

Westbury Fire Department

Hose Company # 2

Training Drill – January 16, 2020

I. **Topic 1 – Strategies & Tactical Considerations @ Restaurant Fires** – (1.5 Hrs interactive ppt)

Objectives:

- Review of Incident Priorities at Structure Fires
- Review the Reading a Structure/Assessment of a Buildings Hazards
- Review an Effective Initial Arrival reports – painting the picture of the scene for later arriving
- Review components of an Effective Size Up
 - Practical application of physically doing All Components on actual past fire scenario
- Review Setting an Action Plan from your size up information
- Review Priorities of the 1st Arriving Engine Company
- Review Priorities of the 1st Arriving Ladder Company
- Review priorities of the 2nd Arriving Engine Company
- Review how fulfilling the priorities of first 3 companies – will make or break a fire incident
- Review of Offense, Defense and Transitional Operations
- Review of use of Urgent messages on the Fire ground
- Review of Personal Accountability and a Officers PAR Reports
- Review of Scene Safety in Master Stream operations
- Review of a Collapse Zones
- Review of having a Command structure with effective fire ground communications

II. **Topic 2 - BlowHard BH-20 PPV Fan** – (10 Min. – Video – 20 Min. Hands on)

Objectives:

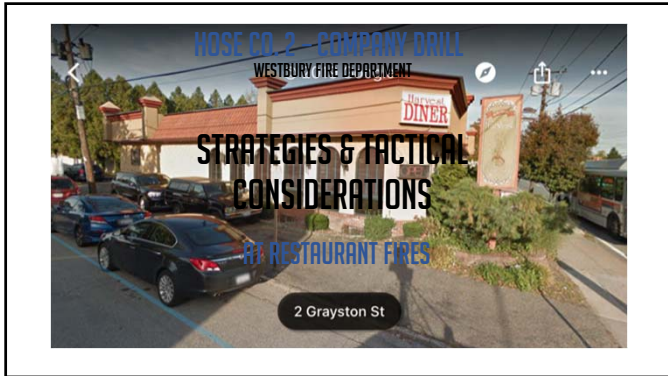
- Review its storage on the Rigs
- Review putting into operations via stored battery power
- Review putting into operations via electrical power
- Review Positive and Negative pressure ventilation

III. **Topic 3 - MSA Thermal Image Camera** – (10 Min. Overview – 20 Min. Hands on)

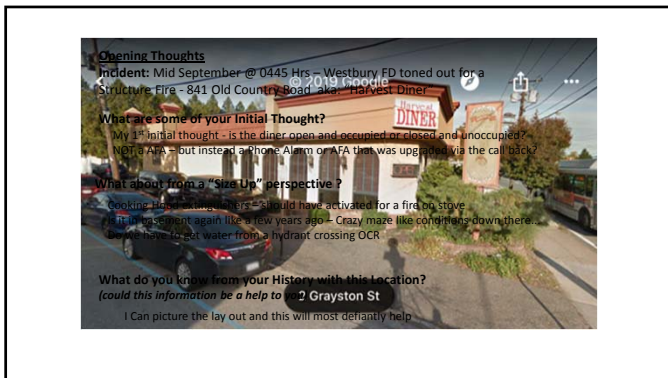
Objectives:

- Review the Features of the MSA 7200
- Review the TIC Use
- Review TIC Maintenance and Stowing on Rig

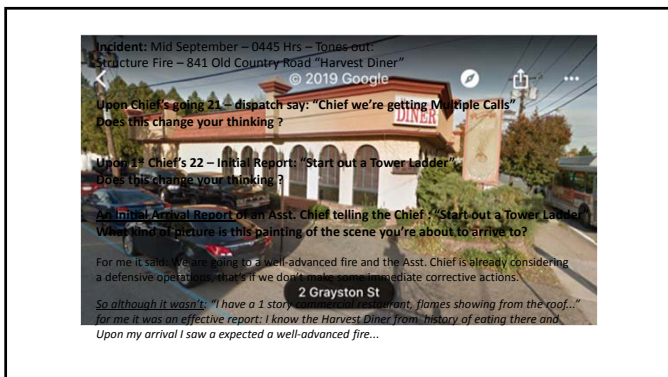
Lead Instructor: Ex-Captain D. Iglesias



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Painting The Picture – Scene Overview (Side 3)



