The Book of Jenkins

A Tribute to a Living Legend of the Houston Fire Department Senior Captain Dale Jenkins

April 7, 2015

Over my career, I have developed a theory about the size of your ventilation hole.
"THE SIZE OF YOUR VENTILATION HOLE IS DIRECTLY PROPORTIONAL TO THE BUTT PUCKER FACTOR……
THE TIGHTER YOUR BUTT PUCKERS, THE SMALLER YOUR HOLE GETS"! (Nobody has proven me wrong yet)

~ Senior Captain Dale Jenkins

The following is a compilation of Facebook posts from Senior Captain Dale Jenkins in his pursuit to leave the fire service better than he found it.

March 31, 2015

This will be a longer post than most want but please if you care about being a great firefighter, staying alive and going home to your family in one piece, find the time to read it and hopefully learn from it.
This video sickens me, as I watched I could not help but think the worse. The person videoing the incident took the words and emotions right out of my soul. Only by the Grace of God has that not been many of us. I absolutely love and respect firefighters that are willing to do the job and get it done! God has called me to do what I can to pass along any useful information and this video is the catalyst for this post.
The officer who fell through the roof had 25 years of experience, is now dealing with 65-75% second and third degree burns and is in critical condition.
Without being critical or judging let's use this as a learning opportunity.
One of the areas that we as a profession have the least experience is Vertical ventilation, cutting holes. The vast majority of firefighters will go through their career with never having been called on to cut a hole. So what happens when suddenly a firefighter or an officer with no experience is called on to go to the roof?
I'm going to address a few of the most critical issues.
Reading the roof:
Size Up, Size Up, and More Size Up. It actually begins when you are dispatched and continues until you leave the scene. It is absolutely critical for safety and to ensure we get the job done.
As you initially arrive on scene and then as you do your 360, you should be sizing up the roof and the structure but especially the roof. As you climb the ladder and before you step off on the roof, again size it up. I will use the TIC but most of all I am visually reading the roof and its condition.
When I'm reading the roof my number one concern is bad decking!
I am certainly concerned when my rafters and ridge board are going bad as we all should be but weak rafters with solid decking will normally give a slight warning before giving way.
Weak or compromised decking regardless of how strong your rafters are can dump you in with no way out and with no warning.
I am concerned about trusses but not nearly as concerned as I am about the decking, with OSB being our nemesis! I have had more roofs come apart on me over the last 10 years than I had the first 25 and OSB has been the primary reason.
The two primary conditions to look for that indicate bad decking are:
#1*Smoke pushing out through the shingles this is a concrete sign that the decking is being compromised. It will look like pencils of smoke coming through the shingles or sometimes it will resemble tiny tornados. Remember roofs are built to be water tight, you should expect to see smoke coming around the perimeter, out of the soffits/eaves and through functioning ridge vents. You should not see smoke coming through the roof itself. That is a no go sign for that area of the roof which should not be ignored.
#2 The roof starting to sag and showing the rafter locations. This is another sign that the decking is getting bad!
Also be looking for:
*Is fire already in the attic?
*Is the fire isolated to only a portion of the attic or does it have total control of the attic?
*Is the roof starting to sag between the ridge and the outside wall plate? This is a sign that the rafters are starting to get weak or fail.

*Is the roof starting to sag on the ridge? Could be an indicator that the rafters on both sides and the ridge board are getting bad.

Sounding the Roof:

The Officer sounds the roof confirming a safe route to the ridge. I sound about 3 to 4 ft. wide in a straight path up to the ridge. My crew knows to follow the same path to the ridge that I walk and sound. I sound the roof using an 8 ft. steel New York Hook. I am trying to drive it through the decking looking for any soft spots and or a change in the feel as compared to what I initially felt when I first began sounding the roof.

We are sounding for two different things, decking and rafters. OSB, smaller plywood or rafters on wider spacing allow so much give that it is easier to identify the rafter's location. I have a hard time identifying how strong the rafters are by sounding them. It is the overall way the roof feels as we walk on it, the amount of spring that will cause me concern.

I in no way mean that you sound the roof with your feet or by bouncing, quite the opposite. We want to walk light and try to stay near the rafter locations if you can find them. But pay attention! You will be able to feel if the rafters have any give it will show up in your knees. If the decking gives I notice it more in my feet or ankles.

If I feel the whole roof give under my legs when I am walking on or near the rafters it is an indication that we are either dealing with 2X4 rafters or rafters have been compromised. As a rule the roof should not move as a unit under your weight. Some roofs will have a little more give in the middle between the ridge and the outside wall where you get on the roof. Flatter pitched roofs will typically have more give than steeper pitched roofs. You should never get a lot of give and for sure it should not feel like you're walking on a bed. Only training by getting on different types of roofs in non-emergency situations will give you an indication of what to expect as a norm. When you step off of the rafters and you feel the roof flex under your feet this is an indication of weak or thin decking. If the decking when you initially got on the roof was solid but now flexes it should require closer attention. Always sound before you step onto a new area. It is very important that the Captain sound the entire area where you intend to cut prior to beginning.

TOOLS:

Everyone must be proficient with the hand tools that we take on the roof.

This requires training and practice before hand. None of the tools we use can differentiate between a leg, an arm, or a roof. Very few individuals grow up today using an axe or a saw. Even fewer have ever used them on a roof in zero visibility. It imperative that our firefighters become proficient with the equipment before we lead them onto a roof. With that said we all know that sometimes the first time some of our firefighters ever use the equipment is during a fire which creates a very unsafe situation for everyone on the roof and below.

The tools that I want on the roof are:

Vent Chain Saws: I believe it is safer on a pitched roof and we have had very good successes with them.

The fact that they have a chain brake and that the chain stops quickly on its own is the #1 contributing factor.

2- Flat Head Ax: A Flat Head Axe is the most dependable ventilation tool I have ever used. I have never had one that did not start. It will however run out of gas quick when I'm using it. The Flat head Ax does an awesome job of cutting through all types of decking without wedging and getting stuck when it is used backwards using the flat head.

Cutting with the flat head is so efficient that it can compete with the saw for speed and efficiency

on some types of roofs but again it runs out of gas early.
We have great success cutting through ¾ inch plywood, shiplap, OSB, metal and even 8 layers of composition shingles on top of ship lap when using the flat head part of the Ax.
Only your initial strokes need to be power strokes (over your head home run swings).
Once you get through the decking the remainder of your strokes can be controlled short fast strokes.
All Flat Head Axes are not created equal !!!!!! There are Flat Head Axes in our department that will not work for cutting a hole.
Always check the flat head, a good Flat Head Ax will have a square flat head which is the widest part of the entire Ax.
6ft. Rubbish Hook: This is our primary tool for opening up and punching through.
We tape it to the tip of the roof ladder that we take up on the roof. It will be pulled off and used by our Cleanout Man. It is not a good sounding tool because it has too large of a surface area. It can also be used as a long foot hold on steep roofs. It can be driven into the roof using an overhead home-run swing, driving the two picks into the roof. Then the handle is held by a firefighter who is staged on a roof ladder.

8 ft. Steel New York Hook: I use this to primarily sound the roof. It gives good reach and allows you to identify questionable decking from a greater distance allowing you more time to react.
I am very concerned about OSB decking and how quickly it can be compromised by heat and fire. We can also use the New York Hook to open up and punch through.

1-Thermal Imager: I have had great success using the TIC. The more I use it the more confidence I have in it. We have to remember it is only a tool; we must still use our brains, experience and common sense. I will scan the roof from the tip of the ladder before stepping onto the roof. It has really helped on the roofs where we get there when the fire is just getting into the attic and we have no other visible indicators of where to establish our vent hole. I prefer the color mode when it is available.
1- Roof Ladder: We place a roof ladder on every roof. We do not necessarily work off of it BUT it is there as our safety net and to stage our tools.
A few absolutes;
Plan on cutting a big hole, a 9ft.X 4ft. minimum.
Put a roof ladder on the roof as a safety net.
(We do not work off of roof ladders as a rule but we have a large number of OSB decked roofs in our territory.
They have a high failure rate and the Roof Ladder has saved us several times
It also makes an excellent staging area for tools)
Plug in our regulator prior to stepping on the ladder
(The smoke today is some really bad stuff)
Have a plan and review it with your crew on a regular basis.
(We can never be too familiar with our plan. Unlike on all the training videos most of our work is done with limited or no visibility
Have pre-assigned jobs and tools
Safety:
An Officer's number one responsibility is safety.
That means making the right decisions no matter how difficult it is. Sometimes that means putting the right person in the right spot regardless of rank. If an Officer finds that they have less

experience than one of their crew then decide who is best suited to make life or death decisions. You will still be responsible and still be in charge but until you have enough experience to make those decisions chose someone who can.
The Officer should do the following or see that the most qualified person on the crew does the following.
Be the first one on the Roof:
Confirm the structural integrity of the roof.
Sound a larger area than your hole.
Choose the proper location for the hole. .
Back-up the firefighter cutting the hole
Constantly monitor the conditions
Confirm that the hole is effectively ventilating the structure.
Be the Last one off the roof
Safety on a bad roof:
We all know that the ridge on our standard framed roofs is one of the strongest areas on a roof. It is strong because it is normally a 2X6 or 2X8 that runs the length of the roof and is sandwiched in between rafters from both sides. The ridge is where we all set our sights when we are looking for a solid area to walk or secure our roof ladder. It is the area we trust the most on marginal or very steep roofs. Think of how many times you have thought. ” If we can only make it to the ridge we will be ok “
Be Aware this only pertains to standard framed roofs.
It Does Not Pertain to Light Weight Truss Roofs. On light weight truss roofs the ridge may actually be one of the less secure areas.
There is no ridge board on light weight truss. There are normally braces near the ridge but they are normally located several feet down from the ridge.
If you stand on a light weight truss ridge you are literally standing on the edge of two sheets of roof decking. So pay attention!
If you ever find yourself on a bad roof and you still need to get the hole established, get down on your knees. This spreads your weight out and puts your hands only about six inches from the roof instead of 3 feet. If you were to begin falling through you can spread out much quicker to stop your fall. On our knees is the same way we cut steep roofs.
If you have a roof start to come apart on you do not try to walk or run. Roll away from the area and hopefully to a solid area. Away does not mean down the roof. This would be a challenge of your good common sense. The most critical thing you can do when a roof suddenly starts to go bad is spread your weight out. Then get your crew and yourself to a safe area, re-evaluate the situation and make the appropriate adjustments. Often this will mean abandon the roof but there are times on large roofs that it simply means get to a safe area and complete your assignment

Determining if the Hole is working:
• We want to establish a LARGE ENOUGH HOLE to be effective!
• We all need to know what signs to look for to determine if the hole is meeting the required objective.
• We are constantly monitoring smoke conditions and looking primarily for two noticeable changes that indicate our hole is large enough and working, SPEED and SHAPE.
• SPEED: As we begin to open up our hole the first thing we are watching for is the smoke pushing out of the opening, coming out fast under a lot of pressure.
• SHAPE: Under heavy smoke conditions our smoke column will be a tight V, which will be

pushing hard and holding its shape for some distance above the roof.
• As we continue to open up we are looking for the point when the smoke column quits pushing out under pressure, begins to slow down, loses its V shape and begins to roll out of the hole.
• When we get to this point we know we have relieved the pressure in the area where we established our hole. Now we visually check the smoke conditions coming from the eaves. We do not want to see any smoke coming from the eaves or around the perimeter.
• We want to continue to open up until we have no visible smoke coming from the building except out of our hole. This would be an indication that the hole was large enough to exhaust all of the internal pressure. If we still have smoke pushing from other areas we know that we have a confined fire that is not vented into our attic space. This may require an additional hole in another area,
A Marginal Hole:
It is possible to have a hole that is large enough to accomplish ventilation at that moment in the fire and later become ineffective.
• This happens primarily when the hole is marginal in size and a delay occurs in extinguishing the fire which allows the fire to increase and exceed the ability of the hole to effectively ventilate the structure.
• A marginal hole can be overwhelmed, becoming ineffective allowing conditions on the interior to rapidly deteriorate causing smoke and heat to bank down. Those on the outside will see this as Smoke and Firefighters come rolling out the doors and windows and the Air Horns begin to blow.
• This is another reason to plan on a BIG hole.
Summary:
Vertical ventilation can be one of the most effective forms of ventilation when done correctly. Is also one of the most dangerous to perform? Having a plan, consistently reviewing and practicing the plan can make it safer. Knowing when, where and how to ventilate, knowing and understanding the concept , building construction, fire behavior and how to read both a roof and smoke are all key factors in becoming effective, efficient and safe while performing roof top ventilation.
I am amazed and saddened at how few of us actually seem to realize the balancing act between life and death that is in effect on all of our working incidents. We as a profession are disappointed and angered when it appears that others do not appreciate what we do, the danger we endure, the sacrifices we make. Is this not a little hypocritical when we choose not to be the best trained most knowledgeable firefighter we can be? The 95/5 rule is always in effect. If you have read to this point that indicates you are either the 5% or want to be. If you think any of this information is useful please share it.
Jenkins

April 1, 2015

There is nothing that is normal about being a firefighter.
I know of no other profession in the world that you can pick up the phone on the worst day of your life and have them at your front door in less than 5 minutes. To this day I am still amazed when I watch y’all get the job done. Whether its running inside a burning building under incredible heat and smoke or climbing up on a roof above the fire where gravity is trying its best

to bring you back down while the fire is trying its best to devour the building that's keeping you up.
God did not make any living creature that as a rule will run back into fire.
Only firefighters will willingly go into fires or go above fires. It is a calling that pulses through our veins, the burning desire to help others no matter the risk. It is that desire that will cause a firefighter to ignore the instinct of self-survival that God gave every living thing, to put their life on the line in exchange for attempting to save someone they most probably do not know. Ours is a noble calling that should not be taken lightly. We must all remember that laying one's life down to save another is the ultimate sacrifice but what about our family and friends. Do we ever consider them in our risk verses reward assessment? We must remember the sacrifices that our family and friends make so that we can pursue our calling. We must put forth extra effort to be as safe as possible so that we do not needlessly cause those we love to suffer. So how can we do this dangerous job safer? Learn all we can about it. Drill and train as though our life depends on it because it does!!!!! Never be satisfied with good enough. The truth is we can never be good enough, we can never know enough. Have you ever talked to a firefighter who thought they were going to die? If you have, none of them ever said that they had wished that they had less air, less water, less time, less training or less experience! We owe it to our families and ourselves to literally be the best that we can be. Do not wait for someone to come and make you better or for you to make someone else better. Do it now because tomorrow may literally, be too late. As my father always said "The best place to find a helping hand is, at the end of your own arm!
I am going to honor Captain Pete Dern from the Fresno Fire Department by using his horrific accident as my motivator. What can I do to make us safer? Share the knowledge and experience that I have acquired over nearly 37 years. I intend to put it out there and if you feel that it may be useful, please share it.

Be Safe!

Jenkins

April 3, 2015

This is the second part to my original post on ventilation. With all this information out there we can still never abandon Good Common Sense. It when all things are considered is still one of our most critical tools. Lastly let me remind all of us, so much of what we do is in limited or zero visibility. Roof operations are no different. We should train until we know every aspect of what we do intimately. Then we should cautiously and safely train with limited or no visibility with the key here being SAFETY!!! If you are unable to start a saw blind then you will quite often be working with hand tools instead of power tools. If you cannot feel your way across a roof blind you will eventually have gravity take you somewhere you do not want to be. We dice a roof as opposed to louver a roof. The primary reason is because dicing can be accomplished more consistently under zero visibility. Whatever you do be SAFE! and the best way to be safe is to know our job.

Roof Top Ventilation
*Like all aspects of our profession most of what we do is situational. We try to train and drill for all situations, however, we must be able to improvise, alter, and implement new plans on the run

as the situation changes. Being able to think on the go and Great common sense are extremely important for a Firefighter.

*Roof top vertical ventilation is basic Fire Science 101. Fire, smoke, and heat all want to do the same thing; they all want to go up. When they cannot find a way up and out they will begin to travel laterally searching for the area of least resistance to escape.
When they reach an obstruction to their lateral movement they then begin to bank or travel down, called mushrooming.
Roof top ventilation takes advantage of this principal of fire behavior. When we cut a hole in the roof at the highest point and punch through the ceiling we give all three exactly what they want, a path of least resistance up and out. Conditions on the interior improve incredibly fast as fresh air rushes in from the below to replace the void left as the fire, smoke, and heat rush out.

Have A Plan!

To consistently be effective performing roof top ventilation requires a well thought out plan. That plan must have pre-assigned tool assignments and job responsibilities for everyone on the Ladder Truck.
You must have a pre-conceived idea on how to cut the hole, and the minimum size for the hole that you intend to establish.
With a well thought out, practiced, and executed plan you should be able to perform effective vertical ventilation the majority of the time with very little additional communication and or instruction.
Without a plan training becomes much less effective, therefore your execution will suffer. When execution suffers then ventilation suffers, which in turn literally causes firefighters and civilians to suffer from the lack of a plan.

We would like to always have a 4/12 pitched composition shingle roof with 2X6 rafters on 18 inch centers with ship-lap decking and a moderate cross wind blowing away from our Roof Ladder.
Under these conditions, moderate smoke and fire in the attic, solid structural integrity, and good visibility we should be able to walk the roof!
When we can walk the roof we feel confident that we should be able to effectively and efficiently establish our 9 X 4 foot ventilation hole.

What happens though?
When you change the roof pitch to anything greater than a 6/12 pitch or the roof to slate, tile or metal, and you become tied to the roof ladder or must ride the ridge?
What happens when the fire and smoke conditions become extreme, wind becomes a concern, or your visibility goes to nearly zero?
Every seasoned hole cutter will tell you the same thing: Your hole gets smaller!

This is why there should be a plan for:
Every roof type:
Composition Shingle
Spanish Tile
Slate

Metal
Pitched – Flat
Residential – Commercial
Light weight truss

And under the following conditions:
Cutting from a walk-able roof.
Cutting from the ridge
Cutting off of the roof ladder or Ladders
Cutting off the aerial or tower

Don't get locked into a plan thinking that it will work for you forever. Plans need to be constantly scrutinized for their effectiveness.
What worked well for years may become less effective for numerous reasons.
Changes in construction, new and better equipment, or new ideas are reasons to re-evaluate your plan.
Your crew may change or evolve into more seasoned professionals which are great reasons to alter your plans to become more safe, efficient, and effective.
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A few absolutes;
Plan on cutting a big hole, a 9ft.X 4ft. minimum.
Put a roof ladder on the roof as a safety net.
(We do not work off of roof ladders as a rule but we have a large number of OSB decked roofs in our territory.
They have a high failure rate and the Roof Ladder has saved us several times
It also makes an excellent staging area for tools)
Plug in our regulator prior to stepping on the ladder
(The smoke today is some really bad stuff)
Have a plan and review it with your crew on a regular basis.
(We can never be too familiar with our plan. Unlike on all the training videos most of our work is done with limited or no visibility
Have pre-assigned jobs and tools

The Concept!

Plan on a Big Hole!
Our basic plan is to cut a hole as big as we can, as fast as we safely can and at the highest point over the fire as we safely can.
If you plan BIG and you have to leave the roof early you may still have an adequate size hole. If you do not plan big you set yourself up to fail.

Today, effective ventilation is crucial for a successful fire attack.
Fires today produce, according to our CE class, up to 500 times more smoke than fires 20 years ago. That number is definitely on the high end but according to our first-hand experience the fires today do burn hotter and produce considerably more smoke. This is why we always plan on

cutting a big hole.
Thirty seven ago the minimum size hole recommended for a residential fire was a 4x4
Today most experts agree that our fires today are different and produce much more smoke but there are those who still teach to cut 4x4 ft. holes.
Fortunately there are those who recommend bigger holes for today's fires and push for a 36 square ft. hole as the minimum for residential fires.
We agree with this and have found that a 9x4 ft. hole is very effective for the majority of our type of residential fires in District 46.
While attempting to achieve a 36 Square foot vent opening we drilled on cutting both a 6X6 and a 9X4 foot hole.
We found that a 9 ft. X 4 ft. was quicker and easier to consistently clean out from either side of the ridge. Trying to open up a 6X6 hole required either reaching out over the hole or moving around to the other side of the hole. We try to limit the amount of movement around the hole and on the roof and by cutting a 9X4 we accomplish our goal. "
Think about this"
As you begin to open up your vent hole the first place that anyone would see a change in smoke conditions would be the farthest distance away and the lowest point.
Think of a garden hose with your thumb over it.
As you begin to move your thumb away the distance of travel is shortened because you are beginning to relieve the pressure.
The shape and speed of your stream of water change.
If you want the least pressure, the least distance and the least shape,
Open the hole up!
Roof top vertical ventilation
Follows The "Same concept",
The bigger the hole the less pressure, the less pressure the less distance it pushes down and out.
Combined with the fact that smoke, fire and heat all want to go up conditions on the interior will improve rapidly when you get a big enough hole established.

The Wind!
Next to the structural integrity of the roof the wind is our biggest concern.
We prefer no wind or a cross wind when we cut but that will not always be the case.
When the wind is head-on blowing directly across the ridge our job becomes more difficult to perform properly. If we choose to operate out of the smoke then our choice is to cut from the ridge which means it is much more difficult to get a big hole. If the roof is walk-able and we choose to walk the roof and work from below our hole then we work in the smoke and limited visibility. This is my personal choice even though it puts my saw man and me working in the smoke. This position allows us to establish a big hole and my clean-out man to operate from the ridge with the wind at his back. When working below the hole we must be extra observant of the wind, smoke and fire always working back toward our roof ladder and safety.
There are studies that give different recommendations on wind speed verses roof pitch. I find their test to be too broad and confusing to use on the fire ground...
We pay close attention to wind speed and direction on a daily basis and remind each other any time we have more than a light breeze.
On any pitched roof 10 mph is our cut off point at which we will no longer cut on the windward side. At 10 mph the smoke leaving the building will be laying at about a 70 degree angle. (90 degrees being straight up and down.) I always think of it as the climbing angle for a ladder. Any

wind laying flatter than 70 degrees will require us to cut on the leeward side. At this wind speed we feel that we must closely monitor what the smoke is doing as we begin to open up. If we begin to get unfavorable smoke movement we may discontinue opening up and consider another option. We do not want wind blowing into the hole. This could have serious negative consequences for interior crews. It could cause the thermal column, smoke, fire and heat to be pushed down onto the interior crews causing everything to light off.
Bigger is Better, except! When the wind changes direction and begins to blow into the hole creating a dangerous situation.
We would prefer to Never cut a hole on the windward side into any wind over 10 mph's
You are better off not cutting the hole at all rather than cutting one into a questionable wind.

A personal observation:

• I have never seen Super Black Smoke that did not come with Super High Heat!!!

• Smoke IS Fuel! Rushing into a heavily charged building without venting is comparable to standing in the middle of a Diesel fuel spill with ignition sources all around you! Think, would you do that?

• You need to vent opposite of your entry point before you enter the building.
If you do not, wherever you enter now becomes the vent and the entrance for the structure!
Sometimes there are no other options. In that case you had better know what to expect and have a plan.
Stay low and move fast. You must locate the fire and begin your attack quickly because you have just entered the vent hole.
It is comparable to cutting a hole in a roof and then repelling into it. Would you do that unless you had no other choice?

If you have trouble finding the fire
And
You entered its only vent
It will find you
Or
Worse!
It could circle around you going straight to the vent, cutting off your only exit never giving you an opportunity to attack it.
This is a very hazardous and complicated situation.

You better be ready to overwhelm the fire!
If not
It will overwhelm you!!

This is no place for those who believe in
Low pressure and low gpm.

Making the decision to go to the roof!
Let the building, smoke, and fire conditions dictate whether we are going to the roof, using a fan, or both. You have to learn to read the smoke. Location, color, volume and speed all are

indicators of the interior conditions which dictate ventilation choices. Heavy black smoke pushing out under pressure from all over the building, even if there is none pushing from the eaves, is a dead giveaway that we are going to the roof as long as the roof is stable?
Those conditions call for roof top ventilation if at all possible. From my observation, heavy black smoke under pressure and PPV do not work well together. Heavy black smoke is fuel that is too rich to burn and only needs oxygen. We know there is an ignition source somewhere in the structure and unless we are trying to expedite the smoke lighting off, leave the fan off. Under those conditions the fan will act as a turbo charger pushing into the fuel/smoke column the one missing ingredient to make fire, oxygen.

Heavy black smoke pushing out of the eaves and all of the roof openings (even with only moderate to no smoke coming from the rest of the structure) is a huge indicator that the fire is well into the attic. It is critical that we get to the roof and get roof top ventilation established quickly. Interior crews may be rushing in under moderate conditions and if they begin to pull ceiling before the roof is opened up they will have prematurely vented the attic onto themselves which can have very negative consequences. Their moderate interior conditions can suddenly become untenable. Pulling ceiling under heavy fire and smoke conditions prior to roof top ventilation will bring smoke, heat and fire under pressure down on you and others. A well-disciplined crew will wait until roof top ventilation is complete before opening up under these conditions.

No smoke from the eaves and only moderate smoke coming from the structure: I will consider the fan as long as we can vent somewhere near the fire.

No smoke from the eaves but moderately heavy smoke coming from the structure but with visible fire at or near an opening: I will consider venting the opening closest to the fire and using a fan.

With the two previous conditions plus smoke pushing up from the eaves: we would set up a fan, complete a primary search, and then go to the roof.

With no smoke from the eaves but moderately heavy smoke coming from the structure and no obvious vent location: heavily consider going to the roof.

On two story Balloon construction with any significant amount of fire on the first floor, we are going to the roof. We want to vent the roof and take the fire straight up the wall and into the attic. This will keep it from traveling laterally as it tries to find a way up and out of the house. If I know it’s coming to the attic then all we have to do is pull ceiling, put it out, get in the wall, and mop it up. If you fail to cut a hole and the fire gets in the wall without any direction, it will travel all over the house trying to find a way up and out! If that happens, you better be ready to work! Now with that said, we must not abandon our solid fire tactics and just cut holes blindly for the sake of cutting holes. On any multiple story building when cutting holes with fire on lower floors, we must be sure the stairwells are being protected! The last thing we want to do is draw the fire up the stairs to the upper floors and trap civilians and firefighters. I could very easily get off here on Engine Operations but I will restrain myself. We must put hose on the ground that is flowing in the range of 200 gpm. minimum!

We must always plan on overwhelming the fire otherwise the fire will overwhelm us!
Count yourself lucky, that is the least I have ever talked about Engine Op's.

