning mistakes cause them to lose credibility

There is no such thing as a perfect leader; we all have our vices and weaknesses. Humans are messy and filled with personal and professional problems. As such, it's nearly impossible for leaders to have all the answers while also simultaneously knowing everything about this job. So, mistakes happen--whether in a difficult conversation or on the fireground. When leaders get caught up in thinking they have to be perfect, they can draw a line, believing it prevents them from making mistakes. This line can start to alienate influencers from their teams if we do not recognize it is occurring. As an example, you'll know this is happening when teammates get yelled at for asking questions, especially the dreaded "Why?" It also occurs when leaders stop participating in the training they create for others. I could not encourage you enough to challenge yourself and your team with an "I'll go first" mindset and learn to laugh at yourself if you make a mistake. Leaders must learn to lavish feedback and, through humility, create an environment where people feel safe to provide it to them. Otherwise, you can continue to enjoy the reputation you think you have while secretly others loath the pompous jerk some become.

There are several solutions to combat this situation and still have credibility. First, if you know that you could have made a not great decision or performed inadequately, own it. Do not pass it down to a lower-ranking individual or defer it laterally. Second, when difficult questions are asked, provide a truthful answer even if that means you really do not know the answer; however, be willing to locate the answer. Third, ask for feedback from all levels. If people do not feel they can be honest with you directly, have a senior member act as a go between until they see you are trying to make improvements and build trust in you.

Leadership Is Difficult

Leadership is difficult, period. However, it can become much easier if we start preparing the troops before they are promoted formal (classroom) and informally (at the station). The troops will also be more likely to continue the best practices they observed over their time as an up-and-comer. The greatest benefit is that many times you can only influence those close to your leadership, but as your troops/mentees receive promotions, this influence factor increases exponentially as they gain their own firehouses and troops. Never stop caring, so that your troops never stop bringing you their problems. Learn what makes your troops tick and allow open communication between each of you. And, sometimes the hardest of all actions is being willing to say you don't know or admit a mistake. Mistakes are experiences and battle scars; learn from them, pass the information on to the next generation, and never give up leading for the right reasons.

Until next month...Be Safe!!

OPERATIONS BY THE NUMBERS

FEBRUARY	THIS MONTH		YEAR-TO-DATE	
PREVENTION	LAST YEAR	THIS YEAR	LAST YEAR	THIS YEAR
Total Inspections	316	305	561	695
Total Defects	245	165	391	313
SUPPRESSION				
Alarms Involving Fire	9	6	22	16
Fire Mutual Aid Given	0	2	3	2
Fire Mutual Aid Received	0	0	0	0
Service/Good Intent Calls	35	36	81	82
False Alarms & False Calls	25	41	50	76
Other Calls	14	16	23	32
Total Fire Alarms & Calls	83	99	176	206
EMS				
Total Ambulance Calls	477	489	950	1012
Total Fire & Ems Responses	560	588	1126	1218
Fire Property Loss	\$5,500.00	\$6,929.00	\$55,400.00	\$108,738.00
Fire Contents Loss	\$0.00	\$301.00	\$10,520.00	\$31,901.00
Engine Assisted EMS Calls	214	209	419	418



at City of Fond du Lac Fire/Rescue



at fdlfire



The Code Summary

*By: Todd Janquart
Assistant Chief of EMS*

5 Things to Know About Capnography

Waveform capnography can now be used at all provider levels to better assess patients in respiratory distress, cardiac arrest and shock. Capnography offers reliable feedback about the severity of a patient's condition and how they respond to treatment. Here are five things you should know about waveform capnography.

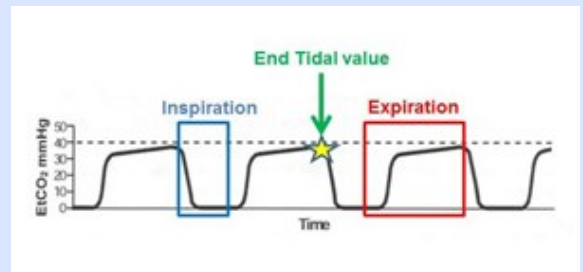
1. Capnography provides breath-to-breath ventilation data

Waveform capnography represents the amount of carbon dioxide (CO₂) in exhaled air, which assesses ventilation. It consists of a number and a graph. The number is capnometry, which is the partial pressure of CO₂ detected at the end of exhalation. This is end-tidal CO₂ (ETCO₂) which is normally 35-45 mm Hg.