- Better assessment of the height of the parapet & see how top-heavy ornamental items are (why seeing all 4 side is very important) (? is parapet backed braced into roof that's now on fire)
- Windows in rear have steel window bars = a concern!
- Less Ventilation Points – (typical for commercials due to security concerns - less visible to traffic)
- Appears to be multiple additions – bunch of different elevations (a danger for the "roof position")
- Multiple fan vents on the roof – are we really going to see these at Night?
- Bilco door – (for people, deliveries or both)

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Painting The Picture – Scene Overview (Side 4)



- Again dealing with the tall parapet – hiding the multiple HVAC units
- Plenty natural ventilation covers front to back
- Again Weight of those ceramic roof tiles right over the ramp to access front door
- Large Ornamental decorating directly over area we may heavily use in our ops...
- Large parking area – at Sam little to no cars in lot – good staging point?

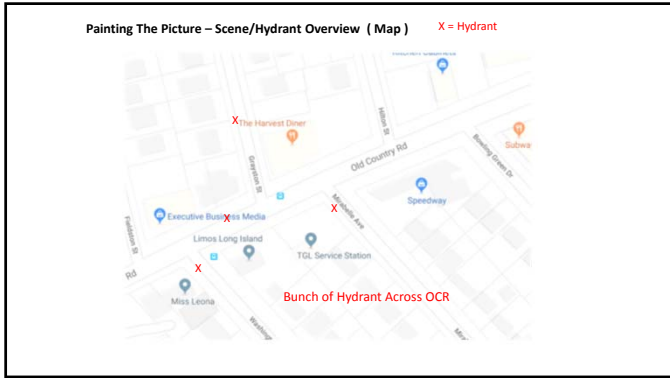
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Painting The Picture – Scaling building utilizing a Map



- Basically 80' x 100' building for easy math...

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Painting The Picture – Scene Overview (this is what 1st Due Engines saw as they arrived on scene North on Grayston towards Old Country Road)

You're the officer of 1st engine and 1st to Arrive on the scene.

What would have been your initial report?

969 signal 22.
Have 1 story commercial restaurant,
Flames showing from the Roof in the rear,
Transmit the working fire,
969 is picking up Hydrant on Grayston just N of OCR
and laying to the rear of building.
We will be investigating further.

At this point – what do we really know,
outside we're confirming we have a fire and need help ?
We haven't seen the conditions on the 1 or 4 sides
of this structure... a 360 is important! (could be blowing
out windows or no smoke at all inside...)

After 360 and more complete assessment – maybe request 2nd alarm, commercial = going to need lots of hands!

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Let's Review Points in an "Effective" Size Up:
(what's the Acronym we use to remember items in a Size Up?)

Acronym : COAL WAS WEALTH

- C - Construction
- O - Occupancy
- A - Apparatus/Personnel immediately available
- L - Life Hazard
- W - Water Supply
- A - Auxiliary Appliance (Standpipe/Sprinklers)
- S - Street Conditions
- W - Weather
- E - Exposures
- A - Area
- L - Location
- T - Time
- H - Height

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Construction:

What Type of Construction do you think we have Here?
 © 2019 Google
 Type 1 – Fire Resistive – Typically our Highrise type structures
 Type 2 – No Combustible – Built with fireproof materials
 Type 3 – Ordinary – masonry/wood roof structure to travel
 Type 4 – Heavy timber
 Type 5 – Wood Framed

Would Seeing This Help you better define?
 Fire Burned through roof = NOT Built with Fireproof Materials – correct?

If you knew this was a Type I or II and saw this
 What could this be telling you?
 Good chances Fire is ON the roof

The most accurate way to determine CONSTRUCTION TYPE - VIA OUR CAD INFO
 Takes away the guess work and why we pay inspectors, no guessing, we need to know!

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Occupancy: What type?

Is this a Residential or Commercial?
 © 2019 Google
 Commercial – so does this mean there is no residency (someone sleeping inside) ?

What do we know about Commercial vs Residential regarding our Tactics?
 Fire Load = > water
 Maneuverability = size of hose
 Distance we need to throw water

Apparatus/Personnel: what do we think?
 At 5am should Apparatus and Personnel be an issue to make a push?
 No – if members have papers on and actually show up and in a reasonable amount of time?