Cutting the Hole:

ASSIGNMENTS:
Captain: (First on, Last off)
• While the crew is setting the ladders I try to get a 360 or as close to it as possible. The Officer is the first one on the roof and the last one off
• The officer scans the roof with the TIC before stepping off on the roof. The TIC will give me an immediate indication of the heat conditions on the roof and allow me to make a plan of where we intend to go, what path we intend to take and it may even give us the area were we need to consider establishing our hole.
• If there is doubt as to where to cut I use the TIC.
• The officer sounds the roof and determines where to place the roof ladder (we plan on placing our roof ladder up wind of our hole) I decide where to cut...
• I back up the saw man always holding onto his bottle and guiding him. As a back- up man.
• A number one priority is to keep my saw man on the roof and not in it.
• I am responsible for safety and for determining if the hole is adequate by observing the smoke conditions.
• As long as the smoke is pushing under pressure out our vent hole then the hole is too small. If conditions allow we continue to open up.

E/O:
• Sets up the initial ground Ladder
• He decides on the proper location unless I direct him otherwise
• Sets up a second ladder for egress and then The E/O supports the roof crew from the ground primarily acting as an additional Safety Officer...

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FFC aka. CLEAN OUT MAN: (Second on the roof)
• Brings a roof ladder and a flat head ax. If needed he may assist the E/O in setting up the initial access ladder.
• We keep a Rubbish Hook and an 8 ft. New York Hook attached to the top of roof ladder that is designated to go to the roof. The clean-out man will use the rubbish hook to clean out or may use the 8 ft. New York Hook
FFC follows the Captain to the roof as the second person on the roof and is responsible for setting the roof ladder. After setting the roof ladder he will stage upwind of where we are going to cut. He becomes our initial safety officer. FFC will pay close attention to where the saw man is operating and knows to use his ears when visibility becomes difficult. We train to always keep the saw man and the saw at a safe distance. FFC will move into position to begin cleaning out and punching through when the saw man is about half way back to the roof ladder. He decides where to set up to begin cleaning out the hole based primarily on wind direction. The clean out man knows to leave a buffer of at least one section of un-opened roof between the saw and the hole.
If the clean-out man determines that he needs a bottom cut he will advise the Captain who will

then direct the saw man to stop, make the bottom cut and then continue. We find this is almost never required for OSB or Ship-Lap but mostly for plywood or multiple layers of shingles. OSB falls apart on its own. Ship-Lap comes with a seam every 6 to 8 inches. On plywood the seams are 4 feet apart and if the vertical cut does not cross a seam you will have to make a bottom cut. Sheets of plywood are 4X8 ft. and they are installed with the long side running parallel with the ridge. We will never really know where the 4 ft. seam will fall until we start opening up, because it is installed starting at the fascia and ends at the ridge.

FFB aka. SAWS: (Last on the roof)
Is responsible for getting a flat head ax and both Vent saws.
The saws will be taken to the base of the access ladder.
One will be started then idled down, the brake engaged and taken to the roof.
The other saw is left on the ground.
FFB/Saws will be the last one on the roof.
We opt for the chain saws over the K-12 or any of the circular vent saws primarily due to safety.
.
FFB will begin making the top cut, starting at the roof ladder and cutting away in a down wind direction about 6 inches below the ridge.
After reaching the 9ft. mark, FFB then turns and begins cutting down making vertical cuts 4 ft. long about every 12 to 16 inches apart. FFB continues making these cuts until reaching the roof ladder. (This is called dicing the roof)
FFB then stands by on the roof ladder with the saw idling in case any additional cuts are needed. He now becomes the safety officer.
When the saw man completes cutting, the Captain will then assist in completing the clean-out, always being aware of smoke, fire and structural conditions.

• If we have smoke coming from a ridge vent then we will skip the top cut and go straight to our farthest vertical cut. Smoke coming out of the ridge cap indicates that it is functioning which means that the roof decking stops about two inches before it hits the ridge board which eliminates the need for the top cut.
In this case all of our vertical cuts must start at the ridge board.

Dicing the roof does not require locating the rafters.
• Keeping our cuts less than 16 inches apart helps prevent spanning two rafters regardless of spacing.
• Some of our cuts will open up on their own the others will primarily be knocked in or louvered up.
• We let the saw do the work for us. We feel that this method is very fast and is less labor intensive than other methods we have tried.
• Instead of spending time locating rafters we go straight to cutting. There may be some additional effort in cutting but much less on clean out.
• As long as we can walk the roof we have consistently and quickly got large holes established using this method.
• We do not worry about knocking in the decking as long as there is not a delay getting to the roof. If the conditions call for hole to be established quickly there will not be anyone in the attic. Anytime the conditions are such that we have to be concerned with hitting firefighters with roofing or a tool in the attic then the conditions do not required for a fast hole.

• If we are sent to cut a hole late into the fire and potentially have fire fighters below us we may alter our method to a louver style cut or we may coordinate with the interior crews so that we can get the hole cut safely.
Cutting with hand tools is required anytime we have a power tool failure.
• The flat head ax used backwards is our tool of choice.
• We change to a top cut and two side cuts and then we pull the decking and hope it is Ship-Lap or OSB. They both will open up much easier than plywood. Ship-lap is rigid so it transfers your effort directly down the board to the nails. With ship lap you are primarily trying to pull the nails on just the one six inch board with a little carry over to one of the two boards it touches. On OSB it breaks apart sometimes into too small of pieces. If it is plywood we may end up having to make additional vertical cuts, extend our initial vertical cuts or make a bottom cut. Plywood is difficult because it bends instead of brakes. It acts as a shock absorber, absorbing your effort instead of transferring it to pulling the nails. Getting plywood to manageable sizes may require more cuts or much more effort.

Other Types of roofs:

• Spanish Tile, Slate and Metal all have one thing in common they are slick.

• Spanish tile: Either break them off or pull them off, pulling from the bottom edge up they come off like fish scales. Then brake or cut your 1x4 slats or if mounted on plywood or ship-lap then you still have to cut a hole. Be aware of falling tiles hitting ff's below you. The Tiles are very heavy.
•
• Slate: Very slick due to algae growth. Vent similar to Spanish tile. Not as heavy but can be sharp. Everyone I have ever vented were mounted on 1x4 inch slats and no problem except footing.

• Metal: Be sure of where you cut! Safety Consideration: If you cut in the wrong place it will fold up and dump you inside. Look for the screws and cut on the other side of the screws from where you are standing. Very difficult in zero visibility this is the roof I am most concerned about and which I have the least experience.

Summary:
Vertical ventilation is very effective when performed properly and timely. It is also a very demanding and dangerous task. While performing this task you are always working between two absolutes.
• Fire science 101: Fire, smoke and heat all want to go up.
• Gravity is always working on an object by pulling it down.
With this knowledge we need to know how to use those forces in our favor and not against us.
• By understanding fire science 101 and cutting large holes we become much more effective and safe.
• By studying building construction we are better able to understand what it is that we are counting to hold us up and how long we can expect it to do its job. What are its strong points and weak points.
• By understanding how critical size up is we are better able to rationalize our options
Visual: observing the conditions of the building and the roof.

April 9, 2015

When I started seeing post of all the newly promoted E/O's and Officers it reminded me of how as an E/O I struggled for years with addresses. I had no clue that there was any reasoning behind the way addresses were assigned. It wasn't until one day while I was driving another veteran E/O that I was made aware that there was a method to how odd and even numbers were assigned. I took that knowledge and applied it and built upon it. I found that addresses are the secret to understanding ALMOST all territory, in any part of the city, as long as you know and apply a few basic rules. I have included those rules below. Good Luck!

Reading addresses:
The Absolutes of addresses are:
#1. Once you learn to use the information that the address gives,
You will be able to:
Arrive at the location:
Quicker (saving lives)
Smoother (less wear on FF & Apparatus)
Safer (saving lives/less accidents)
Assisting you to,
"Be a PROFESSIONAL"

#2. There are NO other absolutes with addresses only the following general rules.

General Rule:
There is a non-exact line that runs more or less North to South and East to West that divides the city.
This line originates near the North West corner of down town and moves out in all four directions.
This non exact line is in reality a series of streets.
It is at this line that addresses begin and move away in opposite directions, this is also where the streets will either change names or pick up a direction identifier such as York changing to North York
If this line intersects your territory, you should identify what street or streets are used for the address change. This is important due to the fact when you cross this line the odd / even designation will change. You may have been running in the direction that the addresses where getting smaller there by putting the odd number addresses on your right, when you cross that line you will begin running in the direction that the numbers are now getting larger now putting the even number addresses on your right.
This same general premise applies to whatever city/town the addresses in your territory originate. Some will however reverse the odd/even system and have odd on the right hand side when running in the direction that the numbers are getting larger. This will be the least used system.

Rule #1 Almost Always:
When you are moving away from Downtown in all four directions the addresses are getting larger.

As you move toward downtown the addresses will be getting smaller

Rule #2 Almost Always:
As you travel in the direction
That the addresses get larger—
(Away from that imaginary line that extends out from Downtown)
Even numbers will be on the right
Odd numbers will be on the left
Remember those areas in
Your territory that don't follow rule # 2

Rule # 3 Almost Always:
An address ending in 00,01,02 and sometimes 03
Will be on a corner unless it falls
On a long block where the hundred block changes without an intersecting street.
In that case look for it in the middle of a long block.
Remember those areas with long blocks in your territory

*An address ending in ½ such as 5902 ½ will usually indicate a building behind a building.

What the numbers in the address tell us"
The Thousand blocks tells us the general area
The hundred blocks tells us the specific block
The tens place in the address will tell us where in the block
(Early, middle or late in the block)
The last digit tells us what side of the street

With this information you should be able to form a picture in your mind of where you are going before you even leave. When you enter the hundred block you should already have a mental picture of about where in the block the address is located and know for sure what side of the street it will be on.

There are all type of address layouts:
Some blocks are long and the numbers will run up into the nineties or may even change hundred blocks.
Some are shorter and terminate on the lower end.
(30's,40's,50's)
Some address are assigned with no gaps
Ex. 5902,5904,5906
Others may be assigned with gaps
Ex. 5902, 5908, 5914
Knowing the gap sequence in your territory will assist you in knowing where in the block an address will fall.

Pay close attention to the last two numbers in the address.
When these numbers come into play, you are now close enough that the people who called for you can see and hear you.
It is now that you can perform like a professional or stumble and fall.
The greatest chance to shine is when you are running against the numbers, (in the direction that

they are getting smaller). This is when you can use your knowledge of address to begin stopping early or turning sooner. It is at this point where you can save up to one half of a mile or more.
When we are dispatched we get an address and street,
We also get two cross streets.
The first cross street is where the hundred block begins.
The second cross street is where the hundred block ends. (This is important!!!!!!!)
If the last two numbers in the address are on the high side or even mid-range leading you to believe that the address would be somewhere other than at the beginning of the block- Turn early.
You will look like a professional when-
You come pulling up using the shortest, fastest route.
Not when you run past the location and have to back track!!
Using this basic knowledge of addresses will assist you on all of your calls but especially your emergency calls where time is a critical factor.

Fine tune this knowledge to your territory but also utilize it in new and unfamiliar territory. Notice how it gives you a sense of confidence when you are able to understand and utilize your knowledge of addresses.

Always remember that there are no absolute rules when reading addresses.

Do not get discouraged or lose faith when it does not work out .Use that as a learning opportunity to learn the areas where it does not work.

Realize that addresses are assigned by humans who may not have understood or even known that there were any rules for assigning addresses.

“Now go and drive like a professional”

Jenkins

April 12, 2015

I recently sat at home watching the News when I saw footage from Helicopter of a crew getting in trouble as they began their attack on a one story house fire. As soon as the first firefighter entered the front door things seemed from the video to suddenly go wrong. Luckily due to our outstanding gear he appeared to come out unhurt. When his movement away from the front door stopped, he appeared to me to be regrouping not retreating. I think many would agree there is a noticeable difference in the body language of someone who wants to do the job and someone who has checked out. I see no problem with regrouping. It’s always the wise choice over going to rehab, during an active fire attack. I believe what I saw was a young firefighter who had just received God’s blessing, experience without lasting pain. Experience that he earned the hard way, by doing! No doubt that he and his crew will all be better firefighters because of this close call. However watching this unfold on TV triggered something in me. It hit a nerve. That fire coupled with 13 Houston Fire fighters killed in the line of duty since 1996, all inside burning buildings. 11 of the 13 were all first arriving crews just like the crew I had just watched. This

combined with numerous other close calls left me with that sick feeling. I can't say that I knew anyone on the crew but that's irrelevant. My wife Kathy sat there as I hit the rewind and play button over and over. I kept asking her how can I get this basic information out there that I feel other firefighter need to know

As in the video that same thing (suddenly being covered up in fire) can happen to us in any number of different ways in a building fire.

We could have a flash over, flame over, back draft, smoke explosion, sudden wind change, ceiling failure, improper ventilation or any other number of sudden changes which could cause us to be covered up in fire. Gasoline, propane, aerosol cans, gun powder and many other products found inside the buildings we fight can all have the sudden and unexpected consequences of putting us and our crews in a struggle for survival.

After it has happened it is no longer relevant as to how it happened, what is relevant is, are we ready?

Do we have a plan on how to survive a sudden and unexpected change in fire conditions when we are suddenly covered up in fire?

Have we made sure that our crews know our plan and have one of their own?

I know all of you are outstanding firefighters but I also know that at times I can get so preoccupied with teaching so much information that I fail to get the new firefighter or rookie on the most basic life safety skills. Periodically I have to go back and cover the basics of surviving on the fire ground.

I have to assure myself that everyone knows their options if we are suddenly covered up with fire.

Do they know?

• To get down.

• That our mask can melt to failure in approximately 10 seconds of direct flame contact!

• That we only have three viable options for survival:

Which are :

1. Get out!

Which may very well require being able to read a coupling with zero visibility and with gloves on. If your ff's use the saying "smooth bump, bump to the pump"' please make sure that they realize the bump, bump is only there because it rhymes with pump. They DO NOT have to feel two bumps or any bumps to know they are going out. The SMOOTH tells them everything they need to know and can be determined with a gloved hand, no fingers needed.

2. Get the fire off of you!

Without going into a long drawn out discussion about nozzle selection I will just stick to the facts.

You had better have more water at your nozzle than you need when things suddenly go bad or The fire wins!

Remember, if you do not overwhelm the fire the fire will overwhelm you!

3. Protect your Mask!

If you are unable to accomplish # 1 and 2 then you had better have a plan for number 3. What we were teaching at one time (covering your mask with your hands) is now changed to (clinch your hands to protect your fingers and cover your mask with your arms).

Both methods are responsible for firefighters surviving, both required skin grafts but are alive and back fighting fires!

A couple of other survival points that I try to consistently push are:
Where to get air!
Do all of your crews know about the air in the:
1. Wall: Sheetrock walls have somewhere between 2 to 5 minutes of air trapped between a set of studs on 16 inch centers. Depends on how fast you are breathing
2. The P-Trap: Is connected to a vent pipe that goes through the roof
3. Toilet: Connected to a vent pipe that goes through the roof.

We are talking about options to live or die so get over the how dirty it may be.
Everyone needs to have a grasp on how to accomplish it and the concept of how it works.
Do your crews all know about Garages?
Do they know about all of the bad stuff that is in them?
Do they know that a free standing garage is a three sided box which if any one part of the three sides is compromised allows GRAVITY to take over and gravity always win!

I have had seven fall! All but one were two story garage apartments.
Three pancaked! Three fell over and one leaned over into a large tree, all with no warning!
I dare to think what the outcome could have been had anyone been in the wrong place.

One last thought to pass on, a new concept and or a new tactic for exposure protection.
Positive Pressure for Exposure Protection!
Think about it literally! It is the practice of protecting exposures by using Positive Pressure on the interior to slow or stop the spread of the fire. Fire spreads four ways, of which convection being smoke and heat is the fastest. If we control the smoke we control the fire. So we pressurize, we do not ventilate. We use our Positive Pressure fan just like we would for PPV except we do not vent we only pressurize. We do not want any other openings; we are trying to build up a positive pressure in the exposure so that if the fire starts to burn through that area then becomes our vent. The positive pressure then flows to and through that area not allowing any smoke, heat or fire in. For this to work it is imperative that we open the attic and any voids to allow the pressure in to those areas. This is not a replacement for hand lines but we are able to cover a much larger area with only one fan and one or two firefighters to put it into service and monitor it.
We have used this on 4 fires with incredible results.

All I ask is that you consider this information, if you think it has the potential to make a difference then pass it on or use it to add to your tool box of ways to survive on the fire ground. If you need more details or information let me know.

Be Trained, Be Safe!

Jenkins

April 14, 2015

Light weight truss ventilation:
I was recently told that my post were too long and that I was losing firefighters interest. So I tried to cut this down to what was important. Sorry! I failed. As my brain became engaged on the subject it all seemed to important not to post.

Light weight construction generally refers to either wood frame or steel building materials, where the roof and or floor supporting systems are built of lightweight pre-fabricated materials. The building industry has been able to use smaller dimension lumber thus light weight by using trusses.
The light weight truss construction that we are dealing with in this class has been around for fifty years and used to build a large percentage of residential structures since the seventies. In addition, many other types of occupancies also use light weight trusses. These trusses are used for both floor and roof support structures.
Another form of light weight construction that we must be aware of is the wooden I-beam. It is used extensively as floor joist and flat roof support systems in wood frame construction.
For the purpose of this discussion on ventilation when talking about light weight truss roofs we will be primarily referring to the roof supporting systems. However we cannot ignore the concerns of light weight constructed floor supporting systems ,both light weight truss and wooden I-beam. The two should be equally discussed although the floor does not directly affect our ventilation decisions the similarities' between the two are too close to ignore.
Our concern with one is if it fails with you on it, it will potentially drop you into the burning attic. The other will potentially drop you into the burning room below. Either would be an undesirable outcome.

Light weight truss or wooden I-beam,
We should all know what it is and that for our profession its bad news. The latter fails in 4 to 6 minutes while the other in 5 to 7 minutes. I have seen reports of truss failures in as little as 2 minutes of direct flame contact. Reports! Reports, how about FACTS! The closest I have ever come to killing my crew and myself was a light weight truss apartment while doing a search. To this day it is the only time I ever tried to call a May Day! Tried twice and failed to get out both times. 15 seconds after we bailed off the second story balcony by way of a roof ladder (Sure makes you appreciate a pro-active E/O on your truck) everything behind us was on fire. Two minutes later the building literally ceased to be there except a few brick walls. From our arrival on scene to no building, less than 5 minutes.
The key point is that they fail with little or no warning and far sooner than typical full dimensional framing.
For this discussion, consider any mention of trusses to also refer to I–beams unless specified otherwise.

Light weight trusses consist typically of 2x4 inch wood. It can be 2x6 and or 2x3 inch material also. The truss is made up of a top and bottom chord connected by a series of triangles called the web members. These triangles transfer tension from the bottom chord and compression from the top chord onto load bearing walls. All of the connection points are joined together by metal gusset plates aka. Gang nails or they are finger jointed and glued. If any part of a truss fails the entire truss may fail and will often take other trusses with it.

When heated up not even necessarily under direct flame contact the gusset plates and or finger joints may come apart causing a catastrophic collapse.

Note: Years ago I read that if you walk or crawl into a fire and begin to kick gusset plates on the floor you should back out. It ended up being great advice I just was not fast enough to warn the Truck Crew before the Senior fell through the floor.

Under fire conditions regardless if the truss is wood or metal it can quickly and catastrophically fail without warning.

Light weight trusses when tested under ideal construction practices failed in as little as 2 minutes but averaged 5 to 7 minutes from direct flame contact to failure.

A truss type supporting system can span larger unsupported areas up to 60 feet. They use smaller dimensional material than our standard framing does. As an example, a 24 ft joist or rafter with standard framing would be one solid 2X6, 24 feet long where a truss system to span the same distance would typically be several 2X4's in different lengths totaling 24 ft. The pieces would be joined together using gusset plates.
Note: Anytime you respond to a building with large open unsupported areas, like , Churches, warehouses, dance halls and stores to name a few, suspect trusses!

Read this very carefully, A truss is a series of small pieces of small dimension lumber that are joined together with metal gusset plates which have a series of 3/8 inch to 1/2 inch long spikes which are pressed into the lumber to hold it together. They are pre-manufactured and delivered to the job site. On the job site they are then put up by individuals that are referred to as Carpenters. As far as we are concerned that means anyone who can operate a nail gun. Let me expand on this point. I have no doubt that I will offend someone out there that is a carpenter and takes pride in their work and truly considers themselves as a craftsman. I am not talking about that one. I am referring to the others who take no pride in their work and could care less about quality. All you have to do is go to any job site in Houston and look at the work. It is not only that we are dealing with an industry that has altered building materials which negatively affect our safety but we also deal with shoddy construction practices. We are at the mercy of everyone who is cutting a corner to save a buck. It is the same ,I don't care mentality that exists in so many different professions. When they run test on construction materials they are done under ideal construction practices not realistic practices. Remember this when you speak of about failure times during test. Failure time is best case scenarios.
All forms of light weight framing require specific installation practices. They have specific limitation and requirements. It's not hard to find a construction site where there are problems with this being carried out.

Wooden I-beams aka. I-joist typically are made of a top and bottom flange, using wood material smaller than a 2X4 with a center web member made of from 3/8 inch to 7/16 inch OSB. This combination forms the I-beam shape. They are often finger jointed and glued to form longer beams spanning up to 60 feet.
I-beams are notorious for rapid fire spread and early catastrophic failure in as little as 4 minutes of fire involvement. I-beams give no warning before failing, they just fail completely. The I-beam shape acts like a chimney and allows the fire to travel along the length of the beam faster

and the glue helps to support combustion, a bad combination. I have seen a lot of these supporting the upper floors, fail on apartment fires.
During installation the I-beams appear to be stable but are not until they are braced. Without bracing they will not even support a small load. This lateral bracing of the top flange is typically done with 1x4 inch struts and is critical to the I-beam being able to support a load.
When these braces alone are compromised by exposure to fire much less the OSB web member the I-beam will fail.
They are used for both floor and flat roof support structures.
Do not think that by using a Thermal imager and reading the floor you will be able to determine fire conditions below. Floor coverings can mask the true amount of involvement. On test that were conducted they found that a true temperature of 1200 degrees under a floor only read a little over 100 degrees on top of the floor because of the insulating properties of some flooring.

The building industry is constantly developing new building materials and techniques that can save time and money. The industry is constantly changing and we have to try to keep up with the changes. They already have composite pre-molded trusses and a host of other changes none that appear to make our job easier.
What do we do?

By now we all understand that light weight trusses can kill us! Fire, smoke, and stress can kill us. Running out of air or getting lost could do it. Even crossing the road could do it. So what do we do? Let's start with crossing the road. How did any of us get to this point in our life without having learned how to cross a road safely? The answer is we were all trained. At a young age we were all taught to look both ways, and to double check for traffic before crossing. We were probably told to walk not run so as to lessen the chance of tripping and of course we were told the consequences of not adhering to our training. We all heard "If you don't do what I say, you will be run over and killed"
At a young age we all had to make a decision, were we going to follow our training and cross the road safely, take a chance and possibly get killed or were we just never going to cross a road again.
So here we all are again at a point in our life were we have to make a decision, are we going to cross the road and do our job or are we just going to stop being firefighters.
I intentionally used the terms that alluded to being killed and death in this class not to persuade you not to do the job but to be motivated to doing it safely. Death is the ultimate consequence and therefore the ultimate motivator. None of our parents motivated us to look both ways by saying that we may be hurt without at least ending that statement with, or killed!
We all still have to be firefighters and get the job done. Death has always been a possibility in our profession. We should all be working toward staying alive by training. The more we train the better we get at knowing and doing our job and that makes our job safer.
No doubt light weight trusses have made our job more difficult to perform safely but we can still do it as safe as possible it just takes more training and different tactics. Think of it as the difference between crossing a two lane country road and a six lane freeway. The typical old style of framing is our two lane country road and light weight truss is our six lane highway. We will be able to get across both but we will have to treat each different.
Earlier I mentioned carpenters and the way I perceive that their craft has changed. Prior to the 70's carpentry was a craft. They were craftsman, very skilled in their job. They paid close attention to detail. The framing on homes back then was cabinet grade. Every cut was perfect,

square and level. The carpenters took their time to do it right. During that same period firefighters and firefighting was different. Firefighting as a profession did not require that you be a craftsman. Back then we had lots of fires. We trained but the vast majority of what we learned was on the job training. We would make mistakes on the fire ground and chock it up to gaining experience. For the most part it was the guys who threw there gonads over their shoulders or carried them in a wheel barrow and who pumped the most water that put the fires out. Balls to the wall, charge! was the battle cry. They used to say that it took balls and water to put fires out. We were not craftsman. It was more important to have a strong back than a strong mind. If things did not go quite right on the first fire of the day we would talk about it and change the way we did it on the second or third fire. We had lots of opportunities to make on the job mistakes. The building we fought gave us a lot of time. They were solid, built by craftsman out of solid old growth lumber. Our only concern was smoke and fire, not collapse.

Times have changed! Carpenters and firefighters have swapped places. Today firefighters must be skilled craftsman. We must know our job better than ever and be able to do it right every time. This is not the same old fire department. Forget on the job training. That is an old school mentality that can have disastrous consequences. Buildings today burn hotter, flashover sooner and can collapse. The buildings do not give us time for mistakes. The rules have changed. Today it's all about brains, water and a hefty dose of intestinal fortitude. Firefighters today must stay constantly vigilant of what's going on in their world. Building construction methods, materials and contents are changing at an incredible pace.

The rest of this class should give you the information needed to begin treating light weight trusses with the respect they require and some of the information needed on how to still get the job done on the fire ground as safe as possible. In no way is this all you need in order to survive on the fire ground. Simply reading this class will not do it. At best this is a wakeup call to motivate all of us to reach out and learn all we can. The amount of information today at our finger tips is incredible. We must all be proactive and strive to learn all we can about all aspects of our profession. Building construction should be very high on the list.

Yesterday's firefighters gained a reputation based primarily on how they performed on the fire ground.

Today's firefighters will gain a reputation on how well they know their job and how prepared they are to do the job. Their reputation will be built on how well they prepare their crews and pass their knowledge on to others. How well they get the job done without needlessly endangering themselves or others will earn them respect. All of these qualities and the fact that they make wise decisions on the fire ground will make them a legend!

Know your territory and the structures within it: We can never know all of the structures but there are considerable differences around Houston. We should be experts on fighting the type of fires that are considered typical for our districts. We should be working toward being experts on the others. Identify those that can be trouble especially any that may be light weight truss. Pay attention to any construction, new and remodel. Be keenly aware if you notice new additions on existing buildings going up. You could very easily have a building that you feel certain is solid 2X6 rafters only to find an addition that consist of light weight trusses. It should go without saying that pre-fire surveys are the best way to identify areas of concern but we all know that there we will never have them all surveyed so how do we identify light weight trusses when we show up on a working fire?????????