The capnograph is the waveform that shows how much CO₂ is present at each phase of the respiratory cycle, and it normally has a rectangular shape. Capnography also measures and displays the respiratory rate. Changes in respiratory rate and tidal volume are displayed immediately as changes in the waveform and ETCO₂.

Two sensors can be used to measure capnography. In patients who are breathing, nasal prongs can be applied that capture exhaled air. Those prongs can also be used to administer a small amount of oxygen, or applied underneath a non-rebreather or CPAP mask. In patients who require assisted ventilation, another adapter can be attached to a BVM and advanced airway device.

Capnography assesses ventilation, which is different from oxygenation. Ventilation is the air movement in and out of the lungs, while oxygenation is the amount of oxygen inhaled by the lungs that reaches the bloodstream. Pulse-oximetry assess oxygenation, and works by measuring the how much of each red blood cell is bound with oxygen. It is expressed as a percent, or SPO₂. A normal SPO₂ is 92-96 percent.



2. ETCO₂ provides clues about respiratory effort

In people with healthy lungs, the brain responds to changes in CO₂ levels in the bloodstream to control ventilation. We assess this by observing chest rise and fall, assessing respiratory effort, counting respiratory rate, and listening to breath sounds. ETCO₂ adds an objective measurement to those findings. The patient's respiratory rate should increase as CO₂ rises, and decrease as CO₂ falls.

Waveform capnography is a useful tool to identify when patients with an altered mental status need assisted ventilation with a bag valve mask. When the brain does not respond appropriately to CO₂ changes, such as from overdose, head injury or seizure, excess CO₂ accumulates in the lungs, though the ETCO₂ reading may be low or high. Some causes of respiratory failure present with adequate tidal volume but slow respiratory rate, and in these cases ETCO₂ would be high (above 45 mm Hg) and continue to rise if not addressed. Other causes of respiratory failure present with inadequate respiratory rate and depth, and since little exhaled air would reach the sensor on the capnography circuit, the ETCO₂ reading would be low. Once ventilation is assisted with a bag valve mask, ETCO₂ would spike until the excess CO₂ is washed out of the lungs.

While a rise in CO₂ should stimulate someone to breathe, no effort should be needed to exhale it. Patients with asthma, COPD, CHF, and pneumonia must often exert themselves to exhale with accessory muscles. It is important to understand that patients in respiratory distress may inhale enough oxygen and have a normal pulse-ox reading, but still struggle to get air out, and progress to respiratory failure from fatigue. In this group of patients means that their effort is not effectively eliminating CO₂ (hypercarbia), and ETCO₂ may rise or fall depending on tidal volume.

3. Capnography helps diagnose the cause of respiratory distress

Correctly diagnosing the cause of respiratory distress can be difficult, and treating the wrong condition may cause harm. A number of conditions can cause diminished breath sounds, wheezing may be heard with both asthma and pulmonary edema, and crackles may be heard with pulmonary edema and pneumonia. Adding waveform capnography to history and physical exam findings can help with treatment decisions.



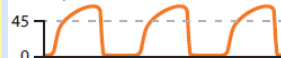
The Code Summary

*By: Todd Janquart
Assistant Chief of EMS*

5 Things to Know About Capnography, continued...

Bronchospasm (shark-fin appearance)

Asthma, COPD



Hypoventilation



Hyperventilation



Decreased EtCO₂ — Apnea, Sedation



The capnography waveform represents air movement in the lungs, similar to how complexes on an ECG represent electrical conduction through the heart. The waveform starts at the beginning of exhalation, and senses air from dead space in the upper airway and bronchi. There is normally no CO₂ present in dead space, and the graph should be at baseline. A sharp spike is normally seen when exhaled air from the alveoli reaches the sensor, and plateau's when all of the exhaled air detected came from the alveoli. A sharp downward spike is then seen during inhalation. The height of the waveform depends on the amount of CO₂ detected, and the length of the waveform depends on the time of exhalation.

In cases of bronchospasm, air is trapped in the alveoli and inconsistently released. This creates a curve in the initial spike and plateau, or "shark fin" appearance. The worse the bronchoconstriction, the more pronounced the curve on the waveform. If the waveform is upright and "crisp," there is no bronchospasm and respiratory distress must be from another cause.