What should be an immediate concern Re: Apparatus though ?
 At the time, Our Tower was OOS and what's their response like at 5am?
 Good to be thinking ahead and having resources coming, may take time to actually get them on scene and ready to go to work.

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Life Hazard: what do we think?

Hours of Operation says: 6 AM-Midnight - Building was Locked upon arrival
 © 2019 Google
 Do we have a Life Hazard Inside ?
 Maybe – Always a life hazard until it's ruled out
 Rules we may: lights on, cars in parking lot, an unlocked door...

What's the Likelihood of survivable conditions when the fire is "through the roof"?
 Possible – especially if fire is in a void space between ceiling and roof
 Very Unlikely if the fire started in the basement
 Upon arrival's hard to immediately tell, until we further investigate

Water Supply: What do we think?
 Is water going to be a problem?
 No – Especially in this case we had a member waiting at hydrant for the engine's arrival

When might Water supply become an issue ?
 1st hydrant we hit ends up (low flow off...) or Frozen,
 longer stretches when a relay is needed and need 2 or 3 engines to put in place >1000'...

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Auxiliary Appliances: what do we think?

Do we have any Auxiliary Appliance – What clues let us know we do, outside our CAD?

- Restaurants should have Fire suppression in their Cooking Hoods
- Water Gongs = Sprinklers
- Japanese – Sprinkler and/or Standpipe (standpipe is unlikely in a 100x100 building) (sprinklers – maybe especially for wood frame trusses)

If we have a water gong but it's **Not Active** but see fire through roof – what could this be telling us?

- System is shut down, maybe purposely – possible arson – needs extra caution and further attention
- Fire is above the sprinkler – here, could the fire be above ceiling?
- In this case – There Was No Auxiliary appliance outside head in stove hood system

Street Conditions: what are we thinking?

Is this going to be a problem?

5 am – OCR is dead, parking lot empty... Probably Best Conditions Possible

What item will eventually need 841 Old Country Rd. though?

PD or Fire Police to shut roads once our hose Lines start crossing roads

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Weather :

Clear Fall Day – do you expect issues?

No – again almost couldn't write a better script

What are some of our typical weather concerns?

- Heavy Winds = wind driven fire (control flow path becomes a bigger concern)
- Rain/Snow = smoke doesn't lift as well
- Extreme Conditions** (Hot & Cold = 2X typical personnel resources & quicker Rehab in place)

Exposures:

Free standing building is there exposure issues?

Not initially – but what if the winds picked up blowing heavy north?

Maybe a line at the ready from roof to houses in rear

At least someone in place

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Area :

What will size of building help us determine ?

- Amount of Hose we'll need
- Throwing distance of water we'll need
- GPM Needed: Length 80 x width 100 = 8,000 x Height 10 = 80,000 / 100 = 800 GPM – when fully involved and w/ 30% involvement upon arrival = 240 GPM so our initial 250 or 275 GPM is good

How do we figure length of hose needed?

- Distance from Engine to Entry point + 100'
- 2x largest of width or length + (100 x 2 = 200')
- Length per floor if going above or below ground level (maybe) to 1st line 250'
- if going to basement – 280'

Location:

Where does the fire appear to be burning?

Center of the building – if know layout of building from our history = Kitchen area

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Time :

Is Time a day an issue - SAM?
No

What about Time in regards to "the duration of burning" ?
Yes
How long did that fire have to burn to actually burn through the roof?
If through roof and not showing through vents (in the time it took to burn through) what other structural components could also be compromised?

Height:
Is Height a concern for us?
1 story - piece of cake, again

841 Old Country Rd

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Plugging our Size Up info into a plan of attack our "Action Plan"

1 Story Commercial Restaurant Fire, Fire Visible through the roof from 2/3 corner and looks to be closer to the center of structure.

Initials orders to 1st Engine, from IC,
Pick up hydrant on Grayston (member on scene waiting at hydrant) drop 5" to Rear
"The Back door is already forced for you to enter from".

From your Size up - your thoughts?
Are we going Offense, Defense or will this be a transitional fire?

So we're going Offense, what would 1st engine's objectives be?