The rules of roof ventilation on lightweight truss roofs are:

1. Roof operations are unsafe when fire or sufficient heat begins compromising the truss structural members in the area where the hole is required. Do not get on a light weight truss roof when the fire has control of the attic.
2. Roof operations can only be safely performed on light weight truss roofs on the areas that are not exposed to fire and or high heat. Areas away from the direct fire involvement and high heat may be safe to perform vertical ventilation.
3. Avoid cutting the truss top chord.
4. Be aware of and have alternative exit routes at all times.

5. Offensive ventilation openings are normally cut as close as safely possible over the seat of the fire.

6. Defensive ventilation openings are placed ahead of a horizontally extending fire to change its direction and cut off its extension.

How do we treat a roof that is light weight truss differently than our standard roof when we are assigned to vertically ventilate?
*With no indication of fire in the attic space then treat the roof like any other but with four exceptions.
1. Inspection/kerf cuts: No fire in the attic is a good to go but it is critical that we know as soon as conditions change. We have a very short window of opportunity once fire begins to expose light weight trusses. Make small inspection holes as you move up the roof in order to read the conditions in the attic. Not big enough to step into. You can use your hand tool or saw to make these small cuts in several places as you move along the roof. It's called a kerf cut and gives us a heads up as conditions change in the attic. Constantly evaluate the conditions below and on the roof through these cuts. Also use your thermal imaging camera to monitor changing conditions.
2. Be aware that on light weight truss the ridge does not offer a secure area. There is not a ridge board on light weight truss construction. Do not walk right on the very top because this puts you literally standing on the very edge of the decking with no support directly under you. Instead straddle the ridge walking or standing with your feet at least a foot down on either side from the center.

3. Because there is not a ridge board your roof ladder will not offer much protection from a collapse but it will still offer a foot hold. Strongly consider using two roof ladders

4. By not having a ridge board we do not have to make a top cut and by finding the bottom seam on the decking we eliminate both horizontal cuts. Make sure the your vertical cuts intersect the very top of the ridge and run down far enough to find the bottom seam in the decking. This eliminates possibly cutting the top chord of the truss and speeds up getting the hole established.

Note: If fire enters the attic prior to getting your hole established uses your risk vs. reward assessment. Remember the 5 to 7 minute collapse time.
Notify the IC that the fire has now transitioned from a room and contents fire to a structure fire
If it is unsafe on the roof it is also unsafe below it.

When fire gets in the attic space before we get to the roof: If we know for sure that it is light weight truss then it is a no go for cutting an offensive hole above the fire.

Depending on the size of the roof we may be able to get to an area without any fire and or high heat and establish an offensive or defensive hole.
Utilize kerf cuts to give you adequate warning of advancing fire and heat conditions.
Use the risk vs reward assessment. Going defensive on a large building does not always mean that we a writing off the entire building.
If we are unsure whether we are dealing with light weight truss or not and the fire requires vertical ventilation,
• Cut an inspection hole on the roof. The inspection hole should be to just above and toward the ridge from where the outside wall and the roof intersect.
• Identify the size of the roof support structure, type of decking and look or feel for gusset plates.
• If it is confirmed that the roof support is not light weight truss then proceed with your standard vertical ventilation.

Summary: Light weight trusses make our job much more challenging to perform safely. We must still be firefighters and get the job done. Sometimes that means we will not be going to the roof. We should never let pride, pressure or emotion force us to make bad decisions. We must be aware of the challenges and limitations put on us by dealing with all the different building practices and materials.
The fact that the building industry is constantly evolving
Is not the fault of the fire Service.
But it is our problem.
Light weight trusses fail in 5 to 7 minutes of direct fire contact!
Wooden I-beams fail in as little as 4 minutes!
We must deal with these facts and get the job done as safe as possible.
That requires that we:
• Know our enemy
• Drill as if our life depends on it because it does

Go drill the life you save may be your own!.

Building construction is one of the most important subjects we should be instructed in. Sadly, this subject is neglected. Firefighters will receive extensive emergency medical training, they will know all of the basic bones and body parts but very few can identify the most basic components of building construction. This is dangerous. This is not to say that emergency medical training isn't important; it helps firefighters save lives. But in Houston we have never had a firefighter killed on a medical call. We have however since 1996 had Thirteen firefighters killed inside burning buildings!.

April 14, 2015

For 30 years, I was on a nozzle or behind the guy with the nozzle. Never one time ever got in trouble inside a burning building with a fog nozzle in our hands, on a hose line that was intact. Got in trouble when our lines blew or burned into. Got in trouble when we had opposing lines, more so before hoods. Got in trouble two times in six months while we tested a non-adjustable nozzle. I am at nearly 37 years in, at least 35 of which we have used air packs. I have never destroyed a Helmet or Mask. I have worked with some of the best firefighters in the city with

thousands of fires under their belts, who used fog nozzles and got the job done. Several years back, my own Captain got caught in a flash over without a hose line. The day after, as I left the Burn Ward where I had been observing him in excruciating pain, I called or visited with 11 active or retired firefighters whom I had worked with. The 11 had a combined total of over 350 years of fighting fires at the busiest stations in the city. I asked them all the same questions. How many Helmets and Mask have you destroyed in your career, on one fire? One Captain told me he had ,1 Helmet and 1 Mask. He had been caught in a flash over, and had also required skin grafts. The last question that I asked these eleven was, what did you do, that allowed you to fight so many fires, getting the job done without damaging your gear or being seriously hurt? The overwhelming answer was, “Stayed Low”!
Now that’s a unique idea.
So some advice from some Fire Fighters who know what they are talking about, "Stay Low and get it done!"

Be Safe!
Jenkins

April 23, 2015

In case you wanted to know your fire hose capacities.
The amount of water it takes to fill the hose.
Here they are!

1 ¾”
6.25 Gallons @ 50 ft.
12.5 Gallons @ 100 ft.
25 Gallons @ 200 ft.

2 ½”
12.25 @ 50 ft.
25.5 @ 100 ft.
51 @ 200 ft.

3”
18.25 @ 50 ft.
36.5 @ 100 ft.
73 @ 200 ft.

4”
65 @ 100 ft.
325 @ 500 ft.
650 @ 1000 ft.

5”
102 Gal. @ 100 ft.
510 Gal. @ 500 ft.
1020 Gal. @ 1000 ft.
j

APT. LAY
300 FT. OF 3” WITH TWO 200 FT OF 1 ¾” = 159 GALLONS

ALL Figures Based On
(pi) 3.14 x radius in inches squared x length(12 inches) divided by 231
(1 US gallon is 231 cubic inches) X length of hose in feet

3.14 X r2 X 12 Divided by 231 X Total Length

The numbers on the chart above came about when I became aware of 4 occasions where E/O’s would not charge an apartment lay while on tank water. All four gave the same misguided reason for not charging the line. All said that it would take more than the 500 gallons in their tank to fill the hose. I clearly remember when the first story was relayed to me. Of course I wanted to know details. What size apartment lay, ours used to be 4 inch hose until we changed to 3 inch. I wanted to know how long the apartment lay was? And lastly how many lines what size and how long they were coming off the gated wye? I do not remember exactly what they had but I do remember that none of the lay was maxed out. I remember the story well. I could even relate directly to those apartments having been first in on a handful of rip snorters in that very complex over the years. None of it made sense. I could feel the Captains extreme frustration as he relayed how he called for water several times, how he ended up sending his slack man back to the engine to see what was wrong and how he came back having been told by the E/O that he could not charge the apartment lay until he got a water supply established. I still clearly remember the two firefighters telling their version and how fast the fire grew before they finally got water. Nothing the E/O did that day made sense to me. Even when I visualized the hose and the layout I could not imagine 500 gallons of water to fill it up. I wrote it off as an anomaly, a onetime screw up! My mistake! Not long after, there was another story of similar circumstances, then another and before you know it, I could relay four similar stories which none of them made sense. To borrow a quote from NASA, “Houston we have a problem”! Somehow, somewhere, bad information was being relayed and applied on emergency scenes. Where is it coming from? I was teaching a ventilation class at the academy to Officers and E/O’s and brought up the subject and instantly found that the four E/O’s involved on the these previous situations were not alone. I had officers who argued the same point and gave outlandish numbers on quantity of water in even a 1 ¾ inch hose. All I had to use to argue against their numbers was common sense, no hard facts. I got caught in a position where I could not quickly and with hard facts disprove their assumption and lost an opportunity to educate. I decided right there that I was going to intercede and correct the problem but I needed some cold hard facts. I did not know and could not find an answer to the question of “how much water does it actually take to fill any hose we use”. I applied the old rule that I grew up with” The best place to find a helping hand is at the end of your own arm” Very true!
I looked up the formula and in very little time and no sweat I had the numbers to prove our point.

On a 3 inch apartment lay maxed out this is what we have and the volume of water to fill those lines.
* 300 ft. of 3 inch = 109 gallons
* 200 ft. 1 3/4 inch = 25 gallons
* 200 ft. 1 3/4 inch = 25 gallons

* 200 ft. 2 ½ inch = 51 gallons
Total required: = 200 gallons

This leaves us 300 gallons to fight fire with until we get a water supply. You can fight a lot fire with 300 gallons used wisely. A 2 ½ gallon pressurized extinguisher or a 20 pound dry chem. will sure get you going if you use them efficiently! This theory which was getting spread around of not being able to charge an apartment lay on tank water has been proven wrong!

May 6, 2015

Ventilation
The speed that the smoke comes out of any opening is indicative of the speed that the fire will come to that opening. You can alter that speed by venting opposite of where you enter.
Venting is letting bad air (smoke, heat & fire) out and relieving the pressure.
Ventilating is letting bad air out and good air in to replace it.
On pressurized structures: when you vent opposite of your entry it allows you to go and find the fire!
When you enter with-out venting, the fire will find you!!
In the latter case you did vent when you made entry and you are entering the only vent hole. This is not a good plan on heavy pressurized structures. When you establish your entrance opening without venting first, and super black smoke comes rushing out about 8 ft. horizontally step aside, get low and try to count to 10. You won't make it to 10! What you are seeing is super-hot, fuel rich smoke, often referred to as Black fire! The only thing that is keeping it from being red instead of black is a lack of oxygen. When it comes rushing out it is going to find the missing link and when it does you do not want to be in the middle of it! In that situation you should pull the door back to and consider your options.
Never direct a fan into pressurized black smoke, you won't like the outcome.
Would you cut a hole in a roof and repel into it to fight a fire?
If you enter the only opening in a burning building that is pressurized, then you are doing the same thing. The only difference is the opening that you are entering is a horizontal vent hole verses a vertical vent hole. On pressurized structures we should always attempt to vent opposite of our entry unless wind is a factor.
Now there are times that you do not have a choice but to enter before venting. In those cases you had better stay low and find the fire quick! If not the fire will find you! You had better be prepared to overwhelm the fire or else the fire will overwhelm you! This is where door control will come in. This is when all my talk about having the ability to flow 200 or more GPM on your hand line will make sense.

Thirty seven years ago the minimum (M I N I M U M, THE SMALLEST!) size hole recommended for residential fires was a 4X4 or 16 square feet. That was the minimum size, somehow that became and still is the standard. Today we recommend a minimum hole of 36 square feet. Many books, so called experts and even the State fire commission still recommend only a 4X4 minimum hole. Think about it, almost everyone agrees that the fires today are nothing like the fires of 37 years ago. Today's fires are different. The material burning today is primarily SYNTHETICS compared to the NATURAL products 37 years ago. Synthetics burn much faster but that is only part of the equation. Today's homes pack 4 times the amount of

combustibles per square foot into the home. So we have a house fire that today has 400% more contents that burn faster and put off considerably more smoke. Smoke is fuel so why would we still be considering a 4X4 hole as a minimum???? I have never seen Super Black Smoke that did not come with Super High Heat!!!
Smoke IS Fuel! Rushing into a heavily charged building without venting is comparable than standing in the middle of a Gasoline spill with ignition sources all around you! Think, would you do that?

Plan on a Big Hole because today a 4X4 hole at its very best is a marginal hole. These are what can quickly get firefighters in trouble. It is possible to have a hole that is large enough to accomplish marginal ventilation at that moment in the fire and later become ineffective. The hole gets established and begins to lift the smoke and improve conditions at the floor level allowing your crews to push in deep toward the fire. But it is not effective enough to ventilate the entire structure. The upper ceiling and attic areas are charged with superheated smoke! Remember Smoke is fuel and fire grows exponentially. If for any reason there is a delay in attacking the fire, the fire will SUDDENLY overwhelm the vent hole forcing superheated smoke to the floor. Those on the outside will see this as Smoke, Fire and Fire Fighters come rolling out the doors and windows and the Air Horns begin to blow.
Not a good situation!

Remember this:
• Fire, Smoke and Heat want to go up.
• They will travel laterally and eventually bank down trying to find the area of least resistance and a way out.
• Where the Smoke goes the Fire will follow.
• Control the Smoke and you can control the Fire.
*Please pay attention to this last one!
• Sometimes it may be hotter near your exit. This may happen when you entered the only opening. As you move in, hopefully low, the hotter atmosphere at the ceiling will begin to move toward the vent you created when you entered. It is seeking a way out, the area of least resistance. When it reaches the door or window where you entered it will begin to bank down to escape the opening which is now technically your exit/entrance and it's vent hole. This will bring the hottest temperatures closer to the floor. This can be a little unsettling when you need out and it begins to get hotter as you near your exit. Remember why it is happening and stay low.
This very fact could have caused four of our Fire Fighters to die on a fire about ten years ago, had it not been for one of them that knew how to read a coupling. He felt the smooth shank and insisted that they push through the increased heat they were encountering. At the time, even that Fire Fighter did not understand why it was getting hotter.
Door control or venting opposite your entrance both could have helped that situation.
Take this information and add it to your tool box!

"Drill as though your life depends on it, because it does"!

Be Safe!

Jenkins

· November 22, 2015

Here we are again, another close call, another near death experience for the fire service! Once again, after watching the most recent video I feel compelled to re-post this information on Roof Top Ventilation. The difference this time is this incident happened in my department and in my district, just not on my shift. I walked through the house the day after to try to understand what happened and to learn from the experience. I have in the past and in the following information talked about my concern with OSB decking. In this situation the house had ship-lap decking on 2X6 rafters, OSB was not at fault. None of this post is to find fault in anyway but is intended to make us all better so we can prevent it from happening again.

This post was originally posted within days of the Fresno California captain falling through a roof into heavy fire. I feel that this is good information that a lot of firefighters need to know so I am re-posting it. I am glad to say that Captain Dern has survived but his life will be forever changed. All the horrific videos are still available and I know from viewing them again that it is nearly as disturbing now as it was initially. There is no doubt that Captain Dern owes his life to God and those firefighters on scene. The remainder of this post is the original.

This post will be quite a bit longer than most want but please if you care about being a great firefighter, staying alive and going home to your family in one piece, find the time to read it and hopefully learn from it.

This video sickens me, as I watched I could not help but think the worse. The person videoing the incident took the words and emotions right out of my soul. Only by the Grace of God has that not been many of us. I absolutely love and respect firefighters that are willing to do the job and get it done! God has called me to do what I can to pass along any useful information and this video is the catalyst for this post.

The officer who fell through the roof had 25 years of experience, is now dealing with 65-75% second and third degree burns and is in critical condition.

Without being critical or judging let's use this as a learning opportunity.

One of the areas that we as a profession have the least experience is Vertical ventilation, cutting holes. The vast majority of firefighters will go through their career with never having been called on to cut a hole. So what happens when suddenly a firefighter or an officer with no experience is called on to go to the roof? Do you have an idea of what to do and how to do it? Do you know what to look out for on your size up and or how to know if your hole is doing the job? Is the hole you cut adequate or marginal? Do you know the consequences of an inadequate or marginal hole? Do you know how to sound a roof or the red flags that tell you the roof is bad? Do you have a plan for cutting holes under different situations, different types of roofs and does the crew your with today know your plan.

I'm going to address a few of the most critical issues.

Reading the roof:

Size Up, Size Up, and More Size Up. It actually begins when you are dispatched and continues until you leave the scene. It is absolutely critical for safety and to ensure we get the job done. As you initially arrive on scene and then as you do your 360, you should be sizing up the roof and the structure but especially the roof. As you climb the ladder and before you step off on the roof, again size it up. I will use the TIC but most of all I am visually reading the roof and its condition.

When I'm reading the roof my number one concern is bad decking!

I am certainly concerned when my rafters and ridge board are going bad as we all should be but weak rafters with solid decking will normally give a slight warning before giving way.
Weak or compromised decking regardless of how strong your rafters are can dump you in with no way out and with no warning.
I am concerned about trusses but not nearly as concerned as I am about the decking, with OSB being our nemesis! I have had more roofs come apart on me over the last 10 years than I had the first 25 and OSB has been the primary reason.
The two primary conditions to look for that indicate bad decking are:
#1*Smoke pushing out through the shingles this is a concrete sign that the decking is being compromised. It will look like pencils of smoke coming through the shingles or sometimes it will resemble tiny tornados. Remember roofs are built to be water tight, you should expect to see smoke coming around the perimeter, out of the soffits/eaves and through functioning ridge vents. You should not see smoke coming through the roof itself. That is a no go sign for that area of the roof which should not be ignored.
#2 the roof starting to sag and showing the rafter locations. This is another sign that the decking is getting bad!
Also be looking for:
* Is fire already in the attic?
* Is the fire isolated to only a portion of the attic or does it have total control of the attic?
* Is the roof starting to sag between the ridge and the outside wall plate? This is a sign that the rafters are starting to get weak or fail.
*Is the roof starting to sag on the ridge? Could be an indicator that the rafters on both sides and the ridge board are getting bad.
Sounding the Roof:
The Officer sounds the roof confirming a safe route to the ridge. I sound about 3 to 4 ft. wide in a straight path up to the ridge. My crew knows to follow the same path to the ridge that I walk and sound. I sound the roof using an 8 ft. steel New York Hook. I am trying to drive it through the decking looking for any soft spots and or a change in the feel as compared to what I initially felt when I first began sounding the roof.
We are sounding for two different things, decking and rafters. We hope that we have a hard time determining where the rafters are because this would be an indication that we had a solid type of decking material which was making it difficult to feel the rafters. Ship-lap and 5/8 or thicker plywood will do this. OSB, smaller plywood or rafters on wider spacing allow so much give that it is easier to identify the rafter's location. I have a hard time identifying how strong the rafters are by sounding them. It is the overall way the roof feels as we walk on it, the amount of spring that will cause me concern.
I in no way mean that you sound the roof with your feet or by bouncing, quite the opposite. We want to walk light and try to stay near the rafter locations if you can find them. But pay attention! You will be able to feel if the rafters have any give it will show up in your knees. If the decking gives I notice it more in my feet or ankles.
If I feel the whole roof give under my legs when I am walking on or near the rafters it is an indication that we are either dealing with 2X4 rafters or rafters have been compromised. As a rule the roof should not move as a unit under your weight. Some roofs will have a little more give in the middle between the ridge and the outside wall where you get on the roof. Flatter pitched roofs will typically have more give than steeper pitched roofs. You should never get a lot of give and for sure it should not feel like you're walking on a bed. Only training by getting on

different types of roofs in non-emergency situations will give you an indication of what to expect as a norm. When you step off of the rafters and you feel the roof flex under your feet this is an indication of weak or thin decking. If the decking when you initially got on the roof was solid but now flexes it should require closer attention. Always sound before you step onto a new area. It is very important that the Captain sound the entire area where you intend to cut prior to beginning.

TOOLS:

Everyone must be proficient with the hand tools that we take on the roof.

This requires training and practice before hand. None of the tools we use can differentiate between a leg, an arm, or a roof. Very few individuals grow up today using an axe or a saw. Even fewer have ever used them on a roof in zero visibility. It imperative that our firefighters become proficient with the equipment before we lead them onto a roof. With that said we all know that sometimes the first time some of our firefighters ever use the equipment is during a fire which creates a very unsafe situation for everyone on the roof and below.

The tools that I want on the roof are:

Vent Chain Saws: I believe it is safer on a pitched roof and we have had very good successes with them.

The fact that they have a chain brake and that the chain stops quickly on its own is the #1 contributing factor.

2- Flat Head Axe: A Flat Head Axe is the most dependable ventilation tool I have ever used. I have never had one that did not start. It will however run out of gas quick when I'm using it.

The Flat head Axe does an awesome job of cutting through all types of decking without wedging and getting stuck when it is used backwards using the flat head.

Cutting with the flat head is so efficient that it can compete with the saw for speed and efficiency on some types of roofs but again it runs out of gas early.

We have great success cutting through ¾ inch plywood, shiplap, OSB, metal and even 8 layers of composition shingles on top of ship lap when using the flat head part of the Axe.

Only your initial strokes need to be power strokes (over your head home run swings).

Once you get through the decking the remainder of your strokes can be controlled short fast strokes.

All Flat Head Axes are not created equal !!!!!! There are Flat Head Axes in our department that will not work for cutting a hole.

Always check the flat head, a good Flat Head Axe will have a square flat head which is the widest part of the entire Axe.

6ft. Rubbish Hook: This is our primary tool for opening up and punching through.

We tape it to the tip of the roof ladder that we take up on the roof. It will be pulled off and used by our Cleanout Man. It is not a good sounding tool because it has too large of a surface area. It can also be used as a long foot hold on steep roofs. It can be driven into the roof using an overhead home-run swing, driving the two picks into the roof. Then the handle is held by a firefighter who is staged on a roof ladder.

8 ft. Steel New York Hook: I use this to primarily sound the roof. It gives good reach and allows you to identify questionable decking from a greater distance allowing you more time to react.

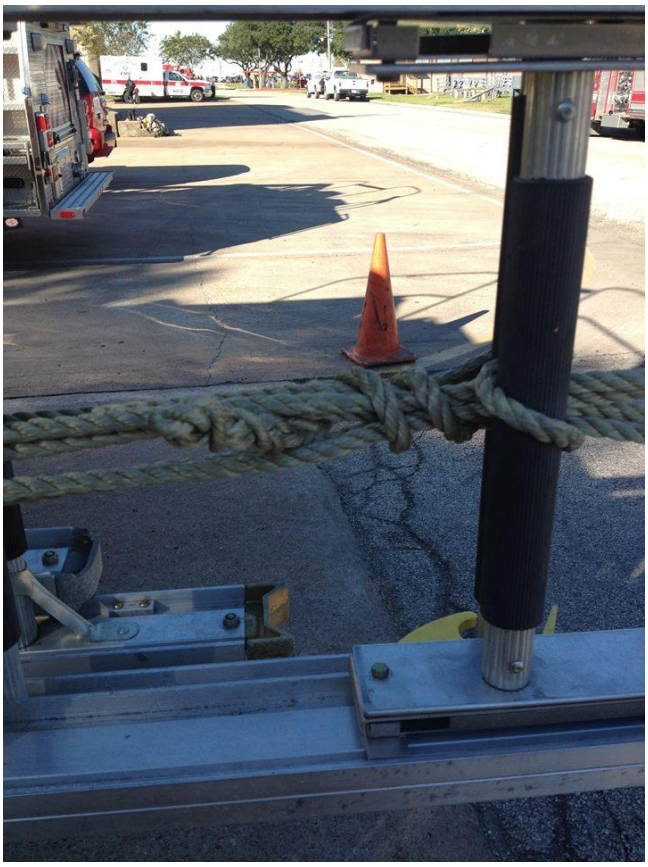
I am very concerned about OSB decking and how quickly it can be compromised by heat and fire. We can also use the New York Hook to open up and punch through.

1-Thermal Imager: I have had great success using the TIC. The more I use it the more confidence I have in it. We have to remember it is only a tool; we must still use our brains, experience and

common sense. I will scan the roof from the tip of the ladder before stepping onto the roof. It has really helped on the roofs where we get there when the fire is just getting into the attic and we have no other visible indicators of where to establish our vent hole. I prefer the color mode when it is available.
hj
1- Roof Ladder: We place a roof ladder on every roof. We do not necessarily work off of it BUT it is there as our safety net and to stage our tools.
A few absolutes;
Plan on cutting a big hole, a 9ft.X 4ft. minimum.
Put a roof ladder on the roof as a safety net.
(We do not work off of roof ladders as a rule but we have a large number of OSB decked roofs in our territory.
They have a high failure rate and the Roof Ladder has saved us several times
It also makes an excellent staging area for tools)
Plug in our regulator prior to stepping on the ladder
(The smoke today is some really bad stuff)
Have a plan and review it with your crew on a regular basis.
(We can never be too familiar with our plan. Unlike on all the training videos most of our work is done with limited or no visibility
Have pre-assigned jobs and tools
Safety:
An Officer's number one responsibility is safety.
That means making the right decisions no matter how difficult it is. Sometimes that means putting the right person in the right spot regardless of rank. If an Officer finds that they have less experience than one of their crew then decide who is best suited to make life or death decisions. You will still be responsible and still be in charge but until you have enough experience to make those decisions chose someone who can.
The Officer should do the following or see that the most qualified person on the crew does the following.
Be the first one on the Roof:
Confirm the structural integrity of the roof.
Sound a larger area than your hole.
Choose the proper location for the hole. .
Back-up the firefighter cutting the hole
Constantly monitor the conditions
Confirm that the hole is effectively ventilating the structure.
Be the Last one off the roof
Safety on a bad roof:
We all know that the ridge on our standard framed roofs is one of the strongest areas on a roof. It is strong because it is normally a 2X6 or 2X8 that runs the length of the roof and is sandwiched in between rafters from both sides. The ridge is where we all set our sights when we are looking for a solid area to walk or secure our roof ladder. It is the area we trust the most on marginal or very steep roofs. Think of how many times you have thought. " If we can only make it to the ridge we will be ok "
Be Aware this only pertains to standard framed roofs.
It Does Not Pertain to Light Weight Truss Roofs. On light weight truss roofs the ridge may

actually be one of the less secure areas.
There is no ridge board on light weight truss. There are normally braces near the ridge but they are normally located several feet down from the ridge.
If you stand on a light weight truss ridge you are literally standing on the edge of two sheets of roof decking. So pay attention!
If you ever find yourself on a bad roof and you still need to get the hole established, get down on your knees. This spreads your weight out and puts your hands only about six inches from the roof instead of 3 feet. If you were to begin falling through you can spread out much quicker to stop your fall. On our knees is the same way we cut steep roofs.
If you have a roof start to come apart on you do not try to walk or run. Roll away from the area and hopefully to a solid area. Away does not mean down the roof. This would be a challenge of your good common sense. The most critical thing you can do when a roof suddenly starts to go bad is spread your weight out. Then get your crew and yourself to a safe area, re-evaluate the situation and make the appropriate adjustments. Often this will mean abandon the roof but there are times on large roofs that it simply means get to a safe area and complete your assignment
Determining if the Hole is working:
• We want to establish a LARGE ENOUGH HOLE to be effective!
• We all need to know what signs to look for to determine if the hole is meeting the required objective.
• We are constantly monitoring smoke conditions and looking primarily for two noticeable changes that indicate our hole is large enough and working, SPEED and SHAPE.
• SPEED: As we begin to open up our hole the first thing we are watching for is the smoke pushing out of the opening, coming out fast under a lot of pressure.
• SHAPE: Under heavy smoke conditions our smoke column will be a tight V, which will be pushing hard and holding its shape for some distance above the roof.
• As we continue to open up we are looking for the point when the smoke column quits pushing out under pressure, begins to slow down, loses its V shape and begins to roll out of the hole.
• When we get to this point we know we have relieved the pressure in the area where we established our hole. Now we visually check the smoke conditions coming from the eaves. We do not want to see any smoke coming from the eaves or around the perimeter.
• We want to continue to open up until we have no visible smoke coming from the building except out of our hole. This would be an indication that the hole was large enough to exhaust all of the internal pressure. If we still have smoke pushing from other areas we know that we have a confined fire that is not vented into our attic space. This may require an additional hole in another area,
A Marginal Hole:
It is possible to have a hole that is large enough to accomplish ventilation at that moment in the fire and later become ineffective.
• This happens primarily when the hole is marginal in size and a delay occurs in extinguishing the fire which allows the fire to increase and exceed the ability of the hole to effectively ventilate the structure.
• A marginal hole can be overwhelmed, becoming ineffective allowing conditions on the interior to rapidly deteriorate causing smoke and heat to bank down. Those on the outside will see this as Smoke and Firefighters come rolling out the doors and windows and the Air Horns begin to blow.
• This is another reason to plan on a BIG hole.