Increased work of breathing from pulmonary edema may lead to fatigue and respiratory failure. This would cause a rise in ETCO₂, but the waveform will remain upright. Hyperventilation causes excess CO₂ to be exhaled, which would present with a crisp waveform and low ETCO₂, or hypocapnea. Causes of hyperventilation include diabetic ketoacidosis, pulmonary embolism, and anxiety.

4. Capnography provides real-time feedback on how well treatment is working

Imagine a wheezing patient whose respiratory rate and work of breathing decrease after receiving albuterol. If their shark-finned capnograph shifts upright after receiving albuterol and ETCO₂ shifts towards 35 - 45 mm Hg, this means the patient is responding well to treatment. If the shark fin waveform becomes more pronounced and ETCO₂ trends further away from the normal range, they are progressing to respiratory failure. Treatment plans can be quickly adjusted when capnography is used to monitor trends.

When providing positive pressure ventilation with a bag valve mask, it can be difficult to track how often the bag is squeezed and how much air reaches the lungs. When capnography is used to assist ventilating patients with a pulse, a waveform will be seen after each squeeze when air reaches the lungs. Ventilation is not effective if there is no waveform, and troubleshooting is needed. Consider repositioning the head, suctioning the mouth, placing an adjunct, having a second person hold the mask, and reassess.

Capnography can also help guide how fast to ventilate the patient. Harm is associated with hypo and hyperoxia, as well as hypo and hyperventilation. Oxygenation should be titrated to achieve SPO₂ of 92 percent, and ventilation should be titrated to achieve ETCO₂ between 35 and 45 mm Hg.

Capnography is the most reliable method to confirm correct advanced airway placement, and provides documentable proof. If an ET tube is outside the trachea, or if air from a supraglottic device is not directed into the glottic opening, no waveform or end-tidal reading will appear. If a correctly placed airway device is dislodged, the capnography waveform will immediately be lost.

5. Capnography also detects shock

Capnography has a ventilatory and circulatory component. Cells use oxygen and glucose to make energy, and release CO₂ into the bloodstream to be carried to the lungs. The amount of exhaled CO₂ depends on the adequacy of circulation to the lungs, which provides clues about circulation to the rest of the body. Low ETCO₂ with other signs of shock indicates poor systemic perfusion, which can be caused by hypovolemia, sepsis or dysrhythmias.

Cardiac arrest is the ultimate shock state; there is no circulation or metabolism and no CO₂ production unless effective chest compressions are performed. Capnography provides feedback on the quality of compressions and when a compressor change is needed. An ETCO₂ less than 10 mm Hg indicates that compressions are not fast or deep enough. If circulation is restored, a spike in ETCO₂ often appears before a pulse is detected. Sometimes it can be difficult to determine if a patient has a pulse, but circulation must be present if ventilation produces a waveform without compressions.

Article from March 11, 2019 online edition of EMS1.com

*Neither a wise man nor a brave man lies down on the tracks of history to wait for the train of the future to run over him.
Dwight D. Eisenhower*

Spring is in the air, and that means warmer weather, blooming flowers... and the potential for extreme weather conditions!



Don't let floods, thunderstorms, or tornadoes take you by surprise this season. Keep these 5 weather safety tips in mind:

1. Stay informed—get a weather radio.

The National Weather Service continuously broadcasts warning and forecasts that can be received by weather radios. Know what to Listen For!

Tornado Watch: Tornadoes are possible in your area. Remain alert for approaching storms.

Severe Thunderstorm Watch: Tells you when and where severe thunderstorms are likely to occur. Watch the sky and stay tuned to know when warnings are issued.

Tornado Warning: A tornado has been sighted or indicated by weather radar.

2. When thunder roars, go indoors.

Take thunderstorms seriously. Lightning strikes may be rare, but they still happen and the risk of serious injury or death is severe.

If there are storms in your area, find a safe, enclosed shelter.

The main lightning safety guide is the 30-30 rule. After you see lightning, start counting to 30. If you hear thunder before you reach 30, go indoors. Suspend activities for at least 30 minutes after the last clap of thunder.

If no shelter is available, crouch low, with as little of your body touching the ground as possible. Lightning causes electric currents along the top of the ground that can be deadly over 100 feet away.

3. Turn around, don't drown.

Don't underestimate the power and force of water. Remember, it's never safe to drive or walk into any kind of flood waters.

Just six inches of swiftly moving water can sweep you off your feet. If flowing water is above your ankles, stop, turn around, and go another way.

If you're caught on a flooded road and waters are rising rapidly around you, get out of the car quickly and move to higher ground. Most cars can be swept away by less than two feet of moving water.