1. Get a water source
2. Get Eyes inside and locate the Fire - did start in basement/1st floor/ above ceiling...
3. Get water in place keeping fire in the area it's in, so searches can be conducted

May IC tactics change, depending on the location where the fire is found **inside?**
YES - a fire found in basement that's now through the roof, is a totally different fire then the one found above the ceiling and now through the roof...

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Plugging our Size Up info into a plan of attack our Action Plan

1 Story Commercial Restaurant Fire, Fire Visible through the roof from 2/3 corner Looks to be in the center of structure.

From this Photo - is the Fire "through the roof" or "in the vents system exiting the roof via the vents" - thoughts?

WE HAVE A STRUCTURE FIRE -
How can we tell?

- **Width of the visible fire** - from vents it would maintain width of vent for a period at least until it ultimately involves the structure
- **Distance smoke off ceiling** - Thermal Plain good 4' off the ceiling - if the fire's only in Ducts - should have little smoke - most smoke exiting via ducts for the volume it can handle.
- **Area of Heat & Smoke** - thermal plain already hot enough to break windows outside fire area (remember this is an addition to building - different roof line)
You have High Heat and a Large volume of fire inside this structure and it's below ceiling line

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Plugging our Size Up info into a plan of attack our Action Plan

We spoke earlier about our #1 objective being protection of life. In this "closed building" – where in this building would one expect **Occupancy – Sleeping or Office Area, outside kitchen area?**

If started in Kitchen area – the cook probably started fire and self extricated – unless a catastrophic event occurred like an explosion...

- **Could you have people in this building with NO Clue there is a fire occurring (No AFA) or are unable to escape outside? If so where may that be??**
- **What would be the quickest way to access conditions in basement?**
Taking the Basement Window
Some time basement windows are 2 or 3 panes of glass, **take one**, move curtain (if one) and look inside
- **If conditions are clear** – or even a haze, could we have Survivable Victims down there? What would be the quickest and safest means to get to these potential victims?

Through the Bilco Door, going directly into the basement from the outside and not having to go through the inside fire conditions. (*entering below the fire*)



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Plugging our Size Up info into a plan of attack our Action Plan

We spoke earlier about #1 objective being protection of life. In this closed building – where in this building would one expect **Occupancy**

You've taken the window to the basement and found heavy dark smoke pushing from that single pane we've taken, what is this Telling you?

- **The Likely hood of survival victims is slim** (with a fire burning long enough to have started in the basement to now burned through the roof) – **only life hazard is us and the decisions we make or are made for us...**

You're the OV and found this heavy smoke pushing from basement (Fire is learned in the Basement) – knowing what you know to this point – what do you **immediately** need to do?

- **Notify Command** of your findings – Possibly via an **URGENT MESSAGE**: ("when a fire is found or has extended to an area unknown to command" = Urgent Message")
Besides Alerting IC, you'll also be alerting that 1st line and whoever else is **operating on the 1st floor, now operating above the fire**. Should this change the IC's already implemented Tactics? **YES**



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Plugging our Size up info into a plan of attack our Action Plan

1 Story Commercial Restaurant Fire, Fire Visible through the roof from 2/3 corner In the center of structure.

What's thoughts about entering from rear or "Closest point of visible fire"?

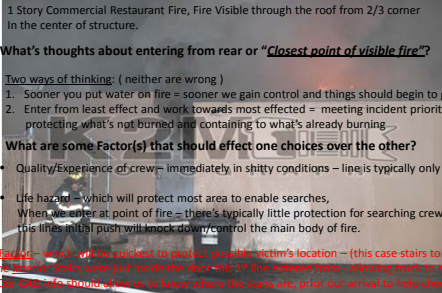
Two ways of thinking: (neither are wrong)

1. Sooner you put water on fire – sooner we gain control and things should begin to get better
2. Enter from least effect and work towards most effected – meeting incident priorities protecting what's not burned and containing to what's already burning

What are some Factor(s) that should effect one choices over the other?

- Quality/Experience of crew – immediately in shitty conditions – life is typically only protection
- Life hazard – which will protect most area to enable searches, When we enter at point of fire – there's typically little protection for searching crew and gambling this lines initial push will knock down/control the main body of fire.

