Fire Training Toolbox "Free Training for Firefighters"
http://firetrainingtoolbox.com
http://facebook.com/FireTrainingToolbox
http://twitter.com/FireTrainingToo

Horizontal Ventilation
Scott Corrigan

Job performance improvement should occur thru education, training and drill. This starts in drill school and carries on throughout your career (not differentiating between paid or volunteer). Education occurs from videos, books, online, and by word of mouth passing along the craft; the last being the one that creates a relationship by objective. With private dorms, second jobs, big screen TV's, laptops, tablets and smart phones this word of mouth seems to be something that is fading away. I would caution us to recognize and stop this from happening. Let's also be realistic. Not everyone can teach. Not everyone should teach. Some people can "do", but not coach. Some people can read novels and PowerPoint but cannot teach the absolute critical tasks that must occur to experience success on a fireground. They should definitely not teach.

Education

Firefighters are eager to learn "what" to do and even "how" to do it, but we lack the patience to learn "why". That is obviously a general statement, not intended to offend, but get your attention. Think back to your drill school. You received 4-8 hours of fire behavior (most not accurate or up to date) and most have had very little additional fire behavior since drill school. It can be perceived to be a boring topic so we shift our attention to the task execution training. Education on fire behavior must be *relevant, accurate and ongoing*. If I was a dragon slayer I should probably study all things dragons.

Training

Once you have a foundation of "why" you will begin to learn how to use your tools and teamwork to execute a task. This time will be interactive with your mentor or instructor. You are learning so the most powerful question you can ask is "Why"? If someone cannot answer the why, they are probably not the best resource. If someone answers, "Because I said so" (and you are not in drill school) they may also lack the depth of knowledge to fully explain. I experienced this many times, often followed by "Every fire will be different". With that particular leader, fires were certainly always different. There will be variances, but single family dwelling fires in your agency will (some would say should) follow a certain playbook or flow based on tactical priorities. "Training is a balance between skill development, skill refreshers and problem solving." -Ray McCormack. That statement by Ray speaks to a mentor process. It is a guiding principle for raising future firefighters. It never ends. The goal is to be brilliant at the basics. This takes work and sweat equity.

Drill

Just short of someone calling 911, drill should be a timed, bench marked (videotaped) event that provides as much target feedback as possible. Little should be simulated and everything should flow from air brakes to drill completion without interruption. Everything comes together or falls apart here. This is the closest proving ground that we have away from the alarm. This should not be stretching your pre-connect out in line across a parking lot to an awaiting cone and calling for water. You and your crews' minds must be engaged. The reason that I add videotaping is the self-reflection ability. I have been critiqued after a drill only to dismiss the instructor because I was sure I had done it correctly. When being shown a video, there is simply myself to argue with. Now that we have set the playing field we can move along.

Fire Behavior and Air Tracks

The building should present some indicators about the ventilation that is already occurring. There will be exhausts and intakes. It starts with observing, supporting and possibly changing what is already happening. Ed Hartin with his blog (http://cfbt-us.com/wordpress/) has taken the time to put a lot of information up and he reviews events using videos, reports and accounts from the crews. Take the time to look thru it. I will caution you that some of the stuff gets pretty detailed and you may need to get another cup of coffee as the professor breaks out the bubble charts! Go thru is at your own pace. Discuss it with others.

Ventilation

Ventilation needs to be understood as a concept as opposed to a task. It is the understanding of what is occurring inside of a building when we arrive. We must observe the building to attempt to decipher what burning state that fire is in. Is it fuel controlled or ventilation controlled. Fuel controlled fires will not get much worse if we add air (ventilation). Ventilation controlled fires can get a little worse up to extremely worse if we add air (ventilation). In a simple approach- fuel controlled fires are like prom night. They can be real enjoyable with few surprises maintaining you are aware and paying attention. Ventilation controlled fires should be approached with the mindset that the fire is operating at 50% efficiency (not quantitative or qualitative data used here) and that every opening will increase the burning efficiency of the fire. This becomes extremely important if we begin to add air without adding water. Closed doors are a firefighter's best friend inside a burning building. We have taught the public for years to sleep with their doors closed but somehow we forgot the importance of controlling the intake (fire door). Aggressive opening, closing and controlling doors inside of a burning building is a critical task that must occur. Some of the recent UL studies have simply reinforced this long held stance regarding the importance of controlling the door. Without the coffee table mentor passing this along it has somehow escaped us. Perhaps we have too many tools in our toolbox?