Danger can lurk in the water: downed power lines or other debris may not be easily visible. If you see a downed power line, move at least ten feet away from it—or anything touching it. If you're driving and your car comes in contact with a downed power line, stay in your car.

4. Beware of flying objects.

Falling and flying debris causes most deaths and injuries during a tornado.

Go to the basement or an inside room without windows on the lowest floor (bathroom, closet, center hallway). Avoid windows.

For added protection get under something sturdy (a heavy table or workbench). Cover your body with a blanket, sleeping bag or mattress. Protect your head with anything available.

5. Prepare for everywhere.

Make a kit for home, and one for the road.

For home, keep a three day supply of food and water.

For your car, keep personal items like medications and emergency phone numbers.

**Well trained people
are the best defense
against fire.**

By: James Knowles III
Assistant Chief Training/Safety

B.A.G. the Situation

Let's take a minute and pretend that it's 0100 hours and you've just gotten comfortable in your bunk after your second false alarm of the night at two different frat houses. You close your eyes, even though you just know this moment will be short lived. Wait for it.....wait for it.....wait for.....zzzzzzzz.

BAM! The tones sound....it's a working fire at 1234 Wright Street within your response area. Your engine is going to be first in. Enroute you keep pressing dispatch for info and updates. Try to form a picture in your mind of the street, the house, exposures and water supply. Is there fire or smoke showing? Is anyone inside the house or are all occupants accounted for? You ask dispatch for any additional info as your engine turns onto Wright Street. You've been trying to form a picture of the scene in your mind since initial dispatch and hoping the picture will become clearer with each update.

Ideally, when you step off the rig and look at the scene it will match the picture you've been forming in your head. It would be great if the two pictures match...sometimes they do and sometimes they don't. Either way, you've got a job to do. Actually a lot of jobs to do. But one in particular you've been doing since the initial dispatch...size-up. Initiating command, getting water, deploying lines, search, rescue, vent...the whole shabang lies ahead of you and size-up goes right along with them.

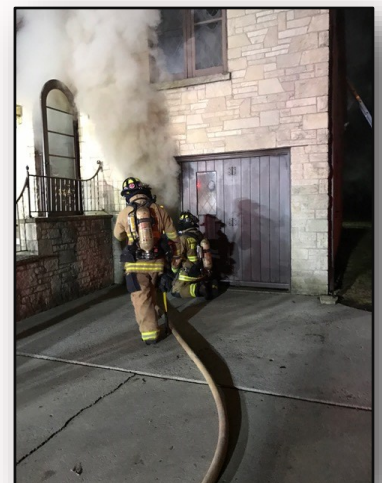
It is at this point that I suggest fire officers should have one more trick up their sleeve...they should "B.A.G. the Situation". I learned very early on in my career from some great fire officers that emergency scene operations go much smoother when they proceeded to "B.A.G. the Situation" on arrival.

To "B.A.G. a Situation" consists of the officer asking himself or herself three questions:

1. Where's the situation **Been**?
2. Where's the situation **At** now?
3. Where's the situation **Going**?

The answers to the first two questions should be apparent. The information received from dispatch during the initial call up through arrival on scene, and a proper 360° recon should give an officer an idea where the situation has Been. In other words, where and how did this situation originate? In the case of the house on Wright Street, let's say that on arrival flames could be seen coming from the living room level of what appears to be a single-level ranch style house. Upon performing a 360° recon, it is revealed that the house actually has a walkout basement. Hot coals from a barbecue grill placed too close to the house's vinyl siding started a fire that made its way up the siding and into the living area via an open sliding patio door.

Understanding where the fire started (where it has Been) is imperative to the success of the operation. The At question is usually what is discovered upon arrival (in this case the flames seen through the living room window). It is at this point that a solid understanding of fire behavior and building construction will come into play to answer the third question. Where is the situation Going?



Well trained people
are the best defense
against fire.

By: James Knowles III
Assistant Chief Training/Safety

B.A.G. the Situation, continued...

Most of us have, at some point in our careers, had to play catch up with a fire as we chased it through a structure. Fortunately, we've become smarter and better at reading the picture in front of us. Hopefully, we've learned to take that step back and take a look at the overall picture of what we are about to work on or in.

In the case of the Wright Street fire, it may be as simple as a coordinated attack on both levels of the fire along with ventilation, primary, and secondary search. The most important piece of information before applying tactics is to determine where the situation (fire) is Going. Figure that one out, and the situation can be stopped before we have to start playing catch up.