Summary:
Vertical ventilation can be one of the most effective forms of ventilation when done correctly. Is also one of the most dangerous to perform? Having a plan, consistently reviewing and practicing the plan can make it safer. Knowing when, where and how to ventilate, knowing and understanding the concept , building construction, fire behavior and how to read both a roof and smoke are all key factors in becoming effective, efficient and safe while performing roof top ventilation.
I am amazed and saddened at how few of us actually seem to realize the balancing act between life and death that is in effect on all of our working incidents. We as a profession are disappointed and angered when it appears that others do not appreciate what we do, the danger we endure, the sacrifices we make. Is this not a little hypocritical when we choose not to be the best trained most knowledgeable firefighter we can be? The 95/5 rule is always in effect. If you have read to this point that indicates you are either the 5% or want to be. If you think any of this information is useful please share it.
Jenkins



· March 10, 2016 What is wrong with these fire department ladders was the question. It was difficult to see on pictures but it would have been very noticeable on the fire ground. The picture on the left is an extension ladder that has the bed and fly section still tied together from the factory even though it had been in service for over two weeks and through all 4 shifts. The top right picture also has the bed and fly section tied together making a 28 ft. extension ladder into a 16 ft. straight wall. The bottom right shows a loose halyard that is not anchored. Does anyone doubt that as little as 10 seconds can be the difference between LIVING and DYING!!!!! With that thought in your mind imagine yourself and the people you love most in a situation where you are trapped on the third floor, the clock is ticking. Through a window you can see the fire department pull up. You know that they will effectively and efficiently make their way to the window and save you and your loved ones, after all they are professionals! But through the swirling smoke you see a fire fighter pull out the ladder in the picture on the left. No good, they throw it to the side, next they begin to pull out the top right ladder. It too is useless. Your last hope the ladder on the bottom right, they pull it free and raise it up but when they go to extend it you see a firefighter pull the wrong rope and suck the loose and unsecured halyard up to the top pulley! The only thing unrealistic about this scenario is that you would have time for three failures. Ladders are life safety equipment. If it works and we are effective and efficient at setting it up, lives are saved. If not, lives are lost! Halyards are used to secure the bed and fly section together

only during transport. When the ladders arrive at the destination where they are to be put in service, then the halyards should be untied and permanently attached to a lower rung on the bed section so that it is ALWAYS there, ready to go, ready to be used as a piece of critical life safety equipment. If you did not know this it is on me! I failed to pass this basic common sense information on even though I have tried. I accept responsibility for anyone who has never been told or had it explained. Now that you know, I need your help, PASS IT ON!
The life it saves may be someone you know or it may be you!

March 28, 2016

Some thoughts on nozzles.
I was recently asked about my thoughts on nozzles and it just so happens that I have a few opinions.
For 30 years I was on a nozzle or behind the guy with the nozzle, always at busy stations. Never one time ever got in bad trouble inside a burning building with a fog nozzle in our hands on a hose line that was intact. Now I have had my butt kicked and been driven out but as long as my line stayed with us we never had a close call. Key here was that the line remained intact! Got in trouble when our lines blew or burned into. It is incredible how fast a fire can go bad when we suddenly quit putting the wet stuff on the red stuff.
I never thought of operating a nozzle to require extreme training, I always thought of it as basic training,
beginning with:
1. Always have the most GPM we could handle on our line, available at the nozzle, not at the pump. At the nozzle puts us in control! At the pump puts them in control! I never want my crew's life or my life to primarily rest in the hands of someone else!!!!!!!! Our intent should be to overwhelm the fire so that the fire does not overwhelm us!
2. Bled your line,(serves two purposes, removes air and confirms water)
3. Start at the base of the fire and move up.

4. Move your nozzle! (I always used a clockwise, whip it in a circular pattern)
5. Put the wet stuff on the red stuff, (direct application is more effective than indirect application)
6. We should teach to wash a path on the floor ahead of them. You know, where there is a foot of red hot coals and they believe they can walk or crawl through them. This can be a self-correcting problem if they are not taught this early enough. Once their skin grafts heal, they normally do not duplicate this mistake. A good Officer should not let this happen!
7. Gauge the movement of your nozzle to the extinguishment. If it's not going out, slow the movement down.
8. Use your Nozzle patterns, if you have a choice of patterns. I always taught to let the fire dictate which pattern we were on at any given time.
If you use nozzles that do not have pattern options then you clearly need to train on what to do under different situations.
9. Use your water wisely, even after established water supply:
Fine tune your water application:
A. When your fires are small we want to limit the amount of water to prevent needless damage.
B. When we get to the mop up stage, learn the indirect method of water application, the bank, the ricochet, the rain down. Learn to gate back, to pin point our water and use finesse. The owners will appreciate this.
C. Control the amount of water after the main knock down of a large fire. Too much water makes ventilation difficult by overcooling the environment, which makes the air heavy and less buoyant. You will find yourself trying to crawl around for secondary search under a blanket of steam or fog making the completion of your assignment much more difficult.
Every young firefighter should know that when they are walking through an 1800 square foot home kicking some serious butt that it may all change when they move to the attic. They must realize that they had been fighting approximately 144 to 250 square feet room and contents fires. For the most part they were attacking them one at a time with good results. When they transition into the attic it will be totally different. If it is only 50% involved they are still looking at a 900 square foot structure fire that is nothing like their room and contents fire. This is where many cocky young firefighters have had their pride rearranged, formerly referred to as having their asses kicked.

I am at nearly 38 years in, at least 36 of which we have used air packs. I have never destroyed a Helmet or Mask. I have worked with some of the best firefighters in the city with thousands of fires under their belts, who used fog nozzles and got the job done. Several years back, my own Captain got caught in a flashover without a hose line. The day after as I left the Burn Ward, I called or visited with 11 active or retired firefighters whom I had worked with. The 11 had a combined total of over 350 years of fighting fires at the busiest stations in the city. I asked them all the same questions. How many Helmets and Mask have you destroyed in your career, on one fire? One Captain told me 1 Helmet and 1 Mask, which happened in a flashover which also required skin grafts. I then asked the question, what did you do, that allowed you to fight so many fires without damaging your gear. The overwhelming answer was, "Stayed Low"!
Now that's a unique idea. Stay under the heat and get it done!
Be Trained, Be Safe!
Jenkins

March 28, 2016

Well I found what you Motor scooters are passionate about, Nozzles and getting the job done on the inside but safely. So let's go with that! I want to pose some questions about nozzles, GPM flows and hose choice. There are no wrong answers. I appreciate individuals that have opinions, it is normally an indication that that person has taken the time and effort to develop their opinion. The ones that concern me are the individuals who have no opinions.
Please let's keep this professional and civil. I want to use your answers as an opportunity to give you my opinions on the same subjects. Hopefully we can all come away having learned something. After all, I hope that is the idea. On the nozzle question if you use a solid tip include the tip size.
Question #1. What does your primary attack line consist of?
What type of: A. nozzle / tip size , B. size hose, C. length D. pump discharge pressure and E. GPM
#2. What line do you carry for big fires, what does it consist of?
What type of: A. nozzle/tip size, B.s ize hose, C. length D. pump discharge pressure and E. GPM.
Feel free to elaborate on your answers if you want.
I will give this one a couple of days to work and hopefully we all come away better.
Thanks,
Be Trained, Be safe!
Jenkins

March 28, 2016

What Goes Up?
Back to the basics, it seems a little mundane and or boring for those who get it, but for those that do not, it may be new information! For the rest of you this should be a wakeup call to not assume that everyone wearing Bunker Gear and or a White Shirt gets it. Fire science 101, Smoke, Heat and Fire all want to go up and for the most part they follow that order, smoke followed by heat followed by fire. They will however seek the area of least resistance if they cannot find a way up and out all three will travel laterally and eventually even travel down, called mushrooming in an attempt to find their way out. With this basic knowledge of fire behavior we should be able to predict initially which direction a fire is going to grow. Now fire behavior and thus growth can be affected by outside forces such as wind, humidity, type of fuel, fuel load and or construction, but one trick I have learned over almost 38 years is that smoke is an outstanding predictor of where fire is going. As an expanded example if you pull up on an apartment fire with a fire on the bravo side, second floor, and you have smoke coming out the attic on the delta side 300 ft. away, you should know that if you do not cut it off, you will eventually have fire coming out the delta side of the attic. If smoke can get there then fire can get there! This is an example of a fire telegraphing its intent. We can use this to predict where the fire will go. In any competition we want to learn about our adversaries' weaknesses, their so called Achilles Heel. We then use this information against them so that we come out the victor! Fighting fires is no different; it is a completion between us and the fire, and our goal should always be to come out the winner! Do not forget gravity, it too can affect where fire goes. Burning material with any mass is affected by gravity and winds, keep that in mind when considering fire spread.
Here are a couple of sayings that I feel are relevant:

“Sheetrock is cheap” It was relevant 30 plus years ago and still is today. Many in our profession have lost the ability to pull ceiling or were never taught. I would never condone needlessly ransacking a building without a purpose but delaying getting ahead of the fire does and will cause needless damage and compromise your safety. Now with that said be keenly aware of the pressure behind that sheetrock! Case in point if you have heavy pressurized smoke pushing out of your eaves and soffits, meaning it is in the attic, if someone pulls ceiling prior to roof top ventilation relieving the pressure the consequences can be horrific and deadly! When that is done under those conditions then the person or crew who opens up the attic just vented the attic upon themselves and anyone in the area. If they are lucky and can make it to the exit they will have a story to tell. Unfortunately if there was a crew on the other side of the unintentional vent hole, they have two choices, get out or die!
“One is none and two is one” This pertains to many things but primarily my concern is with the following: Hose lines, the number of times that we trust our lives and the lives of our crews and civilians on one line boggles my mind. I know it is because so few have experienced what happens when you suddenly and unexpectedly loose that one line but take it from one who has been there; things can become horribly bad in a split second. Hose is re-usable, if we pull it and don’t need it, it was a drill, and we became better! If we pull it and it ends up being the reason we go home then you end up with one hell of a story and experience! Also a second line must be charged. It will do you no good uncharged and it only takes 25 gallons to fill a 200 ft. 1 ¾” line. We should always have a Back Up Line meaning if you have two lines operating there should be a third deployed as a Back Up and close by. Life or Death, You decide!

“Light Smoke is only the tip of the Ice burg”
Several years ago I believe it was Fire House magazine that had an article on how many Firefighters in the United States had been killed in the line of duty after the initial on scene report of “Light Smoke”. Never let your guard down! Light smoke is no guaranteed indicator of the conditions, only that you do have a fire. We have numerous stories in our department alone of near death experiences after being fooled by light smoke. Every one of them would tell you that as they were fighting to survive the sudden unexpected change in fire conditions that they had wished they had pulled and charged a second line……..
Don’t wait! The life you save may be your own!
Be Trained, Be safe!
Jenkins

March 29, 2016

Gravity always wins, I have never seen a firefighter fall off of or through a roof and not have gravity win. The moment we leave the ground gravity is at work trying its best to bring us back down. When we are called to go to the roof for roof top ventilation we have two forces working against us. Gravity is trying its best to bring us back down while the fire is trying its best to devour the very structure that is keeping us up.

A year ago the following is how my post began after watching the video of the Captain from Fresno, California fall through a roof on March 29th, 2015.

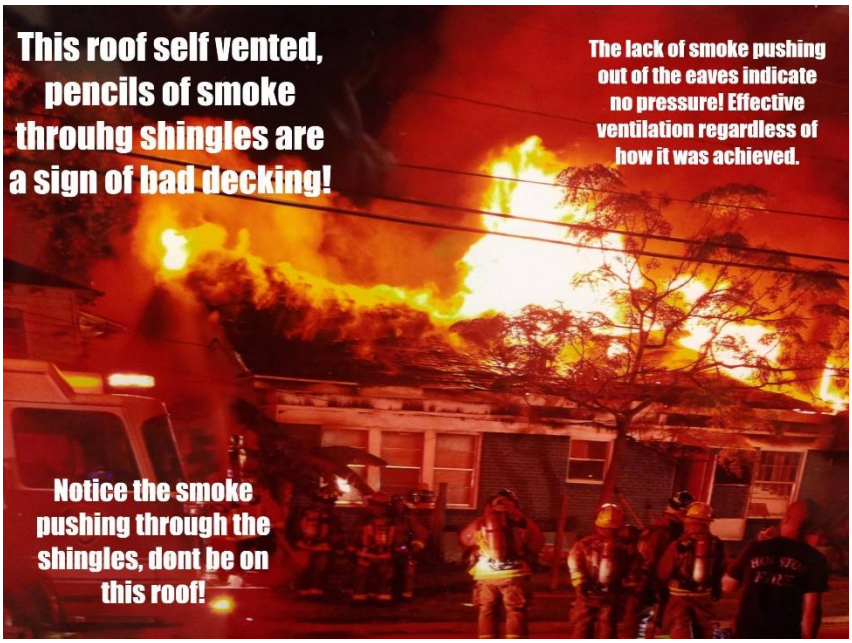
This video sickens me, as I watched I could not help but think the worse. The person videoing the incident took the words and emotions right out of my soul. Only by the Grace of God has that not been many of us.

. The entire purpose of my post a year ago was to try to prevent others from the same fate or worse! I felt that I had to try to get information out to as many as possible before it happened again. Well…… I did not succeed!

Here we are again watching videos of firefighters going into roofs only this time it is our department. Fortunately we came out with no injuries and lots of teaching opportunities. No doubt, mistakes and close calls are opportunities to teach and to learn. BUT it is imperative that we learn from others mistakes so that we do not repeat them!

I absolutely love and respect firefighters that are willing to do the job and get it done! God has called me to do what I can to pass along useful information that will allow firefighters to be safe and at the same time get the job done efficiently and effectively.

Without being critical or judging let's use this as a learning opportunity. One of the areas that we as a profession have the least experience is Vertical ventilation, cutting holes. The vast majority of firefighters will go through their career with never having been called on to cut a hole. So what happens when suddenly a firefighter or an officer with no experience is called on to go to the roof? Do you have an idea of what to do and how to do it? Do you know what to look out for on your size up and or how to know if your roof is sound? Do you know how to sound a roof or the red flags that tell you the roof is bad? Do you have a plan for cutting holes under different situations, different types of roofs and does the crew your with today know your plan. As much as I feel the need to address all of these issues I am going to limit this article to the Safety aspect of Roof Top Ventilation. I am going to address the, what and how's of performing Roof Top Ventilation as SAFE as possible. Reading the roof: Size Up, Size Up, and More Size Up. It actually begins when you are dispatched and continues until you leave the scene. It is absolutely critical for safety and to ensure we get the job done. As you initially arrive on scene and then as you do your 360, you should be sizing up the roof and the structure but especially the roof. There are two primary methods of sizing up the roof. Number one is visually, called Reading the roof.



This is the first method that you will always begin with but, is not always possible due to potentially heavy smoke and darkness obscuring your visibility as seen below.

When I'm reading the roof my number one concern is bad decking! I am certainly concerned when my rafters and ridge board are going bad as we all should be, but weak rafters with solid decking will normally give a slight warning before giving way. Weak or compromised decking regardless of how strong your rafters are can dump you in with no warning. I am concerned about trusses but not nearly as concerned as I am about the decking, with OSB being our nemesis! I have had more roofs come apart on me over the last 12 years than I had the first 25 and OSB has been the primary reason but not the only reason. Decking can become compromised due to fire, age, the elements, rafter spacing, previous damage substandard material or any number of other reasons. So what are we looking for?

This is where you attempt to observe type of construction, pitch, type of roofing material, the visual condition of the roofing material and the visual condition of the roof as a whole.

As you climb the ladder and before you step off on the roof, attempt to read the roof again. I will use the TIC but most of all I am visually reading the roof and its condition.

The two primary conditions or signs to look for that indicate bad decking are:

#1 Smoke pushing out through the shingles, this is a sure sign that the decking is being compromised. It will look like pencils of smoke coming through the shingles or sometimes it will resemble tiny tornados, as in the first three pictures

Notice the sagging of the roof decking and rafters just to the right of the smoke pushing out of the shingles. Also notice the absence of smoke pushing out of the soffits. This is because this roof had self-vented seconds before, relieving the pressure. This roof had all of the NO GO indicators!

Remember roofs are built to be water tight, you should expect to see smoke coming around the perimeter, out of the soffit's/eaves and through functioning ridge vents. You should not see smoke coming through the roof itself. Smoke pushing through the shingles is a no go sign for that area of the roof which should not be ignored.

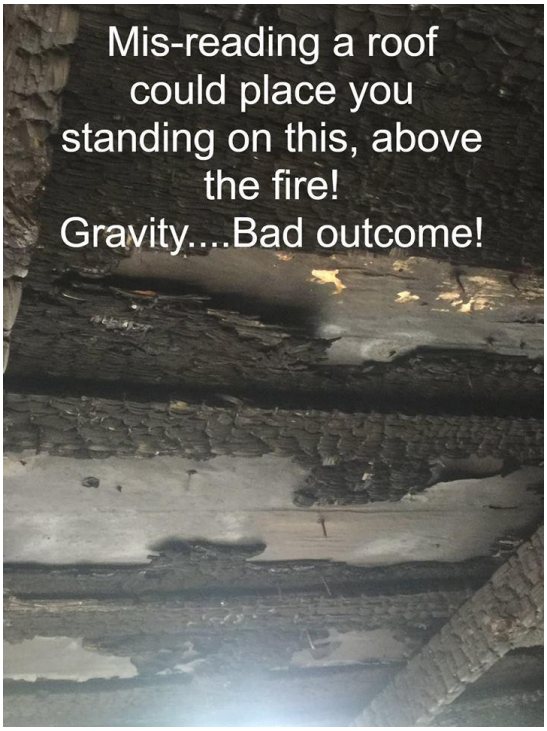
#2. The roof starting to sag and showing the rafter locations. This is a sign of either wide rafter spacing, thin decking material or a sign that the decking itself is getting bad! Also be looking for: * is fire already in the attic? (The first visible sign from the exterior that the fire is in the attic is smoke coming out of the roof vents and eventually as it becomes pressurized, the soffit's.) Is the fire isolated to only a portion of the attic or does it have total control of the attic? Read the smoke conditions and use the TIC to determine the amount of involvement * is the roof starting to sag between the ridge and the outside wall plate? This is a sign that the rafters or bracing are

starting to get weak or fail. *Is the roof starting to sag on the ridge? Could be an indicator that the rafters on both sides and the ridge board are getting bad. (We just had a house on January 2, 2016 that this very thing happened. The IC had called for the first truck to come in for Roof Top Ventilation due to very heavy smoke conditions. When the Senior Captain sized the roof up he called and relayed to the IC. the fact that the roof was bad. He had noticed the roof sagging in the center on the Alpha side. He also relayed that he thought it was going to self-ventilate, which it did! The fire had originated in the attic and had significantly weakened the rafters and decking.) Great call

Sounding the Roof:

Absolutely the most critically important step to getting the job done safely.

Sounding the roof is your and our last chance for determining if where we are about to place our feet is safe. There may be no indications of a bad roof visually on our initial size up or it may be that we literally cannot see due to smoke or darkness. These thing happen often due to the very nature of our profession. We should never get on a roof without sounding it and the areas ahead of where we are going to walk and operate.



Be extremely cautious anytime you move from one roof to another. This type of move can rob you of the gradual opportunity to notice changes in how the roof feels. Pay extra attention to the visual size up and sounding the roof. Avoid sudden impact loads. The Officer should sound the roof confirming a safe route to the ridge. Sound about 3 to 4 ft. wide in a straight path up to the ridge. Your crew should know to follow the same path to the ridge that you walk and sound. I sound the roof using an 8 ft. steel New York Hook, an 8 ft. pike pole would also work. You want something with reach and a small surface area so that you can identify bad decking early. I am trying to drive it through the decking looking for any soft spots and or a change in the feel as compared to what I initially felt when I first began sounding the roof. We are sounding for two different things, decking and rafters. We hope that we have a hard time determining where the rafters are because this would be an indication that we had a solid type of decking material which was making it difficult to feel the rafters. 3/4 inch Ship-lap and 5/8 or thicker plywood will do this. OSB, smaller plywood or rafters on wider spacing allow so much give that it is easier to identify the rafter's location. I have a hard time identifying how strong the rafters are by sounding them. It is the overall way the roof feels as we walk on it, the amount of spring that will cause me concern. I in no way mean that you sound the roof with your feet or by bouncing, quite the opposite. We want to walk light and try to stay near the rafter locations if you can find them. But pay attention! You will be able to feel if the rafters have any give it will show up in your knees. If the decking gives you will notice it more in your feet or ankles. Flatter pitched roofs will typically have more give than steeper pitched roofs. You should never get a lot of give and for sure it should not feel like you're walking on a bed. Only training by getting on different types of roofs in non-emergency situations will give you an

indication of what to expect as a norm. When you step off of the rafters and you feel the roof flex under your feet this is an indication of weak or thin decking. If the decking when you initially got on the roof was solid but now flexes it should require closer attention. Always sound before you step onto a new area. It is very important that the Captain sound a larger area than where you intend to cut prior to beginning.

It is also imperative that anyone who is required to walk anywhere other than where the Captain sounded the roof, sound it for themselves! Apply a heavy dose of common sense.

TOOLS: Everyone must be proficient with the hand tools that we take on the roof. This requires training and practice before hand. None of the tools we use can differentiate between a leg, an arm, or a roof. It imperative that our firefighters become proficient with the equipment before we lead them onto a roof. With

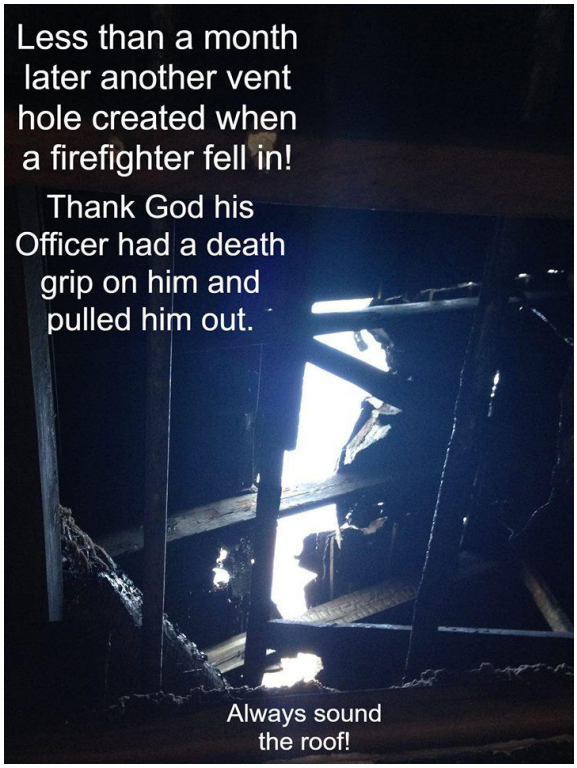
that said we all know that sometimes the first time some of our firefighters ever use the equipment is during a fire which creates a very unsafe situation for everyone on the roof and below.