If your agency is well versed in horizontal ventilation then you can testify to the successful environment that it creates. You have seen the results of good 'rise and lift' of interior conditions to about three (3) feet. You have seen how quickly a room can become clear of smoke to assist the searching and attacking crews. If your agency is new to it, then I caution you to start with a very narrow scope. Improperly done it can change the fire conditions drastically. It does not take long on Youtube to find improperly conducted horizontal ventilation operations (here is a great example: http://youtu.be/bZzQibzeWtY).

Here are some videos of the coordinated operations between an OVM (outside vent man) and the attack crew at a training exercise:
(http://youtu.be/XL4NRxucxHo)
(http://youtu.be/v1bwXwIG22o)

Intakes and Exhausts

If smoke is going out of a door or window you could call that an exhaust. If smoke or fresh air is moving into a door or window you could call that an intake. There will be many influences on this and they may change during various stages of the fire. We have all seen the videos or been to the fires where the front door is wide open as the crew is masking up, calling for water and then conditions worsen and the gorgeous ball of fire comes to greet the visitors. Once we determine nobody is in the front room in need of a quick rescue, the front door should be controlled. If you are searching without a hoseline, the front door must be controlled. This will allow the fire to become ventilation controlled. Most single family dwelling fires are successfully confined and extinguished by entering the most common entrance that is used by the family, with a hoseline. Note that I said successfully as I recognize there is "more than one way to skin a cat". This front door becomes a great starting point for your attack crew and becomes a great intake and exhaust if it is the only opening made. Once this door is opened the timer is going. When you add air you should add water. *(Side note: Exhausts can be assessed to determine the best way to escort the fire from the building. If an exhaust is doing its job and you have the resources to go inside then turning this exhaust into an intake with your hoseline does not always bear the fruit that some will claim. If you do not have the resources or conditions are beyond an interior attack then you have two choices. You can do something, spelled exterior attack, or you can do nothing. Generally speaking doing nothing does not go well during voting season.)* An exhaust can be a widow or a hole cut into the roof, but we will focus on horizontal as it is often accomplished before vertical ventilation. Unless wind will create a hazardous condition we will vent horizontally opposite of the attack crew.

Splitting the building

Using the diagram below it is best to split the building diagonally from the corners. As you are looking at the building you will quickly assess the rooms behind the windows. Where are the stairs up? Where are the stairs down? Which rooms have doors and which ones do not (living rooms, kitchen, dining and family rooms) that

will lead to larger areas of smoke accumulation and fire. You have marked your entry point as the front door (or back door if that is the common use door). You are now looking for exhausts to help the attack crew advancing in on the fire. If fire is already showing from a window, start there. As the crew advances in and begins to apply water you can increase the horizontal ventilation in that room if more windows are available. Horizontal ventilation occurs opposite of the attack crew. If the room is near a corner of the building it is best to roll around the corner and take a window. This can keep the compartment from becoming too heavily influenced by wind and pushing it over the attack crew. The key is opening up the windows to support the exhaust. Opening up windows too quickly can create an intake and provide that compartment with the much needed oxygen when it is ventilation controlled.