To "B.A.G. a Situation" isn't really anything new, and it's not rocket science! In fact, many fire officers "B.A.G. Situations" without even thinking about it. Fire officers have been trained to avoid the "moth to the flame" approach at emergency scenes, leading to more successful operations.

Lastly, I would point out that the "B.A.G. the Situation" approach to scene size-up can be applied to more than just fires. Other types of emergency operations this approach can work on include: vehicle accidents, HAZMAT operations, swift water or ice rescue. Each type of response can benefit from this simple scene size-up approach. While it is not the magic answer for every scene, it is another tool to fire officers to carry in their bag of tricks...pardon the pun. Stay safe!

Source: Withrow, D. (2019). B.A.G. the situation. Retrieved from: <http://www.blackhelmetbrotherhood.com/248/>



News from the Station



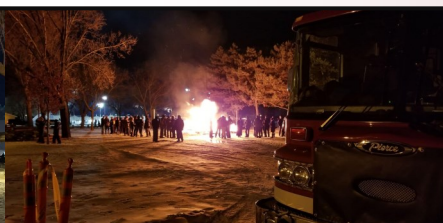
FF/P Brett Hefty and the FDL Fire/Rescue flag gets to the top of the hill first, to the surprise of no one here at FDLFR. Hefty, a Sgt. In the Wisconsin Army National Guard continues his year long deployment.



Celebrate Community was recently held at the FDL County Fairgrounds Expo Building. FDL Fire/Rescue manned a booth which included handouts on Fire Education/Safety. Sparky was also on hand and spent some time with City Manager Joe Moore.



Teri, the new Admission Director at Edenbrook of FDL (formerly Manorcare), stopped over to meet the crew at Station 2.



FDL Fire/Rescue monitored the bonfire on Oven Island at Lakeside Park which was one of the many events held in conjunction with the *Sturgeon Spectacular*.



A local Moms 'N Tots group took a tour of the Station and spent some time with the firefighters.



FDLFR Station 1 replaced its emergency generator. The new generator will have greater capacity and provide better reliability than the original unit which had reached the end of its service life.

FIRE PREVENTION

That's what it's all about!

By: Troy Haase
Division Chief of Fire Prevention



Fire Alarm Testing, Inspection and Maintenance

Are you really maintaining your fire alarm system?

Fire alarm systems are expected to help protect people, property, and assets. But you can't tell if they're fully operational just by looking at them. As with any other system, electronics and other components can degrade over time and compromise the system's operation. Dust, dirt, and other contaminants can cause problems with smoke detectors. Such things as vandalism, remodeling, and improper maintenance procedures can also damage fire protection equipment. The good news is that with proper testing, inspection, and maintenance you can keep your fire alarm system at optimum operating performance. In addition to ensuring protection, keeping your system in good condition reduces expenses by preventing unbudgeted emergency repairs and costly false alarms.

Where to start. Knowing the system's age and maintenance history helps you determine the steps you must take to maintain its operational readiness. Systems under five years old should require little effort to maintain. In systems so young, problems are usually due to marginal installation like improper grounding or environmental factors like voltage transients. Periodic system testing and inspection by qualified specialists can detect many such problems.

Systems between five and ten years old may experience component breakdown caused by harsh, but normal, environmental factors. Voltage fluctuations, temperature, and humidity may cause system failure or nuisance alarm problems.

Systems between ten and fifteen years old can still provide appropriate life-safety response. However, systems in this category need close attention, even with proper maintenance procedures in place. If the system has had a history of poor maintenance or none at all, it's likely that failure of components and improper monitoring of system components will occur.

Systems approaching 20 years of age may be beyond their technological life expectancy. The system may continue to work satisfactorily if properly maintained, but you need testing and inspection by trained specialists to ensure proper system response will occur in an emergency.



The steps. The maintenance activities for fire alarm systems can be summed up in five steps.

1. Test and calibrate alarm sensors, such as flame and smoke detectors, per manufacturer specifications. This requires knowing about the different sensors—and their testing requirements, failure modes, and re-installation requirements.
2. Simulate inputs and test the annunciators. This requires specific knowledge of the system under test.
3. Set sensitivity. This requires an understanding of the particular system, the specific application, and fire detection theory.
4. Coordinate with fire department to test the input to their system.
5. Check the battery for corrosion and expiration date, and then take appropriate action, if necessary.