Tools that I want on the roof are: Vent Chain Saws: It is safer on a pitched roof. The fact that they have a chain brake and that the chain stops quickly on its own is the #1 contributing factor. Saw Safety: All Saws should be initially started on the ground prior to climbing the ladder. This is done for two main reasons. To confirm they will start and because it is much easier and safer to crank them on level ground where we can see. With our Vent Chain Saws, we can crank them, ideal them down and set the brake which allows us to safely move them while they are running. With our circular saws this is not possible. With them we would need to crank them, ideal them down and turn them off. Then we carry them to the roof and re-crank them on a pitched roof under less than ideal conditions. Circular saws work great but are very dangerous because the blade continues to turn even after we turn it off. Everyone should be taught to keep the blade close to the material they are cutting, and to stop the blade after turning it off and before lifting it up. This is done by pushing the blade into the material that was being cut. All of that said it seldom happens and I can relate some horrible accidents because of circular saws. For that reason I opt for Chain Saws. A Flat Head Axe: A Flat Head Axe is the most dependable ventilation tool I have ever used. I have never had one that did not start. It will however run out of gas quick when I'm using it. The Flat head Axe does an awesome job of cutting through all types of decking without wedging and getting stuck when it is used backwards using the flat head. 6ft. Rubbish Hook: This is our primary tool for opening up. It is not a good sounding tool because it has too large of a surface area. It can also be used as a long foot hold on steep roofs. It can be driven into the roof using an overhead home-run swing, driving the two picks into the roof. Then the handle is held by a firefighter who is staged on a roof ladder. 8 ft. Steel New York Hook: I use this to primarily sound the roof. It gives good reach and allows you to identify questionable decking from a greater distance allowing you more time to react. A Thermal Imager: I have had great success using the TIC. The more I use it the more confidence I have in it. We have to remember it is only a tool; we must still

use our brains, experience and common sense. I will scan the roof from the tip of the ladder before stepping onto the roof. It has really helped on the roofs where we get there when the fire is just getting into the attic and we have no other visible indicators of where to establish our vent hole. I prefer the color mode when it is available.
A Roof Ladder: We do not as a rule work off of it but it is our Safety Net. o Ladder Safety: It should go without saying that ladders should be placed at a proper climbing angle of 70-75 degrees. As a Safety Officer this may be one of the areas I have to address the most. I consistently see 60 -45 degree angels which increases the likelihood of having them kick out and gravity once again coming into play. It seems like we are letting the rule about having 3 to 5 rungs extending above the roof line, supersede the proper climbing angle rule. In truth the 3-5 rung rule is a minimum not a maximum. More is ok. Get the climbing angle right! o Extension Ladders should always be tied-off before climbing to prevent unexpected retraction. (If you had ever heard the sound of a firefighter hitting the ground from 2 ½ stories up you would always tie off.) Halyards are supposed to be anchored on both ends. When we take delivery of new extension ladders they come with one end pre-tied to the fly section. The other end comes wrapped around the bed and fly section tying them together so that during shipping they are not sliding back and forth. After delivery we are supposed to untie them and anchor the loose end to one of the lower rungs on the bed section. Failure to do this can have grave consequences on the fire ground. o We should choose an area of the roof to ladder that we believe to be sound. We should always confirm the roof is solid by sounding it before we step on it. We then move from this sound area toward where we think we are going to cut our hole, sounding out ahead and of us in 3-4 ft. arc confirming that we have solid decking. o Pay close attention when moving from the ladder onto the roof. This is where many experience gravity's power when they push off of the ladder to get on the roof without having it footed. The ladder slips and Gravity wins! You must have a plan on how to move from the ladder onto the roof without pushing laterally on the ladder. I personally always step one rung higher than the roof line and let gravity pull me down onto the roof below. There are other methods out there but find the one that works for you. o We should always have a second ladder placed to the roof as a secondary means of egress.
Always:
The Officer should always back up the firefighter that is doing the cutting. Always have a solid grip to keep them on the roof and out of the hole. It is this rule along with the "get low on a bad roof "that we can attribute to saving one of our firefighters a couple weeks ago when he fell partially in but his officer was able to pull him out. Have a plan and review it with your crew on a regular basis. (We can never be too familiar with our plan. Unlike on all the training videos most of our work is done with limited or no visibility
Have pre-assigned jobs and tools Put a roof ladder on every roof

Safety: An Officer's number one responsibility is safety. That means making the right decisions no matter how difficult it is
Sometimes it means that when your size-up shows a no go condition you relay that to the IC. We will gain more respect by knowing our job and making wise decisions than trying to prove that we have no fear.
Sometimes that means putting the right person in the right spot regardless of rank. If an Officer finds that they have less experience than one of their crew then decide who is best suited to make life or death decisions. You will still be responsible and still be in charge but until you have enough experience to make those decisions chose someone who can.
The Officer should do the following or see that the most qualified person on the crew does the

following:



Be the first one on the Roof: Confirm the structural integrity of the roof. Sound a larger area than your hole. Choose the proper location for the hole... Back-up the firefighter cutting the hole. Be the Last one off the roof

Safety on a bad roof: We should all know that the ridge and valleys on our standard framed roofs are two of the strongest areas on a roof. They are strong because it is normally a 2X6 or 2X8 that runs the length of the roof and is sandwiched in between rafters from both sides. The ridge is where we all set our sights when we are looking for a solid area to walk or secure our roof ladder. It is the area we trust the most on marginal or very steep roofs. Think of how many times you have thought. " If we can only make it to the ridge we will be ok " Be Aware this only pertains to standard framed roofs. It Does Not Pertain to Light Weight Truss Roofs. On light weight truss roofs the ridge may actually be one of the less secure areas. There is no ridge board on light weight truss. There are normally braces near the ridge but they are normally located several feet down from the ridge. If you stand on a light weight truss ridge you are literally standing on the edge of two sheets of roof decking. So pay attention! If you ever find yourself on a bad roof and you still need to get the hole established, get down on your knees. This spreads your weight out and puts your hands only about six inches from the roof instead of 3 feet. If you were to begin falling through you can spread out much quicker to stop your fall. On our knees is the same way we cut steep roofs.

*If you ever have a roof start to come apart on you do not try to walk or run. Roll away from the area and hopefully to a solid area. Away does not mean down the roof. This would be a challenge of your good common sense. The most critical thing you can do when a roof suddenly starts to go bad is spread your weight out. Then get your crew and yourself to a safe area, re-evaluate the situation and make the appropriate adjustments. This may mean you abandon the roof but there are times on large roofs that it simply means get to a safe area and complete your assignment.

Have a plan for if things go bad and someone goes in. The idea is to not let it happen but plan in case it does and train on that plan.

A few absolutes:

Stop thinking it won't happen to you! Plan for and Prepare for the worst.

Everything we do inside, outside and on top of a burning building should be directed at being OVERKILL. We should always be doing more than we expect so that when suddenly things go wrong, we can be the one, to tell our near death experience. Not have someone else stand behind a pulpit and tell our story.

Be Trained, Be Safe!

Jenkins

April 1, 2016

Opportunities to learn!

I have noticed that since Captain Dern of the Fresno Fire Department fell horribly through the roof of a garage fire a year ago that I have become ultra- sensitive to any discussion of his accident. His accident was so visually disturbing that it drove me to action. I immediately knew that we as a profession needed to do all we could to prevent this from happening again. It is and was the catalyst that drove me to write and post several articles, all of them long, on Roof Top Safety. His accident was the driving force behind numerous classes that were taught on Roof Top Safety. His accident and the fact that his department allowed it to be shown is and was directly responsible for the positive outcome for 4 firefighters in my department on bad roofs. The decisions they made on bad roofs came from the knowledge that they acquired because of an accident, Fresno's accident! I cringe at the thought of what could have been in my department alone had it not been for The Fresno Fire Departments decision to put the video out there. When I first watched the video and read that his department had chosen to show the video so that people would know what they do, I internally applauded them. It takes courage to put our mistakes and accidents out there for literally, the world to see. Everyone knows that today you will be judged by your videos. After all videos are the whole truth and nothing but the truth, right? Experts are at nearly every key board. It's easier this way, we don't have to hold back; after all we can judge someone without looking them in the face and feeling their emotions staring back at us. We can be brutally honest and that's the way it should be! Well yes and no. Criticism, there are two kinds, constructive whose purpose is to make the person or party being judged, better. And there is destructive criticism which sole purpose is to tear someone or something down. Sometimes with destructive criticism it is not initially intended to be destructive but is merely a question which is worded wrong. They seldom survive long before the guards of the electronic media jump on and again judge them, and the vicious cycle begins. We all should be and need to be judged by others. When done in a positive constructive way it allows us to improve. That is the way we grow to become professionals. Our performance, our actions and our motives need to be scrutinized by others. Well at least for me they do! My brain for the most part tells me that everything I do is ok, until I make a glaring mistake that no one can miss. Then I wish that I had been judged earlier giving me the opportunity to correct it. All of us should be able to ask the why, what, where and how questions. Officers should all be able and willing to answer the same questions when asked at the appropriate time, place and manner. Of all the questions the why seems to be the most important. Why do we go to the roof, why do we cut big holes, why do we go to the unburned side, why do we run into burning buildings? For me the why questions define the reasons that we ask and expect firefighters to risk their lives. That being true, we certainly owe them an answer. My goal as a seasoned firefighter is to make other firefighters better, safer and better equipped to handle today's fires. I plan on doing this by passing on my experience that has come from nearly 38 years of mistakes and observations. I ask this; if any of You find me ever becoming destructive in my post do not hesitate to openly judge me, constructively of course!

Be Trained, Be Safe!

Jenkins

April 12, 2016

My Truth!

If there is one thing that I hope I am known for, it would be having character! Hopefully meaning that I am a man of my word and that I can be trusted. With that said I need to give you an opportunity to hear my truth!

I never know what God has instore for me but for the past several years I have consistently prayed for opportunities to serve him by serving others. Today was no different. I always begin my 1 hour and 10 minute drive to and from the fire station with a prayer first thanking Jesus Christ for all the blessings, protection, grace, mercy and healing he has given to those who are on my heart. I then go through my list of names and ask God for more grace, mercy protection and healing. Not wanting to act greedy I save my own request for last. Besides grace, mercy, blessings, protection and forgiveness, I also ask for guidance on my walk with Jesus Christ because I still have so much room for improvement. I will ask God to give me the proper words to speak and write to keep firefighters safe, I ask for healing because I'm not as young as I used to be, and I ask for opportunities to serve my Lord and savior by serving both firefighters and civilians. It is these last three prayer request that leave absolutely no doubt in my mind and soul that God is alive and is with me every second of every day. I often get very gracious responses from firefighters and some civilians from all over about the information that I post. There are those who know me and are surprised by what I write, they are not the only ones for I too am surprised by what comes out of my mouth and on paper. It is good information that needs to be given to keep firefighters safe and still have them be great firefighters but it is not from me, it is absolutely from God and his timing is always perfect! The other prayer request which is for healing still blows my mind and I love to witness to others about the unbelievable healing that I received through Jesus Christ! Not just once or twice but on numerous different occasions and all since Chief Currie, District 21-A, chased me down one night after a fire and gave me a book on how to pray for healing. That one unselfish and thoughtful act has totally changed my life. From that book I learned to pray specifically for what needs healing and to have FAITH! Due to the healing I received my faith has exploded. What I have found is that the more faith I have the more God is involved in my life and the stronger my faith grows. This now brings me to the reason that I am writing this post. When I left my house this morning a little before five I began to pray with a strong faith in my Lord and Savior Jesus Christ in my heart and soul! Today's prayer had several new names added for healing and a few more specific healing requests. Other than that it was my standard prayer request EXCEPT, I asked God for MORE opportunities to serve him by serving others. Today I was feeling exceptionally good. We were getting a new rookie and I already had two drills scheduled with two separate outstanding crews. I like to be busy and I wanted God to load me up, and did God ever come through. My day was so incredible that I had to stop between runs and write notes of what had happened. I could probably turn today's events into a book maybe that is the book that I am supposed to write. I will make this short, my day started with a phone call from another officer that God called me to go visit. During our short visit I discovered that he had lost his faith several years back. Wow this was hand delivered to me and I ran with it and at least got a foot in the door with my firsthand accounts of God in my life. I felt it was a good start. I left his station and did not go a quarter mile when I was flagged down by an elderly gentleman who needed a door at a nursing home re-set. Good start! This opportunity allowed me to meet another elderly lady from the home and all three of us spoke of how God had just placed us all together, what a blessing. I made it to Station 35 and had a 45 minute drill with none of us catching a run, almost unheard of but Gods plan.

Over the course of the next 12 hours, I was able to meet three first day rookies and give them some instruction. I made a house fire and God guided me strategically to meet 9 civilian adults and 3 children who all spoke to me about GOD! The 3 children came up to me and said they had been praying for firefighters? None of these interactions were dispatched calls and I now know what Gods angels look like, nothing like in the pictures you see but Angels just the same. I would like to say that I had 16 opportunities to serve that were not planned, but the truth is I was served by 16 people who all played a part in growing my faith. I asked God and again he came through big! I can't wait to tell my friend who had lost his faith about the day I had after I last saw him.
If I have one regret it is that for over fifteen years I turned my back on God. I was angry with him and I was going to make him pay by withholding my love for him. The ones who payed though were my family, my friends and I.
My greatest decision in my life came when I turned my life over to God! Instantly everything in my life improved and became so much easier. Everyday my faith grows stronger.
Gods waiting, make the call! You won't regret it!
Be Trained, Be Safe!
Jenkins

April 22, 2016

Consider this my manifesto!
I always need catalyst to motivate me to write, I know of no better motivator than our loss of duty deaths also referred to as LODD's, from across our country. We should always honor those who have sacrificed their lives by learning from their situations. It would be dereliction of my responsibility if I knew of a situation and did not pass on what I had experienced. When I read a LODD report it is like reliving my past, the majority of the those same situations where others died were only close calls for many of those who I have fought fire with, or my own. I wish I could say all were close calls but unfortunately I cannot. I know firsthand how things can go terribly wrong. I know the feeling of riding to a fire with someone you trust your life with, that you love and respect and leaving them on the fire ground as a LODD. I know from experience the feeling of being woken up twice over my career on my days off to the news that two friends had become LODD's while I slept. I know the anguish of twice listening on the radio, and holding your breath waiting for the outcome for injured or lost firefighters who I knew only to hear that they too had become three more LODD"s. I wish I could say that was the end of my experience but it was not. I experienced our worst ever loss of duty death and injury fire, where we lost four young and brave firefighters one being a new rookie only on her second fire. One of our Officers was severely injured, his and his families' lives changed forever. Several other firefighters were badly injured never to return to fight fire again. The number of firefighter injured was into double digits and like something from a horror movie, surely not real life, but it was! So am I qualified to address situations that contributed to LODD's? Probably not qualified, but bound by my Lord and Savior Jesus Christ to serve firefighters' and keep them safe, that is my purpose!
So often we are guilty of trivializing things that we see as unimportant. None of us are born with the ability to see into the future. Most of us must be taught or learn through experience. Our own personal experience or someone else's! Certainly it is easier to learn through a bad experience than a good one. There is nothing that drives home the importance of how or why we do something as well as a bad experience. When I take a firefighter to the roof and everything goes

right, it is hard to drive home all the things that went right. Sure we relive them once or twice and then store them. Now when I take a firefighter to the roof and they make a mistake such as stepping where they had already cut and nearly falling in, all I have to do is hang on to them and make sure that they realize what it was that they did wrong. The adrenaline that surged through their body when they thought they were falling in brands into their brain to never do that again. They will think of their close call often and learn from it. Hopefully they will share their experience and educate others on what not to do. Ideally we learn through others experience, close calls, mistakes and all. If you pull up any LODD report and read it you can learn through others experience. Sometimes it is very clear what caused the horrible outcome but other times you must read between the lines. John Benjamin with Fire Fighter Training, post LODD's every day, so we never forget, so we learn and honor each and every one who has gone before us. I am going to begin addressing the causes of close calls and loss of duty deaths. This information strikes at the very core of what my purpose is and that is to keep firefighters safe. My intention is to begin almost a series of post / articles where I address areas and actions that have had both positive and negative outcomes on our profession and our firefighters. I wish I could promise you that they will all be short and to the point but that is almost not possible for me. I do promise to provide information that will have a positive impact on firefighters and or civilians that is not readily available in any book.
Look for it, " Live or Die, You decide"

Be Trained, Be Safe!

Jenkins

April 22, 2016

Please do not judge the crew on the roof. This is not a post on roof top ventilation. It is a post on how things can go wrong and only seconds stand between life and death.
Watch all three Firefighters on the roof. You decide, did the one who fell in have any extra time? What would have happened if it had not been a regular assigned and trained crew? Live or Die, You decide!
Staying Alive in the Fire Service!
The 10 Second Rule
Have you ever given any thought to how little time can be the difference between life and death on the fire ground? What is the number? Is it minutes? We only wish! The difference between going home to your family or to the morgue can be as little as 10 seconds or less. For the sake of this class and this rule I choose to use 10 seconds as a base number. 10 seconds is 2 second longer than a Bull Rider must stay on to get a score. Less time would make a bad situation seem hopeless and that is not my goal. My goal is to be honest with you and yet give you hope. I came up with the 10 seconds after going and speaking with 5 Houston firefighters who had been caught in a sudden change in fire conditions causing them to be covered up in solid fire. Obviously if I was able to speak to them they survived what used to be considered un-survivable condition prior to Air Packs. Many required skin grafts but lived to tell their tale of survival. All would tell you if it had not been for the Reed Hood that they were wearing they would have surely suffered more severe burns to their ears and face. All could relay the sensation and smell of their mask melting. Several had their mask fail but fortunately all survived. So when I heard their stories through the grape vine I made a b-line to speak to them directly. After all what better

way to learn how to survive than speaking to someone who almost did not! I wanted to know what happened, what they did to survive and then I wanted to know how long they think it was before their mask began to fail. One was a rookie and 4 were Captains on Engines. All had stories of unexpected sudden change in fire conditions. All 5 survived by getting out! The question that I most wanted to know was how long until you knew your mask was failing. The Rookie told me 7 seconds, One Captain said 22 seconds and the other three Captains all said 10 seconds. Of course no one had a stop watch but this was just their perception of time. 10 seconds sounded like a good number and so I use it as the base for my 10 second Rule. What is the 10 Second Rule? If we can agree that as little as 10 seconds can be the difference between living and dying then we should always be trying to save 10 seconds. Use 10 seconds as a goal to test task against such as tying a knot, reading a coupling or extending a ladder.

1. If you can't tie a knot that you trust your life on in 10 seconds without being able to see, then what could potentially happen if living required you to go out the 6th floor window on a rope? 10 seconds and times up!
2. What if you were suddenly and that is always how it happens, suddenly! Suddenly you are caught in a flash over, covered up in fire. You do not know which way is out but you find a line and find the coupling. Can you read it instantly or do you have to try to read it, remember the clock started ticking the second the fire got on you! If you can't effectively and efficiently read a coupling with your gloved hands in 2 seconds or less you are using the wrong method and it could cost you your life!
3. You pull up first Truck on scene as your engine crew is calling for a ladder to the third floor where they are taking high heat. You pull out the extension ladder just as you stand it up there is a flashover on the third floor. Your engine crew is at the window covered up in fire. As you go to extend the ladder you find that it is a two section straight wall ladder still tied from the factory even though your new truck has been in service 6 months. Do these scenarios sound farfetched, hardly? I could include scenarios on hose loads, hooking up, forcible entry and ventilation. Don't even get me started on Saws. With very little effort I can find them all in almost every department.

All of these situations could have been avoided if the 10 second rule had been applied beforehand. We can all practice tying knots, reading a coupling and checking our halyards without even breaking a sweat.

Checking hose loads, tools, equipment and apparatus, make sure your equipment is organized. That will save you much more than 10 seconds.

Apply the 10 second rule to every aspect of our job. Can we do it more efficiently but as effective and as safe? If I can lay out my gear a certain way that allows me to get bunkered out quicker than another method without giving up effectiveness or safety then I should do it the more efficient way saving time.

Ask yourself, where can I save 10 seconds? The most important job we perform all day is Operational Readiness. It begins the second you take it on. Literally the second you take the Bunker Gear off from the person you are relieving it is on you. For the next 24 hours live or die it is on you! So take it seriously. It is critical for you and your crew's safety and the safety of other firefighters and the civilians we serve. Prioritize your equipment check off according to life safety, yours first, then your crews and then civilians. Bunker gear, Air packs, radios, T-passes, tools, hose etc. Everyone should check everything; you never know who may be having a bad day. Checking out tools equipment and apparatus should not exclude officers! Check one compartment at a time and then re-secure the door. When we must tilt the cab, do it, finish what

you have to do and then bring it back down. People's lives depend on our response time and it drives me crazy when I see cabs tilted and nothing being done. We are at that point out of service for at least a minute. Mark my word when you let this happen and a run comes in, you will not get something secured, pull out and have equipment fall out on the street and once again be a non-emergency apparatus. ALWAYS be thinking about the next call for help, it could be somebody you know!

This is for everyone, Officers take notes!

Complacency is the biggest offender that consistently robs us of 10 seconds. Complacency can lead to problems including the need to call a mayday or a body car!

Relieving: When you take it on what you find wrong may not be your fault, but it is your problem. So make it right, if you don't, it then becomes everyone's problem and YOUR FAULT!

If you know it is wrong and you choose not to correct it, you are then…….Complacent, which is a fancy word for lazy!

By being complacent you become Culpable which is a fancy word for …..You are responsible for whatever goes wrong! In our profession when things go wrong we sometimes zip them up in body bags!

Sometimes you may know them, could you live with that? Sometimes it could be YOU!

Officers:

Staffing: This is the area that you have the least control over but can have the largest negative effect on the 10 second rule. Due to debit days, fill-ins and overtime you often have a lack of crew continuity. This will have an overwhelming negative effect on time with everything you do but most noticeably on the fire ground. So what can you do as an officer?

Meet with your new crew as quickly as possible. Give them their job assignments and your expectations. Line them out on everything you want, expect and require. Prioritize most critical life or death information to least critical.

Now is not the time for complacency. You will need to give them a crash course, apply the 10 second rule.

You will not be able to train or drill them up to the level of your regular crew but you should be able to save that precious 10 seconds.

Firefighters:

Staffing: What do you do when you are required to work with an officer and a crew who you do not know and or have not trained with? Will it pass the 10 second rule?

You must make the best of it by meeting with your new officer immediately to receive your riding and tool assignment. They should inform you of everything they want, expect and require. They should give you the most critical life of death information first followed by the least critical. They should give you a crash course on how they do things. Apply the 10 second rule. You should be able to save 10 seconds per task by just reviewing it with your new crew for the day. Think about how that adds up on the fire ground. It will make the difference between looking and performing like a professional or not!

No one ever put in a situation where they thought they were going to die, wished for less time.

SUMMARY:

10 seconds can be the difference between life and death.

A 10 second delay due to inattention, lack of preparation or just plain old complacency can lead to Death!

Use the 10 second rule as a motivator for yourself and others.

Use the 10 second rule as a constant to measure everything we do in the fire service against.
Think' "Can I do this better or more efficiently to save 10 seconds?"
Can anyone of us afford to waste 10 seconds?
Be Trained, Be Safe!
Jenkins

April 28, 2016

It still saddens me when I think of the number of individuals who work at jobs that they do not have a passion for. Passion drives action! It is for that reason that all of us are better off if our Brain surgeon has a passion for his job. Individuals, who are in need of help, whether being rescued from a fire, cut from a wreck or being resuscitated from a sudden cardiac event want and deserve to have the firefighters who respond to be passionate about their job of saving lives. Passion drives action……! I recently read a post where a paid firefighter ridiculed a group of volunteer firefighters. This struck a nerve with me because I have been a paid firefighter for nearly 38 years and one thing I have learned is that there is no lack of passion for our profession from firefighters who volunteer their time, effort and in some cases their lives. Can I be brutally honest, those that know me, know when I talk about the 95/5 rule what I am speaking of. Most volunteer departments that I have had opportunities to visit with; the numbers may almost be reversed. I find individuals that are knowledgeable and want to know how to be better, and they do it for free. So to my brothers and sisters whether you volunteer or collect a paycheck the only thing that matters to those in need is that you have passion for the job and do it to the best of your ability. As for me, I will always remember a big mutual aid restaurant fire about 30 years ago. There was plenty of fire for everyone. When the fire was finally out, those who were inside made their way to the front yard, took a knee and began to dress down. As I looked around what I saw were Fire Fighters that were men, women, black, white and brown, paid and volunteer. During the fire fight the only thing that mattered was did we have firefighters inside getting the job done? Yes we did! What did they all have in common? Passion for the job!

Love, Respect and Admiration,

For all that take our profession seriously!

Jenkins

May 4, 2016

Roof Top Ventilation.

Warning!
This will not be a quick read.
Copy it, save it, read it, and practice it, if you are interested in being an effective, efficient and Safe Hole Cutter!

Your Engine crews and trapped occupants will respect and appreciate you for it!

*Like all aspects of our profession most of what we do is situational. We try to train and drill for all situations, however, we must be able to improvise, alter, and implement new plans on the run as the situation changes. Being able to think on the go and Great common sense are extremely important for a Firefighter.

*Roof top vertical ventilation is basic Fire Science 101. Fire, smoke, and heat all want to do the same thing; they all want to go up. When they cannot find a way up and out they will begin to travel laterally searching for the area of least resistance to escape.
When they reach an obstruction to their lateral movement they then begin to bank or travel down, called mushrooming.
Roof top ventilation takes advantage of this principal of fire behavior. When we cut a hole in the roof at the highest point and punch through the ceiling we give all three exactly what they want, a path of least resistance up and out. Conditions on the interior improve incredibly fast as fresh air rushes in from the below to replace the void left as the fire, smoke, and heat rush out.

Have A Plan!

To consistently be effective performing roof top ventilation requires a well thought out plan. That plan must have pre-assigned tool assignments and job responsibilities for everyone on the Ladder Truck.
You must have a pre-conceived idea on how to cut the hole, and the minimum size for the hole that you intend to establish.
With a well thought out, practiced, and executed plan you should be able to perform effective vertical ventilation the majority of the time with very little additional communication and or instruction.
Without a plan training becomes much less effective, therefore your execution will suffer. When execution suffers then ventilation suffers, which in turn literally causes firefighters and civilians to suffer from the lack of a plan.

We would like to always have a 4/12 pitched composition shingle roof with 2X6 rafters on 18 inch centers with ship-lap decking and a moderate cross wind blowing away from our Roof Ladder.
Under these conditions, moderate smoke and fire in the attic, solid structural integrity, and good visibility we should be able to walk the roof!
When we can walk the roof we feel confident that we should be able to effectively and efficiently establish our 9 X 4 foot ventilation hole.

What happens though?
When you change the roof pitch to anything greater than a 6/12 pitch or the roof to slate, tile or metal, and you become tied to the roof ladder or must ride the ridge?
What happens when the fire and smoke conditions become extreme, wind becomes a concern, or your visibility goes to nearly zero?
Every seasoned hole cutter will tell you the same thing: Your hole gets smaller!

This is why there should be a plan for:
Every roof type:

Composition Shingle
Spanish Tile
Slate
Metal
Pitched – Flat
Residential – Commercial
Light weight truss

And under the following conditions:
Cutting from a walk-able roof.
Cutting from the ridge Cutting off of the roof ladder or Ladders
Cutting off the aerial or tower

Don't get locked into a plan thinking that it will work for you forever. Plans need to be constantly scrutinized for their effectiveness.
What worked well for years may become less effective for numerous reasons.
Changes in construction, new and better equipment, or new ideas are reasons to re-evaluate your plan.
Your crew may change or evolve into more seasoned professionals which are great reasons to alter your plans to become safer, efficient, and effective.
.

A few absolutes;
Plan on cutting a big hole, a 9ft.X 4ft. minimum.
Put a roof ladder on the roof as a safety net.
(We do not work off of roof ladders as a rule but we have a large number of OSB decked roofs in our territory.
They have a high failure rate and the Roof Ladder has saved us several times
It also makes an excellent staging area for tools)
Plug in our regulator prior to stepping on the ladder
(The smoke today is some really bad stuff)
Have a plan and review it with your crew on a regular basis.
(We can never be too familiar with our plan. Unlike on all the training videos most of our work is done with limited or no visibility
have pre-assigned jobs and tools

Safety:
An Officer's number one responsibility is safety.
That means making the right decisions no matter how difficult it is. Sometimes that means putting the right person in the right spot regardless of rank. If an Officer finds that they have less experience than one of their crew then decide who is best suited to make life or death decisions. You will still be responsible and still be in charge but until you have enough experience to make those decisions chose someone who can.
Safety should always be our number one goal in all aspects of our job.
Firefighting is a dangerous job but we can make it safer by training.
Training allows us to become proficient, effective, and as knowledgeable as possible.