Another Factor – *How will the quickest to reach the probable victim's location – (this case stairs to basement) In this case the stairs are the only way to reach the top of the basement floor, unless you can enter basement through a window that is to high above the door and enter via window in back house.*



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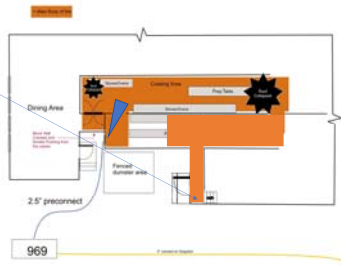
What did 1st Due Engine experience entering from Point of Fire

What should have been done before the 1st line backed out of that fire area?

Leaving "containing the fire" to that area, could this have pinned the truck by fire, now potentially down the basement searching for victims?

Engine needs to coordinate with Truck - Everyone on scene is banking the Other Units are fulfilling and the meeting their objectives! **AND WHEN THEY'RE NOT** - They are Radioing IC of such so **EVERYONE is made AWARE!**

Don't get tunnel vision about **putting out the fire** that you loose vision of seeing the bigger picture - the meeting of your objectives!



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Plugging our Size up info into a plan of attack our Action Plan

Normally with a 1 story commercial structures with heavy smoke showing its important to get roof open - why?

Release pressure, gets smoke to lift, preventing smoke explosion and/or backdraft and it allowing for better visibility and better/quicker hoseline movement inside.

In this case was getting vertical vent urgent and Why or Why Not?

Fire is already vented vertically - how can we tell?

- 1. It already burned a hole through the roof - our vertical ventilation
- 2. When Chief advised the back door was forced, we can see the smoke lifting outside and pressure inside already released



What if we saw this on the building - does this change things - why?

From our size up - if we see this, should we have members operating inside with the presenting conditions?

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Plugging our Size up info into a plan of attack our Action Plan

Looking at aerial footprint of the structure and knowing a portion of the roof structure maybe compromised, what would be a good point to enter/view the roof & Why?



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Plugging our Size up info into a plan of attack our Action Plan

With Crews entering from the rear – From our size up info, what learned factor becomes a concern for personnel safety?

Could the crew on that first line or 1st truck bail out a rear window if they had to?

If your OV and see this, what do you need To do?

Report such **OVER THE RADIO to IC:**

1. Alerts those operating inside as well
2. Gets IC to assign or assist you in removing



Typically IC will assign a Truck Co to removing all the window bars throughout structure ...

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With 1st Engine – committed in Rear (1) 200' 2.5" with objective: get water on fire

What would 1st due Ladder Objectives be and from where?

As with any fire – 1st due ladder objective don't change:

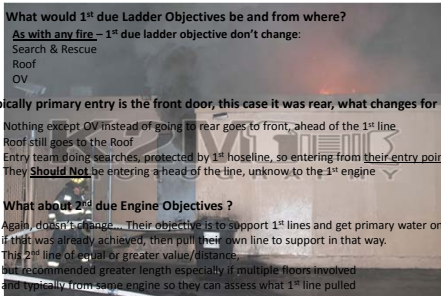
- Search & Rescue
- Roof
- OV

Typical primary entry is the front door, this case it was rear, what changes for 1st truck?

Nothing except OV instead of going to rear goes to front, ahead of the 1st line. Roof still goes to the Roof. Entry team doing searches, protected by 1st hoseline, so entering from their entry point. They **Should Not** be entering a head of the line, unknown to the 1st engine

What about 2nd due Engine Objectives ?

Again, doesn't change... Their objective is to support 1st lines and get primary water on the fire if that was already achieved, then pull their own line to support in that way. This 2nd line of equal or greater value/distance, but recommended greater length especially if multiple floors involved and typically from same engine so they can assess what 1st line pulled



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Westbury FD Primary Objectives don't change if the Action plan is an Offensive Attack

First Engine

- Get Water to Engine
- Get Water to seat of fire - keeping it where its at, minimum...

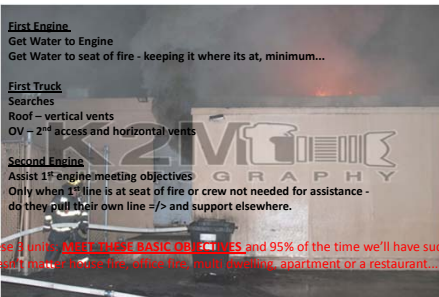
First Truck

- Searches
- Roof – vertical vents
- OV – 2nd access and horizontal vents

Second Engine

- Assist 1st engine meeting objectives
- Only when 1st line is at seat of fire or crew not needed for assistance - do they pull their own line => and support elsewhere.

