

*Walk, don't out run your PPE.*

Our history drives the methods how we fight fires and respond to emergencies in our area today. The lessons learned in the past are transferred into the teaching elements that we have in our manuals and Standard Operating Guidelines (SOG's) today and into the future. It is what we are teaching our newest firefighters and for the continuous education and training for our current firefighters. In some ways, there are delays between the knowledge of changes in the fire environment and the adjustments in tactics and training created by those changes.

The fire service has witnessed some of its largest changes in the past 30 years or so. Some of the largest changes we have lived thru are advent of the thermal imaging camera (TIC), greater protection from our personal protective equipment (PPE), and the changes in the fire environment. The changes in the fire environment is now backed up with in the field and scientific tests which show how things have in fact changed within the fire environment. If we take each of the three items above as a single not related item, we should adjust our fire attack methods. Combine all three together, there are needs for a change.

Our fire environment continues to change with much higher heat release relates with most of the items within our homes. 30 years ago, we still had furniture and living items within our homes that had a heat release rate of 8,000 – 12,000 BTU/pound. Today, the majority of items in our home are comprised mostly of plastic with a heat release rate of 18,000 – 20,000 BTU/pound. To add to the increase in heat release rate, find some old family photo albums and look at what our homes looked like. The Thanksgiving and Christmas celebrations of the 70' – 80's. There was one TV in the family room. The end and coffee tables were solid wood. Now walk around you home now. A TV in just about every room. Tables, chairs, and sofas made from different forms of manufactured wood (wood chips & glue with a thin veneer surface). The rooms were divided by walls and the rooms were smaller. We can see the picture of 10 family members watching a football game after eating Thanksgiving dinner in a small room with many sitting on the wood floor.

Our homes built in the last 25 years have larger open spaces where the fire will not be contained by walls and doors which will allow it to grow unchecked. Carpet, furnishing, TV's, and the list can go on many with man-made products. To save more money in construction of the home, lightweight, highly engineered construction components for just about every structural member we can find in a home. It is not just roofs, but flooring, stairs, and wall sections. Our homes are not the same.

In our apparatuses today, we now have TIC's that can bring us deeper inside further and faster into the structures than ever before. We can all but 'run' into the high heat and immediate dangerous to life and health (IDLH) environment like never before. We can move so quickly to conduct a search ahead of the lines that we are out pacing our line crews. Our PPE offers us the best protection from the thermal insult and insulation us from the heat and products of combustion while we preform our duties. If you pull the three items above into one equation, are we now, to some level, at a greater risk of injury? Do we have too much protection now? Or do we need to update and increase our knowledge. I think it is the second.

Showing my age some, when I started in the mid 80's, I was first issued pull up boots, a helmet with ear flaps, and a long coat. We did not have hoods or pants yet, they came a few years later. During that time, you could not go in too far too fast. Your body would be in such discomfort, pain, that you

were limited on the progress to the advancement of the handline and proper ventilation. Your ears, neck, and legs are exposed, and had no protection from heat. The coats of the time had much less thermal protection overall and even less in the shoulders and there was not any overlapping coverage at your wrists and waist. Many, including myself, used our ears as the temperature sensors for the environment we were in. The heat and tingling would tell you that you are heading in the correct direction towards the fire. Your knees would tell you how hot the second floor is from the fire on the first, telling you if things were getting better or worse during a search. If you went too far too fast, your ears would hurt with the temperatures and burns any steam being generated from the operation of the hand line.

Today our PPE protects us from those small levels of discomfort allowing us to proceed in deeper and longer. Until it is too late sometimes. Once our bodies start to send our brain the pain signals from the heat building up, it is in many times too late. We could have the start of some thermal or other injury. So, are we over protected today?

Many might say that we are over protected from the fire environment today, almost disconnected from the fire environment overall. I happen to disagree; we have not updated our training with the times we are currently in, in most cases or training is lagging. History shows us that prior to the advent of the SCBA, our fire attack and search went only as far and fast as our lungs and eyes would allow us. If we could not breathe, we would not continue forward, being humans, we were limited by our bodies. So, we relied on tactics that supported our human limits. The handline advancement and proper ventilation were set to allow for the atmosphere inside the structure to be tenable for use not a firefighter, but as humans.

Return to the implantation of the SCBA in the 60's and 70's, our eye and lungs were now protected from the smoke and heat allowing us to go into the IDLH much further. We could push the lines deeper, conduct searches in areas once not possible. We could now breathe where prior to the SCBA we had to stop. During this period of the SCBA, our tactics became more aggressive in our handline advancement and searches. Our bodies were protected so we could push deeper. During this time with our more advanced and aggressive tactics, we started to push our PPE to its limits. There were thermal injuries from being interior too deep, we were advancing beyond the protection of our PPE. This is the time of the start of my time in the fire service. In the mid 80's, the issuance of hoods, better gloves, and bunker gear, i.e., pants, were received and made mandatory levels of protection thru both OSHA and the NFPA. We were now protected at much greater levels than the past and protected to the level of acceptable aggressiveness.