We must always remember that ventilating a structure makes it much safer for everyone!
.
The Officer should do the following or see that the most qualified person on the crew does the following.

Be the first one on the Roof:
Confirm the structural integrity of the roof.
Sound a larger area than your hole.
Choose the proper location for the hole. .
Back-up the firefighter cutting the hole
Constantly monitor the conditions
Confirm that the hole is effectively ventilating the structure.
Be the Last one off the roof

Safety on a bad roof:
We all know that the ridge on our standard framed roofs is one of the strongest areas on a roof. It is strong because it is normally a 2X6 or 2X8 that runs the length of the roof and is sandwiched in between rafters from both sides. The ridge is where we all set our sights when we are looking for a solid area to walk or secure our roof ladder. It is the area we trust the most on marginal or very steep roofs. Think of how many times you have thought. " If we can only make it to the ridge we will be ok "
Be Aware this only pertains to standard framed roofs.
It Does Not Pertain to Light Weight Truss Roofs. On light weight truss roofs the ridge may actually be one of the less secure areas.
There is no ridge board on light weight truss. There are normally braces near the ridge but they are normally located several feet down from the ridge.
If you stand on a light weight truss ridge you are literally standing on the edge of two sheets of roof decking. So pay attention!
If you ever find yourself on a bad roof and you still need to get the hole established, get down on your knees. This spreads your weight out and puts your hands only about six inches from the roof instead of 3 feet. If you were to begin falling through you can spread out much quicker to stop your fall. On our knees is the same way we cut steep roofs.

If you have a roof start to come apart on you do not try to walk or run. Roll away from the area and hopefully to a solid area. Away does not mean down the roof. This would be a challenge of your good common sense. The most critical thing you can do when a roof suddenly starts to go bad is spread your weight out. Then get your crew and yourself to a safe area, re-evaluate the situation and make the appropriate adjustments. Often this will mean abandon the roof but there are times on large roofs that it simply means get to a safe area and complete your assignment. Even when an area becomes unsafe to be on, it does not mean that it will necessarily self ventilate. We find roofs with 8 and 10 layers of shingles that even though the decking and rafters are compromised the shingles will not ventilate. These roofs still need a hole if we can find a safe area as close as possible to being over the fire. This statement does not mean that you have to be directly over the fire if that area is unsafe. Choose an area as close as possible that is sound.

Why not set a Roof Ladder as a rule? If you believe any of what you have just read or if you believe a roof could suddenly become bad, why wouldn't you?

The Concept!

Plan on a Big Hole!
Our basic plan is to cut a hole as big as we can, as fast as we safely can and at the highest point over the fire as we safely can.
If you plan BIG and you have to leave the roof early you may still have an adequate size hole. If you do not plan big you set yourself up to fail.

Today, effective ventilation is crucial for a successful fire attack.
Fires today produce, according to our CE class, up to 500 times more smoke than fires 20 years ago. That number is definitely on the high end but according to our first-hand experience the fires today do burn hotter and produce considerably more smoke. This is why we always plan on cutting a big hole.
Thirty four years ago the minimum size hole recommended for a residential fire was a 4x4
Today most experts agree that our fires today are different and produce much more smoke but there are those who still teach to cut 4x4 ft holes.
Fortunately there are those who recommend bigger holes for today's fires and push for a 36 square ft. hole as the minimum for residential fires.
We agree with this and have found that a 9x4 ft. hole is very effective for the majority of our type of residential fires in District 46.
While attempting to achieve a 36 Square foot vent opening we drilled on cutting both a 6X6 and a 9X4 foot hole.
We found that a 9 ft. X 4 ft. was quicker and easier to consistently clean out from either side of the ridge. Trying to open up a 6X6 hole required either reaching out over the hole or moving around to the other side of the hole. We try to limit the amount of movement around the hole and on the roof and by cutting a 9X4 we accomplish our goal.

The Wind!
Next to the structural integrity of the roof the wind is our biggest concern.
We prefer no wind or a cross wind when we cut but that will not always be the case.
When the wind is head-on blowing directly across the ridge our job becomes more difficult to perform properly. If we choose to operate out of the smoke then our choice is to cut from the ridge which means it is much more difficult to get a big hole. If the roof is walk-able and we choose to walk the roof and work from below our hole then we work in the smoke and limited visibility. This is my personal choice even though it puts my saw man and me working in the smoke. This position allows us to establish a big hole and my clean-out man to operate from the ridge with the wind at his back. When working below the hole we must be extra observant of the wind, smoke and fire always working back toward our roof ladder and safety.
There are studies that give different recommendations on wind speed verses roof pitch. I find their test to be too broad and confusing to use on the fire ground...
We pay close attention to wind speed and direction on a daily basis and remind each other any time we have more than a light breeze.
On any pitched roof 10 mph is our cut off point at which we will no longer cut on the windward side. At 10 mph the smoke leaving the building will be laying at about a 70 degree angle. (90 degrees being straight up and down.) I always think of it as the climbing angle for a ladder. Any wind laying flatter than 70 degrees will require us to cut on the leeward side. At this wind speed

we feel that we must closely monitor what the smoke is doing as we begin to open up. If we begin to get unfavorable smoke movement we may discontinue opening up and consider another option. We do not want wind blowing into the hole. This could have serious negative consequences for interior crews. It could cause the thermal column, smoke, fire and heat to be pushed down onto the interior crews causing everything to light off.
Bigger is Better, Except! When the wind changes direction and begins to blow into the hole creating a dangerous situation.
We would prefer to Never cut a hole on the windward side into any wind over 10 mph's
You are better off not cutting the hole at all rather than cutting one into a questionable wind.

A personal observation:

• I have never seen Super Black Smoke that did not come with Super High Heat!!!

• Smoke IS Fuel! Rushing into a heavily charged building without venting is comparable to standing in the middle of a Diesel fuel spill with ignition sources all around you! Think, would you do that?

• You need to vent opposite of your entry point before you enter the building.
If you do not, wherever you enter now becomes the vent and the entrance for the structure!
Sometimes there are no other options. In that case you had better know what to expect and have a plan.
Stay low and move fast. You must locate the fire and begin your attack quickly because you have just entered the vent hole.
It is comparable to cutting a hole in a roof and then repelling into it. Would you do that unless you had no other choice?

If you have trouble finding the fire
And
You entered its only vent
It will find you
Or
Worse!
It could circle around you going straight to the vent, cutting off your only exit never giving you an opportunity to attack it.
This is a very hazardous and complicated situation.

You better be ready to overwhelm the fire!
If not
It will overwhelm you!!

This is no place for those who believe in
low pressure and low gpm.
Making the decision to go to the roof!
Let the building, smoke, and fire conditions dictate whether we are going to the roof, using a fan,

or both. You have to learn to read the smoke. Location, color, volume and speed all are indicators of the interior conditions which dictate ventilation choices. Heavy black smoke pushing out under pressure from all over the building, even if there is none pushing from the eaves, is a dead giveaway that we are going to the roof as long as the roof is stable?
Those conditions call for roof top ventilation if at all possible. From my observation, heavy black smoke under pressure and PPV do not work well together. Heavy black smoke is fuel that is to rich to burn and only needs oxygen. We know there is an ignition source somewhere in the structure and unless we are trying to expedite the smoke lighting off, leave the fan off. Under those conditions the fan will act as a turbo charger pushing into the fuel/smoke column the one missing ingredient to make fire, oxegen.

Heavy black smoke pushing out of the eaves and all of the roof openings (even with only moderate to no smoke coming from the rest of the structure) is a huge indicator that the fire is well into the attic. It is critical that we get to the roof and get roof top ventilation established quickly. Interior crews may be rushing in under moderate conditions and if they begin to pull ceiling before the roof is opened up they will have prematurely vented the attic onto themselves which can have very negative consequences. Their moderate interior conditions can suddenly become untenable. Pulling ceiling under heavy fire and smoke conditions prior to roof top ventilation will bring smoke, heat and fire under pressure down on you and others. A well-disciplined crew will wait until roof top ventilation is complete before opening up under these conditions.

No smoke from the eaves and only moderate smoke coming from the structure: I will consider the fan as long as we can vent somewhere near the fire.

No smoke from the eaves but moderately heavy smoke coming from the structure but with visible fire at or near an opening: I will consider venting the opening closest to the fire and using a fan.

With the two previous conditions plus smoke pushing up from the eaves: we would set up a fan, complete a primary search, and then go to the roof.

With no smoke from the eaves but moderately heavy smoke coming from the structure and no obvious vent location: heavily consider going to the roof.

On two story Balloon construction with any significant amount of fire on the first floor, we are going to the roof. We want to vent the roof and take the fire straight up the wall and into the attic. This will keep it from traveling laterally as it tries to find a way up and out of the house. If I know its coming to the attic then all we have to do is pull ceiling, put it out, get in the wall, and mop it up. If you fail to cut a hole and the fire gets in the wall without any direction, it will travel all over the house trying to find a way up and out! If that happens, you better be ready to work!

Reading the roof:
Size Up, Size Up, and More Size Up. It actually begins when you are dispatched and continues until you leave the scene. It is absolutely critical for safety and to ensure we get the job done. As you initially arrive on scene and then as you do your 360, you should be sizing up the roof

and the structure but especially the roof. As you climb the ladder and before you step off on the roof, again size it up. I will use the TIC but most of all I am visually reading the roof and its condition.
When I'm reading the roof my number one concern is bad decking!
I am certainly concerned when my rafters and ridge board are going bad as we all should be but weak rafters with solid decking will normally give a slight warning before giving way.
Weak or compromised decking regardless of how strong your rafters are can dump you in with no way out and with no warning.
The two primary conditions to look for that indicate bad decking are:
*The roof starting to sag and show the rafter locations. This is a sign that the decking is getting bad!
*Smoke pushing out through the shingles this is a concrete sign that the decking is being compromised.
Also be looking for:
*Is fire already in the attic?
*Is the fire isolated to only a portion of the attic or does it have total control of the attic?
*Is the roof starting to sag between the ridge and the outside wall plate? This is a sign that the rafters are starting to get weak or fail.
*Is the roof starting to sag on the ridge? Could be an indicator that the rafters on both sides and the ridge board are getting bad.
You can have these no go conditions on part of the roof and yet have a very solid stable roof just a few feet away which will still allow you to complete your assigned task. You will discover this in your Size Up and by reading the roof. Don't abandon roof top ventilation because the roof directly over the fire is bad. Move to another area read and sound the roof. Size it up. Remember the rule. "As close over the fire as you safely can. The crew below you and any trapped civilians need ventilation.

Sounding the Roof:

The Officer sounds the roof confirming a safe route to the ridge. I sound about 3 to 4 ft wide in a straight path up to the ridge. My crew knows to follow the same path to the ridge that I walk and sound. As I sound the roof using an 8 ft steel New York Hook I am trying to drive it through the decking looking for any soft spots and or a change in the feel as compared to what I initially felt when I first began sounding the roof.
We are sounding for two different things, decking and rafters. We hope that we have a hard time determining where the rafters are because this would be an indication that we had a solid type of decking material which was making it difficult to feel the rafters. Ship-lap and 5/8 or thicker plywood will do this. OSB, smaller plywood or rafters on wider spacing allow so much give that it is easier to identify the rafter's location. I have a hard time identifying how strong the rafters are by sounding them. It is the overall way the roof feels as we walk on it, the amount of spring that will cause me concern.
I in no way mean that you sound the roof with your feet or by bouncing, quite the opposite. We want to walk light and try to stay near the rafter locations if you can find them. But pay attention! You will be able to feel if the rafters have any give it will show up in your knees. If the decking gives I notice it more in my feet or ankles.
If I feel the whole roof give under my legs when I am walking on or near the rafters it is an indication that we are either dealing with 2X4 rafters or rafters have been compromised. As a

rule the roof should not move as a unit under your weight. Some roofs will have a little more give in the middle between the ridge and the outside wall where you get on the roof. Flatter pitched roofs will typically have more give than steeper pitched roofs. You should never get a lot of give and for sure it should not feel like you're walking on a bed. Only training by getting on different types of roofs in non-emergency situations will give you an indication of what to expect as a norm. When you step off of the rafters and you feel the roof flex under your feet this is an indication of weak or thin decking. If the decking when you initially got on the roof was solid but now flexes it should require closer attention. Always sound before you step onto a new area. It is very important that the Captain sound the entire area where you intend to cut prior to beginning.
If at any point I get indications that the roof is bad then we will re-evaluate or options, try another area or notify the IC that we are unable to complete our assignment.

Cutting the Hole:

ASSIGNMENTS:
Captain: (First on, Last off)
• While the crew is setting the ladders I try to get a 360 or as close to it as possible. The Officer is the first one on the roof and the last one off
• The officer scans the roof with the TIC before stepping off on the roof. The TIC will give me an immediate indication of the heat conditions on the roof and allow me to make a plan of where we intend to go, what path we intend to take and it may even give us the area were we need to consider establishing our hole.
• If there is doubt as to where to cut I use the TIC.
• The officer sounds the roof and determines where to place the roof ladder (we plan on placing our roof ladder up wind of our hole) I decide where to cut...
• I back up the saw man always holding onto his bottle and guiding him. As a back- up m an my number one priority is to keep my saw man on the roof and not in it.
• I am responsible for safety and for determining if the hole is adequate by observing the smoke conditions.
• As long as the smoke is pushing under pressure out our vent hole then the hole is too small. If conditions allow we continue to open up.

E/O:
• Sets up the initial ground Ladder
• He decides on the proper location unless I direct him otherwise
• Sets up a second ladder for egress and then The E/O supports the roof crew from the ground primarily acting as an additional Safety Officer...

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FFC aka. CLEAN OUT MAN: (Second on the roof)
• Brings a roof ladder and a flat head axe. If needed he may assist the E/O in setting up the initial access ladder.
• We keep a Rubbish Hook and an 8 ft. New York Hook attached to the top of roof ladder that is designated to go to the roof. The clean-out man will use the rubbish hook to clean out or may use

the 8 ft. New York Hook
FFC follows the Captain to the roof as the second person on the roof and is responsible for setting the roof ladder. After setting the roof ladder he will stage upwind of where we are going to cut. He becomes our initial safety officer. FFC will pay close attention to where the saw man is operating and knows to use his ears when visibility becomes difficult. We train to always keep the saw man and the saw at a safe distance. FFC will move into position to begin cleaning out and punching through when the saw man is about half way back to the roof ladder. He decides where to set up to begin cleaning out the hole based primarily on wind direction. The clean out man knows to leave a buffer of at least one section of un-opened roof between the saw and the hole.
If the clean-out man determines that he needs a bottom cut he will advise the Captain who will then direct the saw man to stop, make the bottom cut and then continue. We find this is almost never required for OSB or Ship-Lap but mostly for plywood or multiple layers of shingles. OSB falls apart on its own. Ship-Lap comes with a seam every 6 to 8 inches. On plywood the seams are 4 feet apart and if the vertical cut does not cross a seam you will have to make a bottom cut. Sheets of plywood are 4X8 ft. and they are installed with the long side running parallel with the ridge. We will never really know where the 4 ft seam will fall until we start opening up, because it is installed starting at the fascia and ends at the ridge.

FFB aka. SAWS: (Last on the roof)
Is responsible for getting a flat head axe and both Vent Chain saws.
The saws will be taken to the base of the access ladder.
One will be started then idled down, the brake engaged and taken to the roof.
The other saw is left on the ground.
FFB/Saws will be the last one on the roof.
We opt for the chain saws over the K-12 or any of the circular vent saws primarily due to safety.
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FFB will begin making the top cut, starting at the roof ladder and cutting away in a down wind direction about 6 inches below the ridge.
After reaching the 9ft. mark, FFB then turns and begins cutting down making vertical cuts 4 ft. long about every 12 to 16 inches apart. FFB continues making these cuts until reaching the roof ladder. (This is called dicing the roof)
FFB then stands by on the roof ladder with the saw idling in case any additional cuts are needed. He now becomes the safety officer.
When the saw man completes cutting, the Captain will then assist in completing the clean-out, always being aware of smoke, fire and structural conditions.

• If we have smoke coming from a ridge vent then we will skip the top cut and go straight to our farthest vertical cut. Smoke coming out of the ridge cap indicates that it is functioning which means that the roof decking stops about two inches before it hits the ridge board which eliminates the need for the top cut.
In this case all of our vertical cuts must start at the ridge board.

Dicing the roof does not require locating the rafters.
• Keeping our cuts less than 16 inches apart helps prevent spanning two rafters regardless of spacing.
• Some of our cuts will open up on their own the others will primarily be knocked in or louvered

up.
• We let the saw do the work for us. We feel that this method is very fast and is less labor intensive than other methods we have tried.
• Instead of spending time locating rafters we go straight to cutting. There may be some additional effort in cutting but much less on clean out.
• As long as we can walk the roof we have consistently and quickly got large holes established using this method.
• We do not worry about knocking in the decking as long as there is not a delay getting to the roof. If the conditions call for hole to be established quickly there will not be anyone in the attic. Anytime the conditions are such that we have to be concerned with hitting firefighters with roofing or a tool in the attic then the conditions do not require for a fast hole.
• If we are sent to cut a hole late into the fire and potentially have fire fighters below us we may alter our method to a louver style cut or we may coordinate with the interior crews so that we can get the hole cut safely.
Cutting with hand tools is required anytime we have a power tool failure.
• The flat head axe used backwards is our tool of choice.
• We change to a top cut and two side cuts and then we pull the decking and hope it is Ship-Lap or OSB. They both will open up much easier than plywood. Ship-lap is rigid so it transfers your effort directly down the board to the nails. With ship lap you are primarily trying to pull the nails on just the one six inch board with a little carry over to one of the two boards it touches. On OSB it brakes apart sometimes into to small of pieces. If it is plywood we may end up having to make additional vertical cuts, extend our initial vertical cuts or make a bottom cut. Plywood is difficult because it bends instead of brakes. It acts as a shock absorber, absorbing your effort instead of transferring it to pulling the nails. Getting plywood to manageable sizes may require more cuts or much more effort.

Determining if the Hole is working:
• We want to establish a LARGE ENOUGH HOLE to be effective!
• We must all understand the purpose and goal of vertical ventilation.
• Just getting on the roof and cutting a hole does not guarantee successful ventilation.
• We all need to know what signs to look for to determine if the hole is meeting the required objective.
• We are constantly monitoring smoke conditions and looking primarily for two noticeable changes that indicate our hole is large enough and working, SPEED and SHAPE.
• SPEED: As we begin to open up our hole the first thing we are watching for is the smoke pushing out of the opening, coming out fast under a lot of pressure.
• SHAPE: Under heavy smoke conditions our smoke column will be a tight V, which will be pushing hard and holding its shape for some distance above the roof.
• As we continue to open up we are looking for the point when the smoke column quits pushing out under pressure, begins to slow down, loses its V shape and begins to roll out of the hole.
• When we get to this point we know we have relieved the pressure in the area where we established our hole. Now we visually check the smoke conditions coming from the eaves. We do not want to see any smoke coming from the eaves or around the perimeter.
• We want to continue to open up until we have no visible smoke coming from the building except out of our hole. This would be an indication that the hole was large enough to exhaust all of the internal pressure. If we still have smoke pushing from other areas we know that we have a confined fire that is not vented into our attic space. This may require an additional hole in

another area,
• It is possible that we could have an effective vent hole prior to opening up our entire 9X4 ft. hole. If that was the case and we had poor roof conditions, then we may leave the roof knowing that the size hole we cut was large enough. Risk vs. Reward would kick in.
• We could also have the reverse happen. We could open up our entire 9 x 4 ft. hole and still have smoke pushing under pressure. When that is the case and the roof is still stable, then you must enlarge your hole until you accomplish your goal or the roof becomes questionable.

A Marginal Hole:
It is possible to have a hole that is large enough to accomplish ventilation at that moment in the fire and later become ineffective.

• This happens primarily when the hole is marginal in size and a delay occurs in extinguishing the fire which allows the fire to increase and exceed the ability of the hole to effectively ventilate the structure.

• A marginal hole can be overwhelmed, becoming ineffective allowing conditions on the interior to rapidly deteriorate becoming very bad causing smoke and heat to bank down. Those on the outside will see this as Smoke and Firefighters come rolling out the doors and windows and the Air Horns begin to blow.

• This is another reason to plan on a BIG hole.

“Think about this”
As you begin to open up your vent hole the first place that anyone would see a change in smoke conditions would be the farthest distance away and the lowest point.
Think of a garden hose with your thumb over it.
As you begin to move your thumb away the distance of travel is shortened because you are beginning to relieve the pressure.
The shape and speed of your stream of water change.
If you want the least pressure, the least distance and the least shape,
Open the hole up!
Roof top vertical ventilation
Follows
The
”Same concept”,
The bigger the hole the less pressure, the less pressure the less distance down and out. Combined with the fact that smoke, fire and heat all want to go up conditions on the interior will improve rapidly when you get a big enough hole established.

TOOLS:
Everyone must be proficient with the hand tools that we take on the roof.
This requires training and practice before hand. None of the tools we use can differentiate between a leg, an arm, or a roof. Very few individuals grow up today using an axe or a saw. Even fewer have ever used them on a roof in zero visibility. It imperative that our firefighters become proficient with the equipment before we lead them onto a roof. With that said we all

know that sometimes the first time some of our firefighters ever use the equipment is during a fire which creates a very unsafe situation for everyone on the roof and below.

The tools that we take to the roof on Ladder 46-A are:

2- Echo Vent Chain Saws: We choose the Vent saw primarily because we believe it is safer on a pitched roof and we have had very good successes with them.
The fact that they have a chain brake and that the chain stops quickly on its own is the #1 contributing factor.

2- Flat Head Axe's: A Flat Head Axe is the most dependable ventilation tool I have ever used. I have never had one that did not start.
They will run out of gas quicker than a saw.
The Flat head Axe does an awesome job of cutting through all types of decking without wedging and getting stuck when it is used backwards using the flat head.
Cutting with the flat head is so efficient that it can compete with the saw for speed and efficiency on some types of roofs but again it runs out of gas early.
We have great success cutting through ¾ inch plywood, shiplap, OSB, metal and even 8 layers of composition shingles on top of ship lap when using the flat head part of the Axe.
Only your initial strokes need to be power strokes (over your head home run swings).
Once you get through the decking the remainder of your strokes can be controlled short fast strokes.
All Flat Head Axes are not created equal !!!!!! There are Flat Head Axes in our department that will not work for cutting a hole.
Always check the flat head, a good Flat Head Axe will have a square flat head which is the widest part of the entire Axe.
If the flat head is tapered then it will not work on the roof. A tapered head will wedge and stick in the decking.
I consider that type of axe, a high dollar door wedge!

1- Pick Head Axe: This is my personal choice because I have always carried it and it has never failed me. I admit that on the roof there are better tools to perform certain task and many other versatile tools in the fire service but my a Pick head Axe has never failed to start and has always worked as long and hard as I have. I can use it to assist in doing every thing except punching through.

1- 6ft. Rubbish Hook: This is our primary tool for opening up and punching through.
We tape it to the tip of the roof ladder that we take up on the roof. It will be pulled off and used by our Clean Out Man/ FFC.
It can also be used as a long foot hold on steep roofs. It can be driven into the roof using an overhead home-run swing, driving the two picks into the roof.
Then the handle is held by a firefighter who is staged on a roof ladder.

1 - 8 ft. Steel New York Hook: I use this to primarily sound the roof. We have it taped to the end of the Roof Ladder and I remove it before stepping onto the roof. It gives me good reach and allows me to identify questionable decking from a greater distance allowing us more time to react.
I am very concerned about OSB decking and how quickly it can be compromised by heat and fire. When the vast majority of our roofs were Ship-Lap, a tool such as an axe was adequate for sounding the roof. Ship-Lap fails more or less one 6 inch wide board at a time where as our experience with OSB is that we have much larger areas that fail all at once requiring earlier detection.
We can also use the New York Hook to open up and punch through.

1-Thermal Imager: I have had great success using the TIC. The more I use it the more confidence I have in it. We have to remember it is only a tool; we must still use our brains, experience and common sense. I will scan the roof from the tip of the ladder before stepping onto the roof. It has really helped on the roofs where we get there when the fire is just getting into the attic and we have no other visible indicators of where to establish our vent hole. I prefer the color mode when it is available.

1- Roof Ladder: We place a roof ladder on every roof. We do not necessarily work off of it BUT it is there as our safety net and to stage our tools.
We always have a six foot rubbish hook and an 8 ft. New York Hook taped to the top of this ladder.

Other Types of roofs:

• Spanish Tile, Slate and Metal all have one thing in common they are slick.

• Spanish tile: Either break them off or pull them off, pulling from the bottom edge up they come off like fish scales. Then brake or cut your 1x4 slats or if mounted on plywood or ship-lap then you still have to cut a hole. Be aware of falling tiles hitting ff's below you. Tiles are very heavy.

• Slate: Very slick due to algae growth. Vent similar to Spanish tile. Not as heavy but can be sharp. Everyone I have ever vented were mounted on 1x4 inch slats and no problem except footing.

• Metal: Be sure of where you cut! Safety Consideration: If you cut in the wrong place it will fold up and dump you inside. Look for the screws and cut on the other side of the screws from where you are standing. Very difficult in zero visibility this is the roof I am most concerned about and which I have the least experience.

Summary:
Vertical ventilation can be one of the most effective forms of ventilation when done correctly. Is also one of the most dangerous to perform? Having a plan, consistently reviewing and practicing the plan can make it safer. Knowing when, where and how to ventilate, knowing and understanding the concept , building construction, fire behavior and how to read both a roof and

smoke are all key factors in becoming effective, efficient and safe while performing roof top ventilation.

Be Trained, Be Safe!
Jenkins

May 4, 2016

Roof Top Ventilation.

Warning !
This will not be a quick read.
Copy it , save it, read it, and practice it, if you are interested in being an effective, efficient and Safe Hole Cutter!

Your Engine crews and trapped occupants will respect and appreciate you for it!

*Like all aspects of our profession most of what we do is situational. We try to train and drill for all situations, however, we must be able to improvise, alter, and implement new plans on the run as the situation changes. Being able to think on the go and Great common sense are extremely important for a Firefighter.