These 3 units **DON'T** HAVE BASIC OBJECTIVES and 95% of the time we'll have success! Doesn't matter inside fire, office fire, multi housing, apartment or a restaurant...



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What Happens when 1st Truck and 2nd Engine entered from opposite points then 1st Engine

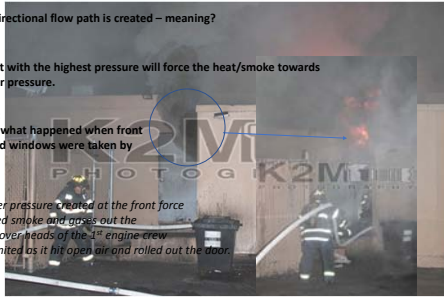
1. A bidirectional flow path is created – meaning?

The point with the highest pressure will force the heat/smoke towards the lower pressure.

Example:

This was what happened when front Doors and windows were taken by 1st truck

The higher pressure created at the front force the heated smoke and gases out the rear and over heads of the 1st engine crew Which ignited as it hit open air and rolled out the door.



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What Happens when 1st Truck and 2nd Engine enter from opposite points then 1st Engine

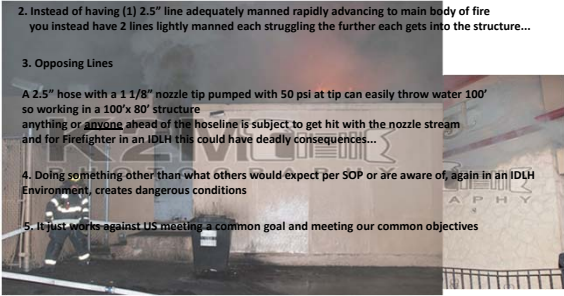
2. Instead of having (1) 2.5" line adequately manned rapidly advancing to main body of fire you instead have 2 lines lightly manned each struggling the further each gets into the structure...

3. Opposing Lines

A 2.5" hose with a 1 1/8" nozzle tip pumped with 50 psi at tip can easily throw water 100' so working in a 100'x 80' structure anything or advance ahead of the hoseline is subject to get hit with the nozzle stream and for firefighter in an IDLH this could have deadly consequences...

4. Doing something other than what others would expect per SOP or are aware of, again in an IDLH Environment, creates dangerous conditions

5. It just works against US meeting a common goal and meeting our common objectives



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Due to the lack of progress from the 2-operating handline inside (approx. 500 GPM on a fire at 50% involvement needing about 400-500 GPM) and determining there was no life hazards outside the structure.

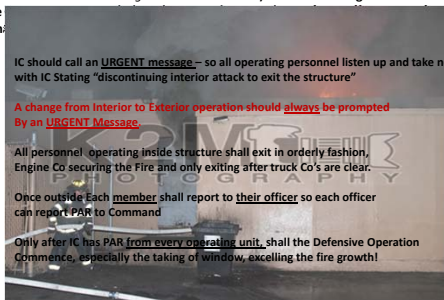
IC should call an URGENT message – so all operating personnel listen up and take note with IC Stating "discontinuing interior attack to exit the structure"

A change from Interior to Exterior operation should always be prompted By an URGENT Message

All personnel operating inside structure shall exit in orderly fashion, Engine Co securing the Fire and only exiting after truck Co's are clear.

Once outside Each member shall report to their officer so each officer can report PAR to Command

Only after IC has PAR from every operating unit, shall the Defensive Operation Commence, especially the taking of window, exelling the fire growth!



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Once we go defense does this mean we can't never go back on offense?

No - It's called Transitional, giving a defensive punch as we re-group with A possible Plans to go back on Offense.

What happens when we vent without coordination?

We accelerate the fire growth and what's happening with large amount of fire, besides making a cool picture...?

We're compromising structural integrity and what happens when we compromise the structures integrity

Creating a Greater chances for collapse and less a chance to make "Transitional" and ever go back inside....

When decide to go defense, we shouldn't be taking window accelerating fire growth unless there is a water source immediately available to go inside these opening.