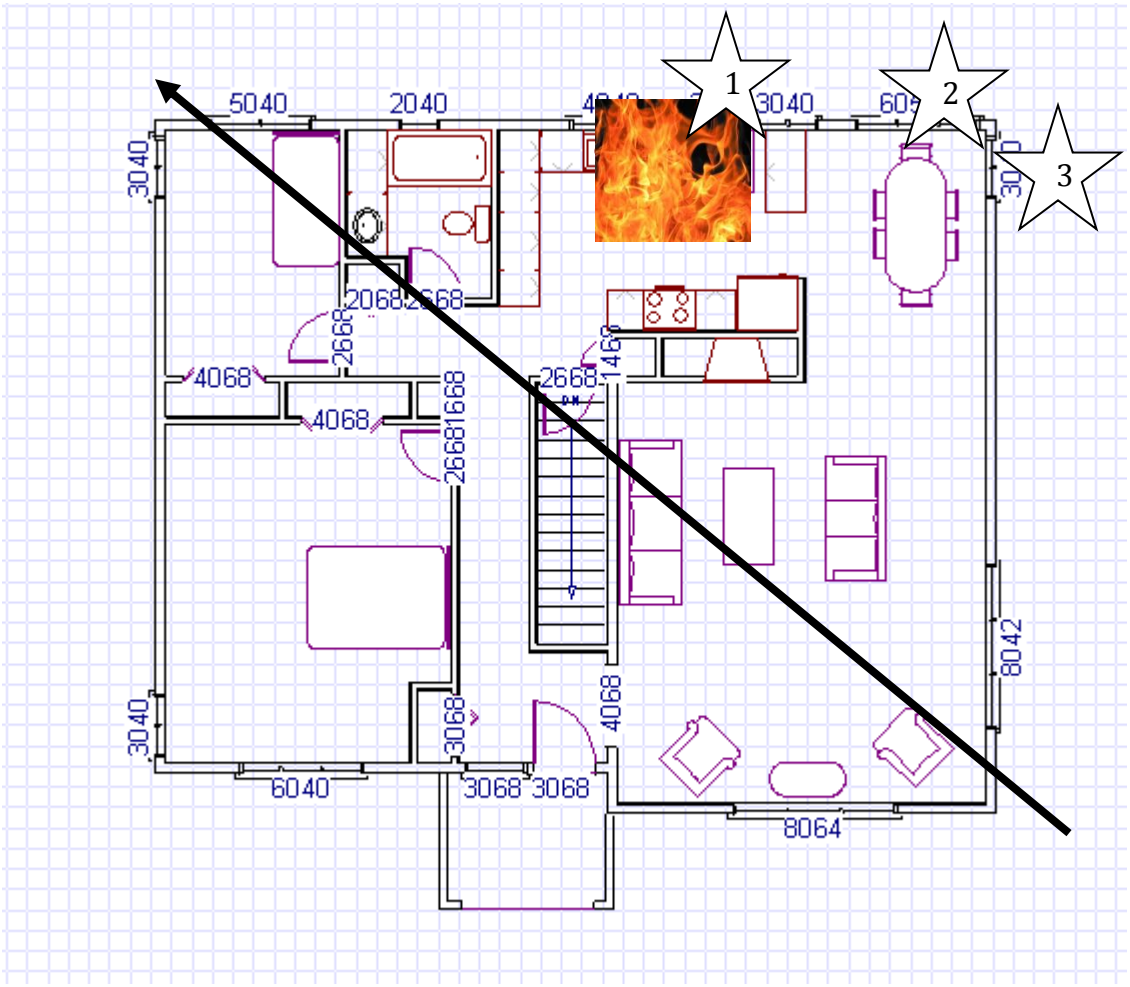
Taking the glass

Remember in drill school when they said to climb the ladder above the window that was placed to the side for ventilation? Remember when they said to put your visor down and make sure your hands were above the part of the tool that would be breaking the glass so chards of glass do not race down the shaft and cut off both your hands? I mean what good would a firefighter with no hands be at a dwelling fire? Remember when they said to take the top of the window then evaluate ensuring that it is an exhaust? Then take the bottom of the window to increase the size of the exhaust to support the attack crew? We never got that far in my drill school, we stayed at the task level and I dismissed it quickly. *We must teach the why*. Regarding which tool to use, I try not to get too caught up in it. A simple stick with a hook (spelled NY Roof Hook) works incredible. You can perform the task of opening the top pane, the bottom pane and remove the sash with this tool. In doing all of that, you have created a nice entry point for a ladder crew or a nice exit point for an interior crew performing a rescue handing the victim out the window.

Once you have a line on the fire and begin to control it, you can coordinate taking additional windows (from the inside or still using the OVM). The key is the entire process being coordinated for it to be Safe, Efficient and Effective. Coordination begins by discussing it with your crews, writing it into your Standard Operational Procedures, and executing it at a scene communicating with the Interior Officer. The IC will need the information but the Interior Officer needs to be coordinating the Location, Type and Timing of the ventilation process. His crew is responsible for adding water while others are adding air.

Don't ever stop learning and listening. Don't dismiss the war stories because they have many lessons woven into them. Don't be afraid to get dirty, work hard and sweat. You are responsible for the fruit or your actions or inactions. You own that by yourself. Learn to be excellent independent of anyone else, because one person can change the world of another. Ask any VES rescue survivor.

Fire Training Toolbox "Free Training for Firefighters"
http://firetrainingtoolbox.com
http://facebook.com/FireTrainingToolbox
http://twitter.com/FireTrainingToo



Scott Corrigan is an engine company officer in Pierce County Washington. He has 15 years of experience. He gives credit to all those who have taught him either directly or indirectly. He gives praise to all of the committed instructors who give selflessly so that others may continue to hone their skills.