*Roof top vertical ventilation is basic Fire Science 101. Fire, smoke, and heat all want to do the same thing; they all want to go up. When they cannot find a way up and out they will begin to travel laterally searching for the area of least resistance to escape.
When they reach an obstruction to their lateral movement they then begin to bank or travel down, called mushrooming.
Roof top ventilation takes advantage of this principal of fire behavior. When we cut a hole in the roof at the highest point and punch through the ceiling we give all three exactly what they want, a path of least resistance up and out. Conditions on the interior improve incredibly fast as fresh air rushes in from the below to replace the void left as the fire, smoke, and heat rush out.

Have A Plan!

To consistently be effective performing roof top ventilation requires a well thought out plan. That plan must have pre-assigned tool assignments and job responsibilities for everyone on the Ladder Truck.
You must have a pre-conceived idea on how to cut the hole, and the minimum size for the hole that you intend to establish.
With a well thought out, practiced, and executed plan you should be able to perform effective vertical ventilation the majority of the time with very little additional communication and or instruction.
Without a plan training becomes much less effective, therefore your execution will suffer. When execution suffers then ventilation suffers, which in turn literally causes firefighters and civilians to suffer from the lack of a plan.

We would like to always have a 4/12 pitched composition shingle roof with 2X6 rafters on 18 inch centers with ship-lap decking and a moderate cross wind blowing away from our Roof Ladder.
Under these conditions, moderate smoke and fire in the attic, solid structural integrity, and good visibility we should be able to walk the roof!
When we can walk the roof we feel confident that we should be able to effectively and efficiently establish our 9 X 4 foot ventilation hole.

What happens though?
When you change the roof pitch to anything greater than a 6/12 pitch or the roof to slate, tile or metal, and you become tied to the roof ladder or must ride the ridge?
What happens when the fire and smoke conditions become extreme, wind becomes a concern, or your visibility goes to nearly zero?
Every seasoned hole cutter will tell you the same thing: Your hole gets smaller!

This is why there should be a plan for:
Every roof type:
Composition Shingle
Spanish Tile
Slate
Metal
Pitched – Flat
Residential – Commercial
Light weight truss

And under the following conditions:
Cutting from a walk-able roof.
Cutting from the ridge Cutting off of the roof ladder or Ladders
Cutting off the aerial or tower

Don't get locked into a plan thinking that it will work for you forever. Plans need to be constantly scrutinized for their effectiveness.
What worked well for years may become less effective for numerous reasons.
Changes in construction, new and better equipment, or new ideas are reasons to re-evaluate your plan.
Your crew may change or evolve into more seasoned professionals which are great reasons to alter your plans to become more safe, efficient, and effective.
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A few absolutes;
Plan on cutting a big hole, a 9ft.X 4ft. minimum.
Put a roof ladder on the roof as a safety net.
(We do not work off of roof ladders as a rule but we have a large number of OSB decked roofs in our territory.
They have a high failure rate and the Roof Ladder has saved us several times
It also makes an excellent staging area for tools)

Plug in our regulator prior to stepping on the ladder
(The smoke today is some really bad stuff)
Have a plan and review it with your crew on a regular basis.
(We can never be too familiar with our plan. Unlike on all the training videos most of our work is done with limited or no visibility
Have pre-assigned jobs and tools

Safety:
An Officer's number one responsibility is safety.
That means making the right decisions no matter how difficult it is. Sometimes that means putting the right person in the right spot regardless of rank. If an Officer finds that they have less experience than one of their crew then decide who is best suited to make life or death decisions. You will still be responsible and still be in charge but until you have enough experience to make those decisions chose someone who can.
Safety should always be our number one goal in all aspects of our job.
Firefighting is a dangerous job but we can make it safer by training.
Training allows us to become proficient, effective, and as knowledgeable as possible.
We must always remember that ventilating a structure makes it much safer for everyone!
.
The Officer should do the following or see that the most qualified person on the crew does the following.

Be the first one on the Roof:
Confirm the structural integrity of the roof.
Sound a larger area than your hole.
Choose the proper location for the hole. .
Back-up the firefighter cutting the hole
Constantly monitor the conditions
Confirm that the hole is effectively ventilating the structure.
Be the Last one off the roof

Safety on a bad roof:
We all know that the ridge on our standard framed roofs is one of the strongest areas on a roof. It is strong because it is normally a 2X6 or 2X8 that runs the length of the roof and is sandwiched in between rafters from both sides. The ridge is where we all set our sights when we are looking for a solid area to walk or secure our roof ladder. It is the area we trust the most on marginal or very steep roofs. Think of how many times you have thought. " If we can only make it to the ridge we will be ok "
Be Aware this only pertains to standard framed roofs.
It Does Not Pertain to Light Weight Truss Roofs. On light weight truss roofs the ridge may actually be one of the less secure areas.
There is no ridge board on light weight truss. There are normally braces near the ridge but they are normally located several feet down from the ridge.
If you stand on a light weight truss ridge you are literally standing on the edge of two sheets of roof decking. So pay attention!
If you ever find yourself on a bad roof and you still need to get the hole established, get down on your knees. This spreads your weight out and puts your hands only about six inches from the

roof instead of 3 feet. If you were to begin falling through you can spread out much quicker to stop your fall. On our knees is the same way we cut steep roofs.

If you have a roof start to come apart on you do not try to walk or run. Roll away from the area and hopefully to a solid area. Away does not mean down the roof. This would be a challenge of your good common sense. The most critical thing you can do when a roof suddenly starts to go bad is spread your weight out. Then get your crew and yourself to a safe area, re-evaluate the situation and make the appropriate adjustments. Often this will mean abandon the roof but there are times on large roofs that it simply means get to a safe area and complete your assignment. Even when an area becomes unsafe to be on, it does not mean that it will necessarily self-ventilate. We find roofs with 8 and 10 layers of shingles that even though the decking and rafters are compromised the shingles will not ventilate. These roofs still need a hole if we can find a safe area as close as possible to being over the fire. This statement does not mean that you have to be directly over the fire if that area is unsafe. Choose an area as close as possible that is sound.

Why not set a Roof Ladder as a rule? If you believe any of what you have just read or if you believe a roof could suddenly become bad, why wouldn't you?

The Concept!

Plan on a Big Hole!
Our basic plan is to cut a hole as big as we can, as fast as we safely can and at the highest point over the fire as we safely can.
If you plan BIG and you have to leave the roof early you may still have an adequate size hole. If you do not plan big you set yourself up to fail.

Today, effective ventilation is crucial for a successful fire attack.
Fires today produce, according to our CE class, up to 500 times more smoke than fires 20 years ago. That number is definitely on the high end but according to our first-hand experience the fires today do burn hotter and produce considerably more smoke. This is why we always plan on cutting a big hole.
Thirty four years ago the minimum size hole recommended for a residential fire was a 4x4
Today most experts agree that our fires today are different and produce much more smoke but there are those who still teach to cut 4x4 ft holes.
Fortunately there are those who recommend bigger holes for today's fires and push for a 36 square ft. hole as the minimum for residential fires.
We agree with this and have found that a 9x4 ft. hole is very effective for the majority of our type of residential fires in District 46.
While attempting to achieve a 36 Square foot vent opening we drilled on cutting both a 6X6 and a 9X4 foot hole.
We found that a 9 ft. X 4 ft. was quicker and easier to consistently clean out from either side of the ridge. Trying to open up a 6X6 hole required either reaching out over the hole or moving around to the other side of the hole. We try to limit the amount of movement around the hole and on the roof and by cutting a 9X4 we accomplish our goal.

The Wind!
Next to the structural integrity of the roof the wind is our biggest concern.
We prefer no wind or a cross wind when we cut but that will not always be the case.
When the wind is head-on blowing directly across the ridge our job becomes more difficult to perform properly. If we choose to operate out of the smoke then our choice is to cut from the ridge which means it is much more difficult to get a big hole. If the roof is walk-able and we choose to walk the roof and work from below our hole then we work in the smoke and limited visibility. This is my personal choice even though it puts my saw man and me working in the smoke. This position allows us to establish a big hole and my clean-out man to operate from the ridge with the wind at his back. When working below the hole we must be extra observant of the wind, smoke and fire always working back toward our roof ladder and safety.
There are studies that give different recommendations on wind speed verses roof pitch. I find their test to be too broad and confusing to use on the fire ground...
We pay close attention to wind speed and direction on a daily basis and remind each other any time we have more than a light breeze.
On any pitched roof 10 mph is our cut off point at which we will no longer cut on the windward side. At 10 mph the smoke leaving the building will be laying at about a 70 degree angle. (90 degrees being straight up and down.) I always think of it as the climbing angle for a ladder. Any wind laying flatter than 70 degrees will require us to cut on the leeward side. At this wind speed we feel that we must closely monitor what the smoke is doing as we begin to open up. If we begin to get unfavorable smoke movement we may discontinue opening up and consider another option. We do not want wind blowing into the hole. This could have serious negative consequences for interior crews. It could cause the thermal column, smoke, fire and heat to be pushed down onto the interior crews causing everything to light off.
Bigger is Better, Except! When the wind changes direction and begins to blow into the hole creating a dangerous situation.
We would prefer to Never cut a hole on the windward side into any wind over 10 mph's
You are better off not cutting the hole at all rather than cutting one into a questionable wind.

A personal observation:

• I have never seen Super Black Smoke that did not come with Super High Heat!!!

• Smoke IS Fuel! Rushing into a heavily charged building without venting is comparable to standing in the middle of a Diesel fuel spill with ignition sources all around you! Think, would you do that?

• You need to vent opposite of your entry point before you enter the building.
If you do not, wherever you enter now becomes the vent and the entrance for the structure!
Sometimes there are no other options. In that case you had better know what to expect and have a plan.
Stay low and move fast. You must locate the fire and begin your attack quickly because you have just entered the vent hole.
It is comparable to cutting a hole in a roof and then repelling into it. Would you do that unless you had no other choice?

If you have trouble finding the fire
And
You entered its only vent
It will find you
Or
Worse!
It could circle around you going straight to the vent, cutting off your only exit never giving you an opportunity to attack it.
This is a very hazardous and complicated situation.

You better be ready to overwhelm the fire!
If not
It will overwhelm you!!

This is no place for those who believe in
low pressure and low gpm.
Making the decision to go to the roof!
Let the building, smoke, and fire conditions dictate whether we are going to the roof, using a fan, or both. You have to learn to read the smoke. Location, color, volume and speed all are indicators of the interior conditions which dictate ventilation choices. Heavy black smoke pushing out under pressure from all over the building, even if there is none pushing from the eaves, is a dead giveaway that we are going to the roof as long as the roof is stable?
Those conditions call for roof top ventilation if at all possible. From my observation, heavy black smoke under pressure and PPV do not work well together. Heavy black smoke is fuel that is to rich to burn and only needs oxygen. We know there is an ignition source somewhere in the structure and unless we are trying to expedite the smoke lighting off, leave the fan off. Under those conditions the fan will act as a turbo charger pushing into the fuel/smoke column the one missing ingredient to make fire, oxegen.

Heavy black smoke pushing out of the eaves and all of the roof openings (even with only moderate to no smoke coming from the rest of the structure) is a huge indicator that the fire is well into the attic. It is critical that we get to the roof and get roof top ventilation established quickly. Interior crews may be rushing in under moderate conditions and if they begin to pull ceiling before the roof is opened up they will have prematurely vented the attic onto themselves which can have very negative consequences. Their moderate interior conditions can suddenly become untenable. Pulling ceiling under heavy fire and smoke conditions prior to roof top ventilation will bring smoke, heat and fire under pressure down on you and others. A well-disciplined crew will wait until roof top ventilation is complete before opening up under these conditions.

No smoke from the eaves and only moderate smoke coming from the structure: I will consider the fan as long as we can vent somewhere near the fire.

No smoke from the eaves but moderately heavy smoke coming from the structure but with visible fire at or near an opening: I will consider venting the opening closest to the fire and using a fan.

With the two previous conditions plus smoke pushing up from the eaves: we would set up a fan, complete a primary search, and then go to the roof.

With no smoke from the eaves but moderately heavy smoke coming from the structure and no obvious vent location: heavily consider going to the roof.

On two story Balloon construction with any significant amount of fire on the first floor, we are going to the roof. We want to vent the roof and take the fire straight up the wall and into the attic. This will keep it from traveling laterally as it tries to find a way up and out of the house. If I know its coming to the attic then all we have to do is pull ceiling, put it out, get in the wall, and mop it up. If you fail to cut a hole and the fire gets in the wall without any direction, it will travel all over the house trying to find a way up and out! If that happens, you better be ready to work!

Reading the roof:
Size Up, Size Up, and More Size Up. It actually begins when you are dispatched and continues until you leave the scene. It is absolutely critical for safety and to ensure we get the job done. As you initially arrive on scene and then as you do your 360, you should be sizing up the roof and the structure but especially the roof. As you climb the ladder and before you step off on the roof, again size it up. I will use the TIC but most of all I am visually reading the roof and its condition.
When I'm reading the roof my number one concern is bad decking!
I am certainly concerned when my rafters and ridge board are going bad as we all should be but weak rafters with solid decking will normally give a slight warning before giving way.
Weak or compromised decking regardless of how strong your rafters are can dump you in with no way out and with no warning.
The two primary conditions to look for that indicate bad decking are:
*The roof starting to sag and show the rafter locations. This is a sign that the decking is getting bad!
*Smoke pushing out through the shingles this is a concrete sign that the decking is being compromised.
Also be looking for:
*Is fire already in the attic?
*Is the fire isolated to only a portion of the attic or does it have total control of the attic?
*Is the roof starting to sag between the ridge and the outside wall plate? This is a sign that the rafters are starting to get weak or fail.
*Is the roof starting to sag on the ridge? Could be an indicator that the rafters on both sides and the ridge board are getting bad.
You can have these no go conditions on part of the roof and yet have a very solid stable roof just a few feet away which will still allow you to complete your assigned task. You will discover this in your Size Up and by reading the roof. Don't abandon roof top ventilation because the roof directly over the fire is bad. Move to another area read and sound the roof. Size it up. Remember the rule. "As close over the fire as you safely can. The crew below you and any trapped civilians need ventilation.

Sounding the Roof:

The Officer sounds the roof confirming a safe route to the ridge. I sound about 3 to 4 ft wide in a straight path up to the ridge. My crew knows to follow the same path to the ridge that I walk and sound. As I sound the roof using an 8 ft steel New York Hook I am trying to drive it through the decking looking for any soft spots and or a change in the feel as compared to what I initially felt when I first began sounding the roof.
We are sounding for two different things, decking and rafters. We hope that we have a hard time determining where the rafters are because this would be an indication that we had a solid type of decking material which was making it difficult to feel the rafters. Ship-lap and 5/8 or thicker plywood will do this. OSB, smaller plywood or rafters on wider spacing allow so much give that it is easier to identify the rafter's location. I have a hard time identifying how strong the rafters are by sounding them. It is the overall way the roof feels as we walk on it, the amount of spring that will cause me concern.
I in no way mean that you sound the roof with your feet or by bouncing, quite the opposite. We want to walk light and try to stay near the rafter locations if you can find them. But pay attention! You will be able to feel if the rafters have any give it will show up in your knees. If the decking gives I notice it more in my feet or ankles.
If I feel the whole roof give under my legs when I am walking on or near the rafters it is an indication that we are either dealing with 2X4 rafters or rafters have been compromised. As a rule the roof should not move as a unit under your weight. Some roofs will have a little more give in the middle between the ridge and the outside wall where you get on the roof. Flatter pitched roofs will typically have more give than steeper pitched roofs. You should never get a lot of give and for sure it should not feel like you're walking on a bed. Only training by getting on different types of roofs in non-emergency situations will give you an indication of what to expect as a norm. When you step off of the rafters and you feel the roof flex under your feet this is an indication of weak or thin decking. If the decking when you initially got on the roof was solid but now flexes it should require closer attention. Always sound before you step onto a new area. It is very important that the Captain sound the entire area where you intend to cut prior to beginning.
If at any point I get indications that the roof is bad then we will re-evaluate or options, try another area or notify the IC that we are unable to complete our assignment.

Cutting the Hole:

ASSIGNMENTS:
Captain: (First on, Last off)
• While the crew is setting the ladders I try to get a 360 or as close to it as possible. The Officer is the first one on the roof and the last one off
• The officer scans the roof with the TIC before stepping off on the roof. The TIC will give me an immediate indication of the heat conditions on the roof and allow me to make a plan of where we intend to go, what path we intend to take and it may even give us the area were we need to consider establishing our hole.
• If there is doubt as to where to cut I use the TIC.
• The officer sounds the roof and determines where to place the roof ladder (we plan on placing our roof ladder up wind of our hole) I decide where to cut...
• I back up the saw man always holding onto his bottle and guiding him. As a back- up m an my number one priority is to keep my saw man on the roof and not in it.

• I am responsible for safety and for determining if the hole is adequate by observing the smoke conditions.
• As long as the smoke is pushing under pressure out our vent hole then the hole is too small. If conditions allow we continue to open up.

E/O:
• Sets up the initial ground Ladder
• He decides on the proper location unless I direct him otherwise
• Sets up a second ladder for egress and then The E/O supports the roof crew from the ground primarily acting as an additional Safety Officer...

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FFC aka. CLEAN OUT MAN: (Second on the roof)
• Brings a roof ladder and a flat head axe. If needed he may assist the E/O in setting up the initial access ladder.
• We keep a Rubbish Hook and an 8 ft. New York Hook attached to the top of roof ladder that is designated to go to the roof. The clean-out man will use the rubbish hook to clean out or may use the 8 ft. New York Hook
FFC follows the Captain to the roof as the second person on the roof and is responsible for setting the roof ladder. After setting the roof ladder he will stage upwind of where we are going to cut. He becomes our initial safety officer. FFC will pay close attention to where the saw man is operating and knows to use his ears when visibility becomes difficult. We train to always keep the saw man and the saw at a safe distance. FFC will move into position to begin cleaning out and punching through when the saw man is about half way back to the roof ladder. He decides where to set up to begin cleaning out the hole based primarily on wind direction. The clean out man knows to leave a buffer of at least one section of un-opened roof between the saw and the hole.
If the clean-out man determines that he needs a bottom cut he will advise the Captain who will then direct the saw man to stop, make the bottom cut and then continue. We find this is almost never required for OSB or Ship-Lap but mostly for plywood or multiple layers of shingles. OSB falls apart on its own. Ship-Lap comes with a seam every 6 to 8 inches. On plywood the seams are 4 feet apart and if the vertical cut does not cross a seam you will have to make a bottom cut. Sheets of plywood are 4X8 ft. and they are installed with the long side running parallel with the ridge. We will never really know where the 4 ft seam will fall until we start opening up, because it is installed starting at the fascia and ends at the ridge.

FFB aka. SAWS: (Last on the roof)
Is responsible for getting a flat head axe and both Vent Chain saws.
The saws will be taken to the base of the access ladder.
One will be started then idled down, the brake engaged and taken to the roof.
The other saw is left on the ground.
FFB/Saws will be the last one on the roof.
We opt for the chain saws over the K-12 or any of the circular vent saws primarily due to safety.
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FFB will begin making the top cut, starting at the roof ladder and cutting away in a down wind direction about 6 inches below the ridge.

After reaching the 9ft. mark, FFB then turns and begins cutting down making vertical cuts 4 ft. long about every 12 to 16 inches apart. FFB continues making these cuts until reaching the roof ladder. (This is called dicing the roof)
FFB then stands by on the roof ladder with the saw idling in case any additional cuts are needed. He now becomes the safety officer.
When the saw man completes cutting, the Captain will then assist in completing the clean-out, always being aware of smoke, fire and structural conditions.

• If we have smoke coming from a ridge vent then we will skip the top cut and go straight to our farthest vertical cut. Smoke coming out of the ridge cap indicates that it is functioning which means that the roof decking stops about two inches before it hits the ridge board which eliminates the need for the top cut.
In this case all of our vertical cuts must start at the ridge board.

Dicing the roof does not require locating the rafters.
• Keeping our cuts less than 16 inches apart helps prevent spanning two rafters regardless of spacing.
• Some of our cuts will open up on their own the others will primarily be knocked in or louvered up.
• We let the saw do the work for us. We feel that this method is very fast and is less labor intensive than other methods we have tried.
• Instead of spending time locating rafters we go straight to cutting. There may be some additional effort in cutting but much less on clean out.
• As long as we can walk the roof we have consistently and quickly got large holes established using this method.
• We do not worry about knocking in the decking as long as there is not a delay getting to the roof. If the conditions call for hole to be established quickly there will not be anyone in the attic. Anytime the conditions are such that we have to be concerned with hitting firefighters with roofing or a tool in the attic then the conditions do not require for a fast hole.
• If we are sent to cut a hole late into the fire and potentially have fire fighters below us we may alter our method to a louver style cut or we may coordinate with the interior crews so that we can get the hole cut safely.
Cutting with hand tools is required anytime we have a power tool failure.
• The flat head axe used backwards is our tool of choice.
• We change to a top cut and two side cuts and then we pull the decking and hope it is Ship-Lap or OSB. They both will open up much easier than plywood. Ship-lap is rigid so it transfers your effort directly down the board to the nails. With ship lap you are primarily trying to pull the nails on just the one six inch board with a little carry over to one of the two boards it touches. On OSB it brakes apart sometimes into to small of pieces. If it is plywood we may end up having to make additional vertical cuts, extend our initial vertical cuts or make a bottom cut. Plywood is difficult because it bends instead of brakes. It acts as a shock absorber, absorbing your effort instead of transferring it to pulling the nails. Getting plywood to manageable sizes may require more cuts or much more effort.

Determining if the Hole is working:
• We want to establish a LARGE ENOUGH HOLE to be effective!
• We must all understand the purpose and goal of vertical ventilation.

• Just getting on the roof and cutting a hole does not guarantee successful ventilation.
• We all need to know what signs to look for to determine if the hole is meeting the required objective.
• We are constantly monitoring smoke conditions and looking primarily for two noticeable changes that indicate our hole is large enough and working, SPEED and SHAPE.
• SPEED: As we begin to open up our hole the first thing we are watching for is the smoke pushing out of the opening, coming out fast under a lot of pressure.
• SHAPE: Under heavy smoke conditions our smoke column will be a tight V, which will be pushing hard and holding its shape for some distance above the roof.
• As we continue to open up we are looking for the point when the smoke column quits pushing out under pressure, begins to slow down, loses its V shape and begins to roll out of the hole.
• When we get to this point we know we have relieved the pressure in the area where we established our hole. Now we visually check the smoke conditions coming from the eaves. We do not want to see any smoke coming from the eaves or around the perimeter.
• We want to continue to open up until we have no visible smoke coming from the building except out of our hole. This would be an indication that the hole was large enough to exhaust all of the internal pressure. If we still have smoke pushing from other areas we know that we have a confined fire that is not vented into our attic space. This may require an additional hole in another area,
• It is possible that we could have an effective vent hole prior to opening up our entire 9X4 ft. hole. If that was the case and we had poor roof conditions, then we may leave the roof knowing that the size hole we cut was large enough. Risk vs. Reward would kick in.
• We could also have the reverse happen. We could open up our entire 9 x 4 ft. hole and still have smoke pushing under pressure. When that is the case and the roof is still stable, then you must enlarge your hole until you accomplish your goal or the roof becomes questionable.

A Marginal Hole:
It is possible to have a hole that is large enough to accomplish ventilation at that moment in the fire and later become ineffective.

• This happens primarily when the hole is marginal in size and a delay occurs in extinguishing the fire which allows the fire to increase and exceed the ability of the hole to effectively ventilate the structure.

• A marginal hole can be overwhelmed, becoming ineffective allowing conditions on the interior to rapidly deteriorate becoming very bad causing smoke and heat to bank down. Those on the outside will see this as Smoke and Firefighters come rolling out the doors and windows and the Air Horns begin to blow.

• This is another reason to plan on a BIG hole.

“Think about this”
As you begin to open up your vent hole the first place that anyone would see a change in smoke conditions would be the farthest distance away and the lowest point.
Think of a garden hose with your thumb over it.
As you begin to move your thumb away the distance of travel is shortened because you are beginning to relieve the pressure.

The shape and speed of your stream of water change.
If you want the least pressure, the least distance and the least shape,
Open the hole up!
Roof top vertical ventilation
Follows
The
”Same concept”,
The bigger the hole the less pressure, the less pressure the less distance down and out. Combined with the fact that smoke, fire and heat all want to go up conditions on the interior will improve rapidly when you get a big enough hole established.

TOOLS:
Everyone must be proficient with the hand tools that we take on the roof.
This requires training and practice before hand. None of the tools we use can differentiate between a leg, an arm, or a roof. Very few individuals grow up today using an axe or a saw. Even fewer have ever used them on a roof in zero visibility. It imperative that our firefighters become proficient with the equipment before we lead them onto a roof. With that said we all know that sometimes the first time some of our firefighters ever use the equipment is during a fire which creates a very unsafe situation for everyone on the roof and below.

The tools that we take to the roof on Ladder 46-A are:

2- Echo Vent Chain Saws: We choose the Vent saw primarily because we believe it is safer on a pitched roof and we have had very good successes with them.
The fact that they have a chain brake and that the chain stops quickly on its own is the #1 contributing factor.

2- Flat Head Axe’s: A Flat Head Axe is the most dependable ventilation tool I have ever used. I have never had one that did not start.
They will run out of gas quicker than a saw.
The Flat head Axe does an awesome job of cutting through all types of decking without wedging and getting stuck when it is used backwards using the flat head.
Cutting with the flat head is so efficient that it can compete with the saw for speed and efficiency on some types of roofs but again it runs out of gas early.
We have great success cutting through ¾ inch plywood, shiplap, OSB, metal and even 8 layers of composition shingles on top of ship lap when using the flat head part of the Axe.
Only your initial strokes need to be power strokes (over your head home run swings).
Once you get through the decking the remainder of your strokes can be controlled short fast strokes.
All Flat Head Axes are not created equal !!!!!! There are Flat Head Axes in our department that will not work for cutting a hole.
Always check the flat head, a good Flat Head Axe will have a square flat head which is the widest part of the entire Axe.
If the flat head is tapered then it will not work on the roof. A tapered head will wedge and stick in the decking.
I consider that type of axe, a high dollar door wedge!

1- Pick Head Axe: This is my personal choice because I have always carried it and it has never failed me. I admit that on the roof there are better tools to perform certain task and many other versatile tools in the fire service but my a Pick head Axe has never failed to start and has always worked as long and hard as I have. I can use it to assist in doing everything except punching through.

1- 6ft. Rubbish Hook: This is our primary tool for opening up and punching through.
We tape it to the tip of the roof ladder that we take up on the roof. It will be pulled off and used by our Clean Out Man/ FFC.
It can also be used as a long foot hold on steep roofs. It can be driven into the roof using an overhead home-run swing, driving the two picks into the roof.
Then the handle is held by a firefighter who is staged on a roof ladder.