These steps seem simple enough, provided you have the knowledge. However, that knowledge is useless if you don't pay absolute attention to detail. Experience shows that maintenance technicians under pressure to keep production equipment running often overlook important details because "nothing is broken".

Standards and guidelines. Most system manufacturers recommend at least one full annual test and inspection after initial installation and acceptance. Various agencies, organizations, and local authorities recommend, and in some cases, mandate, testing intervals. The National Fire Protection Association (NFPA) provides the National Fire Alarm Code, NFPA 72. This standard deals with the application, installation, performance, and maintenance of protective signaling systems and their components. Chapter 7 is devoted to inspection, testing and maintenance.

FIRE PREVENTION

That's what it's all about!

By: Troy Haase
Division Chief of Fire Prevention



Fire Alarm Testing, Inspection and Maintenance, continued...

The local authority having jurisdiction (AHJ) and insurance companies also influence, recommend, or set forth standards they deem necessary for the proper operation of life-safety systems. AHJs may establish guidelines that exceed NFPA guidelines. In virtually all cases, the standards outline minimum requirements. The potential problem, however, is that not all fire alarm systems are subject to the same environmental and ambient conditions. Therefore, meeting minimum standards of all applicable codes and standards may not provide the optimum protection for a facility. Because of this, manufacturers' service organizations may recommend inspections and maintenance that exceed published standards and guidelines.

System Maintenance. In addition to system age, you must consider budget and staffing resources. Does your staff have the time and expertise to properly maintain this critical life-safety system? Will it be more cost-effective to have the manufacturer's service organization or a contractor specializing in fire alarms perform the maintenance? The most stringent standards and guidelines are meaningless unless the people performing the inspection, testing, and maintenance are knowledgeable and qualified to service the fire alarm system.

Facility maintenance people usually don't possess the experience and knowledge found in manufacturer's service technicians, whose daily work revolves around fire alarm system technology in a variety of environments and circumstances. Some facilities have answered this problem by sending their people to factory-sponsored training courses. This approach works, if done on an ongoing basis.

You can get around the training dilemma by suing a factory service agreement. These can range from a basic on-call agreement to regularly scheduled service visits. Emergency service offering four-hour and eight-hour response times, on a 24 hour a day basis, is an option available in most service agreements. This service usually provides response within the specified time, along with repair and replacement of equipment. Rapid emergency response is almost universal for the healthcare and lodging industries because of around the clock occupancy by staff, patients, and guests.

For most facilities, contracting out that function makes sense. Before you sign a maintenance agreement, though, ensure technicians are certified by the National Institute for the Certification of Engineering Technologies (NICET) and specialize in life safety. NICET certification indicates thorough knowledge of system installation and life cycle inspection, testing, and maintenance protocols. Some facilities have their own staff NICET certified.

The best-designed fire alarm system can be rendered ineffective, if improperly maintained. Each month, NFPA members read about fire catastrophes that a well-maintained system would have prevented. They also read about fires where properly functioning systems saved lives and reduced the business interruption. When you're pinched by budgets, it's tempting to take the risk that a fire won't happen and delay responsible decisions about your fire protection until the next quarter. However, courts have increasingly ruled against people who have made such decisions, and held them—and their managers—personally and criminally liable. You must ensure your fire protection system operates properly, even if that means dipping into other budgets.



Source: Mike Lohr, Simplex Grinnell, EC&M,

<https://www.ecmweb.com/content/fire-alarm-system-testing-inspection-and-maintenance>

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Current Status of New Construction

- CD Smith Corporate Offices on Camelot Drive- Building is under construction.
- Fond du Lac Humane Society at 652 Triangle Road- Building is under construction.
- Menards at 1200 Rickmeyer Drive- Building is under construction.
- Fond du Lac Safety Training Center at 750 N. Rolling Meadows Drive- Building is under construction.
- Magic Car Wash Express at 123 West Johnson Street- Building is under construction.
- VGM Storage Units at 450-456 West Arndt St.- Buildings are under construction.
- Mercury Marine at 545 W. Pioneer Road- Building is under construction.
- St. Vincent De Paul at 330 North Peters Avenue- Building is under construction.
- Eilertson Electric at 920 Willow Lawn Road- Excavation is underway.
- South Hills at 1175 Fond du Lac Avenue- Building is under construction.
- Fairfield Inn at 935 S. Rolling Meadows Drive- Building is under construction.
- River Hills Mixed Use Development on S. Main Street- Buildings 1, 2, 3, 4, 8 are complete and 5 & 6 are under construction.