As time moved forward, our PPE continued to improve. The protection levels increased with the science and engineering of the garments we don today. Higher Thermal Protective Performance (TPP), Total Heat Loss (THL), Conductive & Compressive Heat Resistance (CCHR), and the fabrics used for building the garment themselves created the best protection the fire service has witnessed. With the increase in protection, we have become more isolated from the fire environment we enter. Our ears do not feel the heat during stretching a line down a hallway. Our knees do not feel the heat thru a floor above a fire during a search. We need to learn the limits our PPE have with our 'isolation' from the fire environment and to make sure we do not expect too much from our PPE.

The level of protection we now have, we cannot feel the discomfort from the heat until it is too late many times. Our PPE will adsorb high levels of heat and trap it within the air pockets that are

designed for protect us. Once the heat builds up to levels of discomfort being felt by the firefighter, it is often too late, and our gear is now heat saturated and only by removing yourself and PPE to a cooler environment will bring down the temperatures. Some still say that their ears are their thermostats, once they feel the heat, they will know the fire environment around them and not go any further. The idea as a standalone could work. If we know and understand the current fire environment we operate in now, the heat release rates and speed of flashovers happen, and flow paths, that high heat could hit us quickly. So fast we will not be able to react to either retreat or protect our exposed skin. The pain could/would be so high, most will not be able to continue to work or control their actions. It would be a fight or flight reaction. No one will win if that happens. So, to allow us to have the protection that we want, need, and required to have, we need to think about our tactics and train to all the advancements we have in today's fire service.

The term "walk, don't run" is something that was taught to me when I started in the fire service. If we ran during training, we were given 'tasks' to correct our misjudgment. If at an alarm, the chief would yell at you to walk. If you run or rush up to or interior of a fire or any other alarm, you are at a greater chance of missing something because your eyes and mind are processing your forward movements more than what is around you, or you can get injured from a trip, fall, or mistake. That is one of the most important things we need to teach our firefighters today. We can see on any one of the social media platforms firefighters jumping off the apparatus, sometimes before it has come to a complete stop. The sprinting up to the front door of a house fire with hand tools, pop the front door and run in leaving the door wide open. The handline is being stretched and the hose team is once again running up to the door. So, that looks cool right? Was there a 360 check that could show a working basement fire with a walk out basement? What they don't show is when the one firefighter trips and falls on the curb. Or when a firefighter is looking to get out the side window 5 minutes into the fight because they are too far in ahead of the line and by leaving the front door wide open creating a flow path that increase the fire growth. The list can continue as long as like. To the naa sayers, it was stated to walk not run. I did not say take a romantic walk in the park pace while working at a fire or other emergency. Move with a purpose. See and capture your surroundings. Know more than one side/door before you enter a structure.

Some in the fire service do not want to look at the science, but what the science has shown us, the basics do work when done correctly. Take a few minutes and review the UL studies conducted on typical residential structure fires. The amount of time it takes for the areas to flashover after the front door is open show that we need to understand our current fire environment. How venting a widow will create a flow path of superheated smoke and products of combustion and how they would travel thru a home. And more important, how to counter and react to each. Large volumes of water from our handlines discharged correctly. Controlled ventilation once water is being applied to the fire. Door control to limit feeding fresh air to the fire compartments. Applying water to the fire as quickly as possible. Which in some cases might mean water into a basement window or from the front porch to knock the fire down prior to full entry.

By teaching the best firefighting and up to date tactics that meet our current fire environment, our PPE will be able to not only protect as we operate efficiently but prevent injuries that are preventable. The latest technology available to the fire service has allowed us to 'run in' when we still should be 'walking in'. Move with a purpose, controlled, and efficient will allow our operations to stay controlled. Allow your correctly donned PPE to protect you and your team by not thinking it will protect

you from everything. Our PPE is not proof for anything, only resistant to expected hazards we will encounter during normal firefighting operations.

The PPE that we are issued today offers us the best and greatest amount of protection from injuries from the expected exposures we will encounter while operating at our alarms. We are the 'safest' we have ever been regarding our PPE. There is no debate. But we cannot expect our PPE to turn us into Superman and allow us to run into any fire or hazardous environment and be fully protected. Our PPE is not bullet, fire, explosion, or anything proof. Our PPE is only resistant to the expected hazards we are expected to encounter at the alarms we respond to. Learn what is current fire environment and the best tactics to defeat it. Learn, train, understand, and respond to your alarms accordingly. Knowledge and skill are our best protection.