1 - 8 ft. Steel New York Hook: I use this to primarily sound the roof. We have it taped to the end of the Roof Ladder and I remove it before stepping onto the roof. It gives me good reach and allows me to identify questionable decking from a greater distance allowing us more time to react.
I am very concerned about OSB decking and how quickly it can be compromised by heat and fire. When the vast majority of our roofs were Ship-Lap, a tool such as an axe was adequate for sounding the roof. Ship-Lap fails more or less one 6 inch wide board at a time where as our experience with OSB is that we have much larger areas that fail all at once requiring earlier detection.
We can also use the New York Hook to open up and punch through.

1-Thermal Imager: I have had great success using the TIC. The more I use it the more confidence I have in it. We have to remember it is only a tool; we must still use our brains, experience and common sense. I will scan the roof from the tip of the ladder before stepping onto the roof. It has really helped on the roofs where we get there when the fire is just getting into the attic and we have no other visible indicators of where to establish our vent hole. I prefer the color mode when it is available.

1- Roof Ladder: We place a roof ladder on every roof. We do not necessarily work off of it BUT it is there as our safety net and to stage our tools.
We always have a six foot rubbish hook and an 8 ft. New York Hook taped to the top of this ladder.

Other Types of roofs:

• Spanish Tile, Slate and Metal all have one thing in common they are slick.

• Spanish tile: Either break them off or pull them off, pulling from the bottom edge up they come off like fish scales. Then brake or cut your 1x4 slats or if mounted on plywood or ship-lap then you still have to cut a hole. Be aware of falling tiles hitting ff's below you. Tiles are very heavy.

• Slate: Very slick due to algae growth. Vent similar to Spanish tile. Not as heavy but can be sharp. Everyone I have ever vented were mounted on 1x4 inch slats and no problem except footing.

• Metal: Be sure of where you cut! Safety Consideration: If you cut in the wrong place it will fold up and dump you inside. Look for the screws and cut on the other side of the screws from where you are standing. Very difficult in zero visibility this is the roof I am most concerned about and which I have the least experience.

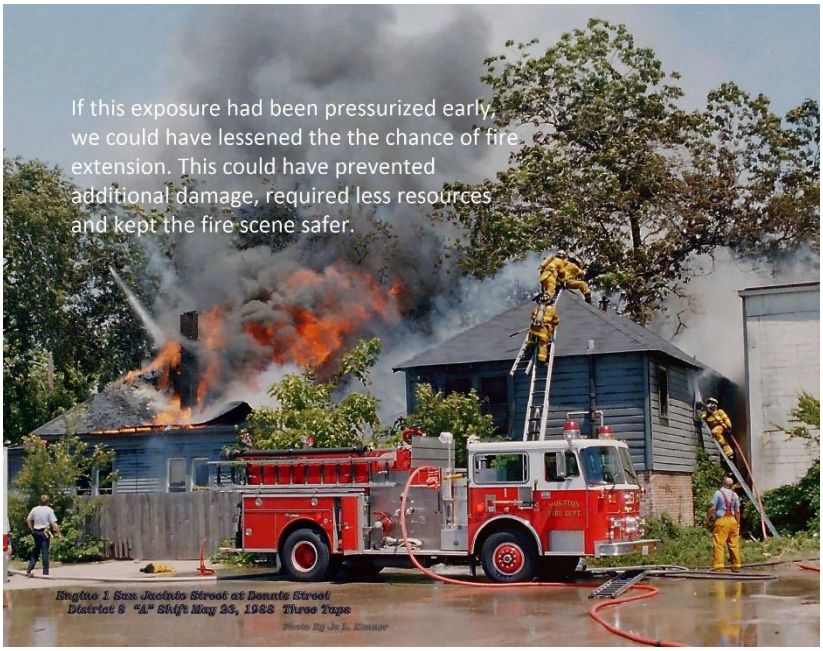
Summary:
Vertical ventilation can be one of the most effective forms of ventilation when done correctly. Is also one of the most dangerous to perform? Having a plan, consistently reviewing and practicing the plan can make it safer. Knowing when, where and how to ventilate, knowing and understanding the concept , building construction, fire behavior and how to read both a roof and smoke are all key factors in becoming effective, efficient and safe while performing roof top ventilation.

Be Trained, Be Safe!
Jenkins

June 29, 2017

Positive Pressure for Exposure Protection
A question came up about Positive Pressure for Exposure Protection. Where and how is it used? Here is my answer.
What is an Exposure?
I consider it to be anything that is not on fire but is in the possible path of the fire itself or its effects.
The most common that I see are: Apartments, Strip Centers, Attached Garage fires, Attic fires, Buildings near the fire and Office buildings. Whatever is not on fire, and can be pressurized, should be starting with the highest area nearest the fire. Most of our exposure fires that are at the same level as the primary fire begin in the attics, cocklofts or crawl spaces. These areas are not room and content fires. They are structure fires and require much more effort and water once

they get going! It is much easier to prevent them from catching than it is to put them out.



How does it work?

Let me start with the principle, Fire Smoke and heat all want to go up but they will go to the area of least resistance. This is important! We want to use resistance in the form of pressure to slow down and or prevent the spread/extension of fire. If we control, the smoke we can control the fire.

Fire spreads by four methods: conduction, radiation, direct flame contact and convection. When we are talking about Exterior Fire Spread it is Radiation and Direct Flame contact that are our main concerns. In that case water is our most useful weapon as it has been.

What we are discussing here is Fire Spread on the Interior. When we are speaking of interior fire spread, convection is our biggest concern. When smoke and superhot air flow into a void or a space and then find the right combination of oxygen and an ignition source we can suddenly have fire extension over a large area. All the other methods of fire spread are a concern but not to the extent that convection is. Consider a 300 ft. long apartment building with a common attic. When you pull up you have fire on the second floor, B side, and you have heavy smoke pushing out the D-side gable 300 ft. away. It is Convection that is our greatest concern for rapid and possibly explosive fire spread. Now if we can stop or slow Convection/Heat/Smoke, smoke being fuel, then we can begin to control the fire. We can control convection with pressure!

To pressurize we need to:

Choose an inlet and set the fan so that you get a seal around the opening.

Do not vent the structure or create any other openings.

We want to build up a positive pressure inside the structure.

We must expose any voids where the fire could extend such as the attic, ceiling or wall space. If fire gets to these voids and begins to burn through, this opening now becomes the vent hole. Now the air/pressure will move to this area of least resistance and begin to vent out. This stops the smoke or heat from filling the void. Now we only deal with direct flame contact and radiation.

This tactic does not elimanate the need for hose lines it just buys us time and limits fire growth. We can cover a much greater area with the fan and commit fewer firefighters. Ideally we get the building pressurized before the fire enters the interior. Although, we have had it work very well with minimal fire involvement, there will always be a point where too much fire involvement will exclude using the fan or require some extinguishment in conjunction with the fan. If the fire has already made its way into an exposure and there is a vent hole then the fan being set up is the beginning to a positive pressure attack.

Controlled acceleration of the fan is always a wise idea if we are uncertain of fire involvement

and vent openings. Controlling our acceleration gives us time to react to unfavorable reaction to pressurization.

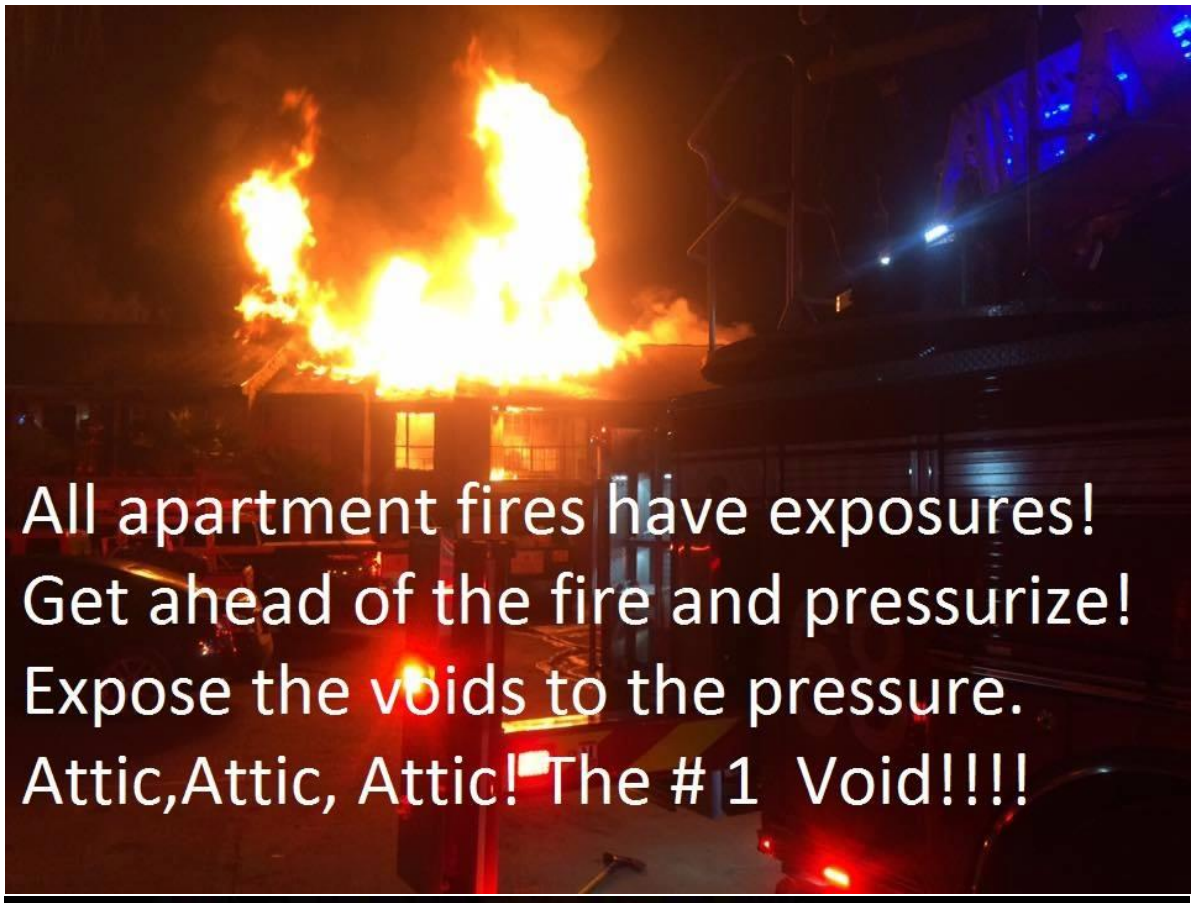
The following are some examples where we used this tactic with incredible results.
This was the first time we ever tried it.
We had one totally involved one story house with two catching.

While a line was being deployed, we entered the home, got our search and confirmed no extension in the living space. We punched a small hole in the attic and encountered heavy brown smoke pushing from the hole. I called for the fan to be cranked and almost instantly the smoke stopped. We opened the attic and found no smoke or fire. What we did find were three separate areas on the bottom side of the decking between the rafters that had light charring. With my two firefighters and myself in the attic, we had the fan start and stopped a total of 8 times to see the effects. Every time the fan would stop we would instantly get smoke followed by fire coming in the same three places. Every time the fan would start the smoke and fire would leave with absolutely no water being applied.
This would not have been possible if the fire had already gained control of the area, we caught it just right. If we had been sooner there would have never been any smoke or fire in the attic.

We had a garage fire that was attached to a large two story house by a breeze way, we pressurized the house and attic and exposed the wall where the breezeway attached to the house. The wall was hot but we never had any smoke come into the house.
We had a two-story apartment building with a pitched roof. Upon arrival, we had six of eight units and the attic burning, three up and three down. This building connected to another three-story building with about 12 units. Command had called for fans to be brought up to pressurize the three-story units that adjoined the two-story building. The fans never had to be put into service because the fire was stopped prior to reaching the three-story building.
If the fire had gotten to the three-story building with the fans pressurizing the connecting walls, ceiling voids, attic space and sub-flooring voids the smoke and fire would have been stopped or at least slowed down giving a better chance of gaining control.

4. We had a nearly 100-year-old church that sat around 5000 people. The sanctuary had a two-story class room building attached at the Charlie Delta corner. The sanctuary dropped down

below grade giving it about 30 to 40 feet between the floor of the sanctuary and the bottom of the suspended ceiling. The void above the suspended ceiling was about 10 feet high.
On arrival, the first Engine Company had fire from the first and second floor of the Charlie side of the class rooms. The first & second Engines and first Truck were all assigned to attack the fire to try and prevent it from extending into the sanctuary. Upon my arrival, my assignment was to coordinate Positive Pressure in the sanctuary. When we made entry into the sanctuary we found moderate smoke banking down to within 10 feet of the floor. We immediately identified the access that led to the void above the suspended ceiling. We used 9 positive pressure fans. 4 gas fans pushing around 14500 CFMs each, pressurized the 4 exterior entrance doors. 5 electric fans each pushing around 10500 CFMs operated inside. 4 of these aided in pressurizing the sanctuary from a forward position and the fifth fan pressurized the void above the suspended ceiling. We had no visible openings out of the sanctuary other than our entrances which were all pressurized and yet we were still able to remove all the smoke by pushing it back through the voids from where it came.
Remember, if we can control the smoke we can control the fire. If this fire had gotten by our attack crews in one of the many voids it would have had a hard time making its way into the sanctuary or the void above the ceiling. If the fire had burned through into our pressurized areas that would then become the vent hole with our pressure, then exiting out that vent hole. Smoke, being fuel would not be able to extend to that area.
We have used the concept for years on High rise fires by leaving the HVAC systems above and below the fire running to maintain a positive pressure to prevent smoke movement to those floors.
I am a believer! I have seen it in action and know it is a tool we should be using more often. Control the smoke and you control the fire. Pressurization is a viable and effective concept that is just waiting to be used.
Be Trained, Be Safe, Be Professional!
Jenkins


All apartment fires have exposures!
Get ahead of the fire and pressurize!
Expose the voids to the pressure.
Attic,Attic, Attic! The # 1 Void!!!!


If this had been your apartment on the left, what would you have Wanted?


By pressurizing early,
we can prevent……?


This!!!!!!!!!!!!!!

November 19, 2017

For all You New Rookies:
Several years back as I watched the video of the Captain in Fresno fall in the roof my thoughts ran wild. I felt that sick feeling that comes when you believe that you have just witnessed someone being killed. As a participant, I would have been driven to act, as an observer all I could do was hold my breath and pray that the firefighters on the fire ground had their act together! What if they had trouble getting water, deploying a line, getting their gear on right, using their tools or flowing lots of water? The answer to that is that they would be planning a funeral, not a hospital visits! That Captain owes his life to the combined effort of everyone on that fire ground. The same could be said for anyone of us at any time. Our lives could at any moment be resting in the hands of our weakest link. Who is your weakest link? We all have one, and for most of us at some point in our career, we were it. I sure know that I was! I can still remember my first day at 7's like it was yesterday. I was overwhelmed with all the information coming at me from all directions. From our DC to the next newest rookie, they all seemed like they had a goal of wearing me out. As soon as my Captains would tell me what they wanted me to do or learn one of our E/O's (called chauffeurs back then) would grab me and drag me downstairs to go over their apparatus. When I would finish with them a veteran firefighter would have me going over tools or equipment. I felt like a punching bag. It would have been very easy to feel that they were singling me out for extra drills, classes and test and in a way, they were. I was the weakest link and they knew it! Every one of them had a vested interest in eliminating the weak link that had showed up in their crew. With limited knowledge, skill and experience I was a liability to anyone on the fire ground. Often when other firefighters or rookies experience what I did there is a misconception that they are being mistreated. Most of the time it is just the opposite. Most often it is a sign that those teaching you care about you and your crew. They want you to be safe and know your job. Beware of those laid back nice officers that do not expect much because most will not give much or know much. Mostly laid back is just another term for lazy which is another term for complacent and complacent can get you KILLED! I was very blessed, I was sent to a crew of outstanding firefighters, E/O's and officers who worked extra hard to teach me my job to eliminate or lessen their weakest link. It worked, because eventually we got another rookie and finally, I was no longer the weakest link.
Be Trained, Be Safe, Be Professional!
Jenkins

January 25

Rookie Experience:
Several years back as I watched the video of the Captain in Fresno fall in the roof my thoughts ran wild. I felt that sick feeling that comes when you believe that you have just witnessed someone being killed. As a participant I would have been driven to take action, as an observer all I could do was hold my breath and pray that the firefighters on the fire ground had their act together! What if they had trouble getting water, deploying a line, getting their gear on right, using their tools or flowing lots of water? The answer to that is that they would be planning a funeral, not a hospital visits! That Captain owes his life to the combined effort of everyone on that fire ground. The same could be said for anyone of us at any time. Our lives could at any moment be resting in the hands of our weakest link. Who is your weakest link? We all have one, and for most of us at some point in our career, we were it. I sure know that I was! I can still

remember my first day at 7's like it was yesterday. I was overwhelmed with all the information coming at me from all directions. From our DC to the next newest rookie, they all seemed like they had a goal of wearing me out. As soon as my Captains would tell me what they wanted me to do or learn one of our E/O's (called chauffeurs back then) would grab me and drag me downstairs to go over their apparatus. When I would finish with them a veteran firefighter would have me going over tools or equipment. I felt like a punching bag. It would have been very easy to feel that they were singling me out for extra drills, classes and test and in a way they were. I was the weakest link and they knew it! Each and every one of them had a vested interest in eliminating the weak link that had showed up in their crew. With limited knowledge, skill and experience I was a liability to anyone on the fire ground. Often when other firefighters or rookies experience what I did there is a misconception that they are being mistreated. The majority of the time it is just the opposite. Most often it is a sign that those teaching you care about you and your crew. They want you to be safe and know your job. Beware of those laid back nice officers that do not expect much because most will not give much or know much. Mostly laid back is just another term for lazy which is another term for complacent and complacent can get you KILLED! I was very blessed, I was sent to a crew of outstanding firefighters, E/O's and officers who worked extra hard to teach me my job to eliminate or lessen their weakest link. It worked, because eventually we got another rookie and finally, I was no longer the weakest link.
Be Trained, Be Safe, Be Professional!
Jenkins

January 28, 2018

Tricks of The Trade!
The 4 Times Rule:

When it comes to Pump Op's or Hydraulics this is a rule that I have used often and has saved me countless time and effort, which in our profession is critical. It is simple to apply, which makes it all the more important to learn, and pass on. As in all aspects of our profession our ability to perform while under pressure can be the difference between life and death!

The Rule is two parts, one deals with Friction Loss and the other deals with Gallons per minute.
,
#1. With Friction Loss,
Anytime you double the gallons per minute your friction loss increases by 4 times.
This rule works on all hose regardless of size, manufacture or purpose. The rule works regardless of what formula, or coefficient you use.
As an example, if we start off with any size hose and know either the friction loss at 100 GPM, or the coefficient (The coefficient is always the friction loss at 100 GPM) then if we double the GPM to 200 we multiply the FL by 4 to get your FL.
A quick example: On 5inch hose, if you use a FL. of 8 at 1000 GPM which most have memorized and you are asked to supply 2000 GPM, which few have memorized, and is not on many charts, simply multiply 8 by 4 and you get 32 at 2000 GPM.

#2. With Gallons Per Minute.
Anytime we double the diameter of our hose, nozzle tip or water main, and operate at the same nozzle pressure or flow pressure, we increase the gallons per minute by 4 times.
For simplicity, I use and teach the fire ground method of calculating GPM.

I use, 30 times the diameter squared, times the square root of the nozzle or flow pressure.
The rule still works regardless if you use 29.7 or 29.83 instead of 30.
An example:
A 1 inch solid tip at 50 psi nozzle pressure flows 210 GPM
A 2 inch solid tip at 50 psi nozzle pressure flows 840 GPM .

A 1 ¼" tip at 80 psi NP flows 417.65 GPM (aka. 400 GPM)
A 21/2" tip at 80 psi NP. flows 1670.625 (aka. 1600 GPM)

Compare this rule to your charts and or formulas. See if you can prove the rule wrong. If not , it can only make you better!
At nearly 40 years in the profession, and countless different hose manufacturers and formulas, I have never found it not to work.

Be Trained, Be Prepared, Be Professional!
Jenkins

June 19, 2018

Dale Jenkins:
Forty years in HFD!
For clarification some reading this post have sent me to an early retirement
Forty years is just a number it is not the end. I AM NOT RETIRING.

I think that I still have a few Rip-Snorting Blowing and Going fires left in me so please do not push me out early. I may try for forty more LOL. I still want to go a few rounds on a Two Man Pike Pole, CUT SOME BIG HOLES and DO A SEARCH UNDER DIFFICULT CONDITIONS. This is to only recognize a milestone of forty years in my life. in HFD. With more to come.

I would like to recognize and thank all of those in my career that had anything to do with my reaching this point. There have been countless firefighters, all my family and many friends who all played an important role in reaching this point. My only regret is the loss of so many who have passed on, that played such a huge role in my career.

Forty years with, one profession, one passion. How do we, or I recognize the date. For me, I will just acknowledge that forty years is a record for me. Come to think of it, every year on June 19th was a record! The only thing that I have ever done longer than being a Houston Firefighter is…… be alive.

I had just turned 21 when I first began my career and now I'm 61. A lot has changed in the world, our profession, my life, and sadly… my physique! Much of my body is larger now. I joke and say that I am nearly twice the man that I was when I came in the department. There are, however, advantages to having forty years of being involved in the same profession; EXPERIENCE.

EXPERIENCE MAKES EVERYTHING EASIER. The how, what, when, where and who's come easier, hopefully making for a more efficient emergency scene. Anyway, that is my hope.

From a class of seventy, there are only 2 of us left: District Chief Chris Chavez and I. Seniority-wise out of nearly 4,000 firefighters, we are #6 and #7. Number one though looks unreachable for either one of us, since firefighter John Childress, AKA Chili, is sitting at #3 and still going

strong. I am blessed to work with Chili at Station 7 on the A shift where he will reach 44 years later this week. Forty years and I'm still the rookie to Chili.

If I was given a chance to go back and start over and do anything in the world I would do my career over again without hesitation. I can think of no other more rewarding profession.

As I think back to my most outstanding accomplishments over the last 40 years, here are the top five:
1: Turning my life over to God. Letting Jesus into my heart, and letting Jesus take the wheel. Nothing has had a bigger positive impact on my life! Nothing has made my life easier both professionally and personally. Of all that I may have done in the fire service, nothing had a bigger positive impact on those around me than my walk with God. Nothing was recognized by others more than the fact that Jesus changed me.
2: Marrying my wife, my best friend and the mother of my children, 33 years ago.
3: Raising a family of three responsible, respectable and appreciative boys.
4: Being a grandfather to my two awesome grandchildren.
5: Having been a witness to so many outstanding firefighters' careers. I have been blessed to have been able to watch so many incredible feats of bravery, tenacity, compassion and skill. It still amazes me today when I see what Houston Fire Fighters accomplish under such trying conditions.

I have truly been blessed to be associated with so many firefighters who are passionate about our profession. I have had the opportunity to observe them hone their skills, move up through the ranks, and produce other outstanding firefighters. I have been blessed.

In closing, I would like to share several truths that have been refined and proven over 40 years:
1) Fire, smoke and heat all want to go up. Use this knowledge to your advantage and stay low!
2) Gravity always wins! I have never seen a firefighter levitate.
3) Wherever the smoke goes, the fire will follow. IF YOU CAN CONTROL THE SMOKE, YOU CAN CONTROL THE FIRE. Think and perfect pressurization.
4) CUT THE BIG HOLE and FLOW BIG WATER.
• I have developed a theory as to the size of your VENTILATION HOLE. The size of your ventilation hole is directly proportional to the "BUTTPUCKERS" factor. (For millennials, butt pucker means SCARED). The tighter your butt puckers, the smaller your ventilation hole gets. Nobody has proven me wrong.
5) Always come in planning on overwhelming the fire because the fire ALWAYS intends to overwhelm you.
6) Mistakes are opportunities to teach and to learn.
7) The TWO MOST IMPORTANT THINGS a firefighter should learn are
• BUILDING CONSTRUCTION.
• READING SMOKE.
😎 Learn and perfect the basics.
9) PUT WATER AT THE BASE OF FIRE! Water on intact roofs impresses no one!
• Also, the old saying, "PUT THE WET STUFF ON THE RED STUFF" still applies!
10) Treat every incident like it was your family! Be the kind of firefighter that you would be praying would show up if your family needed help.
11) Having worked on over 1,400 building fires and countless vehicle fires, I have never pulled out a Bible that no matter how bad the fire was, that you could not read page 1 of Genesis. Nothing is as powerful as God's word! Talk about strengthening your faith!

Thanks to all of those who came before me and spent their time and effort to get me to this point. Had it not been for God placing the right people in my life I would never have made it.

Be trained! Be professional!
Jenkins

June 23, 2018

There is no such thing as “Just a Garage Fire"

Nearly every garage fire has the potential to get dangerous fast.
It always concerns me when I hear a firefighter say, "it was only a garage fire".
We should all think that there is no such thing as “Just a Garage fire” no different from, there is no such thing as” just a fire” Any and all fires have the potential to be your last! If you find this a bit over the top, contact me, give me any scenario and see how long it takes for me to give you a near death story of some so called “Bread and Butter fire” Never ever let your guard down!
There are two major concerns with garage fires:

#1. THEY CAN BE, SMALL CHEMICAL WAREHOUSES! Let me correct that, they are OFTEN small chemical warehouses. People store all the bad stuff that no one in their right mind would store in their homes. Gasoline, propane, pesticides, you name it, it’s there! Talk about a fight for your life! When your little Class-A fire suddenly erupts into a fully involved fire burning at 2600 degrees. What's your plan for survival? What do you do when your little old nothing garage fire suddenly turns into a full blown Haz-Mat scene?

#2. A DETACHED GARAGE IS A THREE-SIDED BOX. (Breezeways do not structurally make them attached)
If any side of a three-sided box is compromised gravity takes over, THEY FALL!

Two story garages, such as an apartment over a garage, aka Garage Apartment, I have had seven fall! Three pancaked, three fell over and one fell into a tree. Had anyone been in the collapse zone, well let’s just say it would have been bad.
Single story garages, I have had more collapse than I can remember. What I do remember though is that everyone Pancaked!

Attached garages that have at least one wall which is soundly connected to a home will collapse but all that I have seen were a Lean to collapse. So at least there you stand a chance if you are in the right spot.

In no way am I saying do not be a firefighter or do not go in. What I am saying is be smart! Know all you can about our profession. If you already knew all of this then I was of no help, but if you did not, then maybe this information will help you make a more informed decision on your Risk Verses Reward Assessment. Maybe this information will assist you or your crew in going home!

The Trained, Be Professional!
Jenkins