Car Fire Safety

Cars can catch fire for many reasons. Mechanical or electrical issues are the most common cause. A car can also catch fire as the result of a bad crash. If you see smoke or flames or smell burning rubber or plastic, respond immediately.

What to do if your car is on fire

- Pull over as quickly as it is safe to do so, be sure to use your signal as you make your way to a safe location off the road such as the breakdown lane or rest stop.
- Once you have stopped, TURN OFF the engine.
- GET everyone out of the car. Never return to a burning car for anything.
- MOVE everyone at least 100 feet from the burning car and well away from traffic.
- CALL 9-1-1.

How to prevent a car fire

- Have your car serviced regularly by a professionally trained mechanic. If you spot leaks, your car is not running properly, get it checked. A well-maintained car is less likely to have a fire.
- If you must transport gasoline, transport only a small amount in a certified gas can that is sealed. Keep a window open for ventilation.
- Gas cans and propane cylinders should never be transported in the passenger compartment.
- Never park a car where flammables, such as grass, are touching the catalytic converter.
- Drive safely to avoid an accident.

Know the danger signs

- Cracked or loose wiring or electrical problems, including a fuse that blows more than once
- Oil or fluid leaks
- Oil cap not on securely
- Rapid changes in fuel or fluid level, or engine temperature

Most car fluids are flammable. Heat and electrical sparks plus leaking fluid are all it takes to start a car fire.



FACT

Most crashes do NOT result in fire. In the event of any crash, call 9-1-1. If there is no sign of fire, wait for emergency assistance to help any injured individuals out of the car.



**NATIONAL FIRE
PROTECTION ASSOCIATION**
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on fire, electrical and related hazards

PEER FITNESS TIPS

**By: Peer Fitness Trainer
Jack Prall**

Core Hammer: An ACE Integrated Fitness Model Workout

A long time ago in a gym far, far away, I was a new trainer with the ink barely dry on my first certification from ACE. A new member at the health club where I worked came up to me and she was quite upset. She was angry that she'd been doing the workout I created for her, but had recently injured her back while putting her child in the car seat.

As a common practice back then, I was creating strictly machine-based programs for new members during the free session they received with their membership. This experience with this clearly dissatisfied health club member got me thinking: Was the machine-only program I used for these free sessions really preparing people for life?

What Leaders Do

Fitness leadership means providing clients with continually challenging workouts that also follow sound principles of movement-based training. It merges high intensity with high quality. The former is in ever-increasing abundance in the fitness world, often at the expense of the latter. High intensity is easy to find. High intensity with high quality is considerably less common.

The best concepts are the ones that immediately translate to real-world, real-life experiences. They are the ones that provide an easy bridge between an idea and an experience everyone has in his or her own body. Importantly, this helps to eliminate the disconnect many people experience between the exercises they do during a workout and the movements they perform in everyday life.

As a health and exercise professional, you have a unique opportunity to help clients make the connection between life movement and exercise. When we choose equipment people like to use to develop workouts intense enough to create change, and ensure that those workouts translate well to life, the program is far more likely to "click" for the people we serve.

Bringing the ACE IFT Model to Life

Making that connection between movement training and real life is at the core of the ACE Integrated Fitness Training (ACE IFT) Model. The functional Movement and Resistance Training component provides a framework for developing stability or mobility as appropriate in a specific area of the body (phase 1), integrating it into a full-body movement (phase 2), adding external load and creating a stimulus for strength gains (phase 3) and increasing movement speed to develop bodily control and power (phase 4).

The ACE IFT Model features five distinct movements:

1. Bend and lift: A bilateral hip or quad-dominant movement (e.g. squat, deadlift, glute bridge)
2. Lunge: A unilateral or asymmetrical lower-body movement (e.g., single-leg squat, lunge)
3. Push: Vertical or horizontal pushing movement, either bilateral or unilateral
4. Pull: Vertical or horizontal pulling movement, either bilateral or unilateral
5. Rotation

The following workout features the MostFit Core Hammer, was designed using the ACE IFT model as a guide and highlights each of these movements.

The Equipment

The MostFit Core Hammer eliminates the need for a bulky tire for sledgehammer exercises. It's versatile enough that you can strike it against the ground, a wall, driveway or a cement floor. Or, you can use it like a mace to develop shoulder strength, mobility and stability. The long lever and distally loaded end provide endless options for unilateral and asymmetrical strength challenges, core exercises and rotational, mobility and stability work. It is available in 8-pound (3.6 kg) and 12-pound (5.4 kg) sizes.



PEER FITNESS TIPS

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Core Hammer: An ACE Integrated Fitness Model Workout, continued...

Hand positioning affects the intensity of the exercise due to the physics of rotation. In the photo to the right, the piece of white tape in the middle of the blue area of the handle marks the spot where your hand is positioned when performing most of the exercises.



Some additional points to keep in mind when using the Core Hammer:

- * Like a car, you *steer* the hammer with your arms, while the *engine of movement* is your trunk, hips and legs. Your arms are the steering wheel and the rest of your body is the engine.
- * On the two "Hammer Drop" exercises, the farther away your upper hand is from the head of the hammer, the harder the exercise will be.
- * As you lift the hammer in preparation to strike, your upper hand should be as close to the head of the hammer as possible. When striking, the upper hand slides rapidly down the handle to provide maximum rotational power to the head of the hammer.
- * During the Side Lunge Thrust exercise, thrusting to the ipsilateral side (same as the side you step toward) increases the load, while thrusting to the contralateral side (opposite the side you step toward) decreases the load.
- * For the Single-arm Shoulder Press and Row, moving the hand farther away from the head of the hammer increases the challenge of the exercise.
- * Keep the lower body stable and use thoracic rotation when performing the Horizontal Swing to both create and slow down forces.
- * During the Walking Lunge Hammer Drop, note that the hammer drops toward the lead leg to more closely mirror natural gait patterns and to add load to the glute on the lead leg.

The Workout

This workout features superset of two exercises (exercises A and B). Perform each movement, rest for about 20 seconds between each superset, and complete each superset two to three times depending on available time and your current ability. Perform one set of the "Finisher" exercise at the end.

Super Set	Exercise A	Reps	Exercise B	Reps
1	Walking Lunge Hammer Drop	10 Per leg	Pivot Push-up (switch hand positions each set)	8-12
2	Single-arm Swing	8 per arm	Elevator Squat Hammer Drop	5-6 reps each of two positions
3	Side-to-side Ground Strike	10 per side	Horizontal Swing	5 per side
4	Single-arm Shoulder Press	10-12 per arm	Single-arm Horizontal Row	10-12 per arm
5	Crouch to Plank (option to add triceps)	10	Side Lunge Thrust	8 per side
Finisher	Step Back Lunge to Strike (stay low)	60 seconds—Max Reps, count each strike		

PEER FITNESS TIPS

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Core Hammer: An ACE Integrated Fitness Model Workout, continued...

Summary

Successfully manipulating a large, extended weight like the ore Hammer easily maps to many life movements. Changing the location of the grip on the strength movements will provide insights on strength and ability as this greatly changes the rotational forces. And let's face it, there is a lot of fun in swinging a hammer around. Many will enjoy the challenge as well as the thrill of swinging the hammer.

Additional Components of Fitness

Don't forget to incorporate these additional components of fitness into your program:

Agility = alter direction of movement

Balance = maintain positions of stability when moving (dynamic) or not moving (static)

Coordination = combine actions to create smooth, efficient movement

Endurance = continue moving for an extended time (in the sense of the aerobic energy system)

Flexibility = move through a full range of motion of at a joint (usually in the more passive sense)

Mobility = move through a full range of motion in the contractile units of muscles

Power = apply high force to a relatively light load in a short amount of time

Quickness = return to top speed after a change of direction

Speed = move at a high rate of travel, typically when moving in a single direction or vector

Strength = apply high force to a relatively high load irrespective of time

If the fitness programs you design include the five primary movements and covers all of the characteristics of fitness, you will enjoy the benefits of a well-rounded exercise plan. Note that not every single workout needs to include all the items in both categories. Addressing each of them by the end of the workout week is sufficient.

About the Author: Jonathan Ross, Health and Fitness Expert

His "800 Pounds of Parents" directly inspired Jonathan's prolific fitness career.

He is a multiple Personal Trainer of the Year Award-Winner (ACE, IDEA, and PFP Magazine), creator of Funtensity, brain fitness expert, blogger and master trainer for the American Council on Exercise (ACE).

His book, *Abs Revealed*, delivers a modern, intelligent approach to abdominal training.

A former astronomer, Jonathan used to study stellar bodies—now he builds them!