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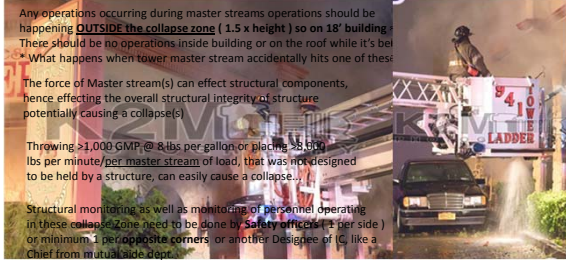
When Tower Ladder(s) are operating what other operations should also be occurring?

Any operations occurring during master streams operations should be happening OUTSIDE the collapse zone (1.5 x height) so on 18' building There should be no operations inside building or on the roof while it's bel

The force of Master stream(s) can effect structural components, hence effecting the overall structural integrity of structure potentially causing a collapse(s)

Throwing >1,000 GMP @ 8 lbs per gallon or placing >8,000 lbs per minute/per master stream of load, that was not designed to be held by a structure, can easily cause a collapse...

Structural monitoring as well as monitoring of personnel operating in these collapse zone need to be done by Safety officers (1 per side) or minimum 1 per opposite corners or another Designee of IC, like a Chief from mutual aid dept.



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What are some other concerns with these type fires:

- Unified Command with Good Communication - 1 Boss with 1 Objective that everyone is aware of
- Units fulfilling their objective(s) - once completed getting a new assignment from command, that meets action plan
- Ideas are not transmitted over radio - (creates confusion) - meet faces to face with command to discuss
- All actions coordinated by command - so IC knows who's doing what and from where - no freelancing making the scene a free for all with each officer fulfilling what they believe to be right...

• Water

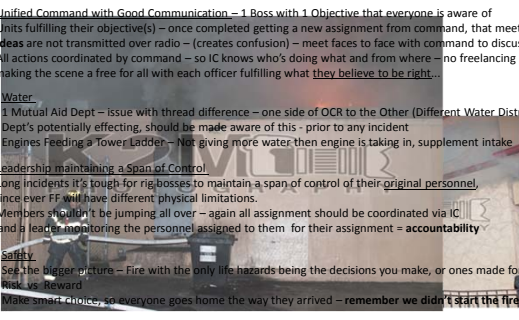
- o 1 Mutual Aid Dept - issue with thread difference - one side of OCR to the Other (Different Water District)
- Dept's potentially effecting, should be made aware of this - prior to any incident
- Engines Feeding a Tower Ladder - Not giving more water then engine is taking in, supplement intake

• Leadership maintaining a Span of Control

- o Long incidents it's tough for rig/bosses to maintain a span of control of their original personnel, since ever FF will have different physical limitations.
- Members shouldn't be jumping all over - again all assignment should be coordinated via IC and a leader monitoring the personnel assigned to them for their assignment = accountability

• Safety

- o See the bigger picture - Fire with the only life hazards being the decisions you make, or ones made for you..
- o Risk vs. Reward
- o Make smart choice, so everyone goes home the way they arrived - remember we didn't start the fire



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Closing Thoughts:

- Probably a once in 20 years event
- We need to learn for the success and lacking's, so we can approve and build upon as a department
- Implement training on lacking to create culture so hopefully they don't happen again – **why we're here today!**

Something Others would like to add:



BlowHard BH-20 Ventilation Fan



(click to play demo)

1

Overview of Fan

- **Dimensions:** 24" h x 24" w x 10" d (*closed*)
- **Weight:** 50lbs with Battery (*40lbs w/o*)
- **Battery:** Li-ION - 20-80 Min.
(Faster fan < time of battery use)
Battery is @ 80% charge plugged in 60 Min.
- **Power:** 110 VAC - 8 AMP (*regular house plug*)
- **Setback:** 6 - 18 Feet
- **Tilt:** Adjustable angle
- **Capacity:** 10,200 CFM
- **Fan Speed:** 0-3,900 RPM
Soft Start - Variable Speed



2

Overview of Fan

- **Shoulder strap for Carrying**
- **Extension Cord for prolonged use**
(Attached to Fan in Rig)



3

Fans Storage on Rig

Fan is secured in rig by a strap – buckle lock At face of the fan

Pull Plug before Removing Fan from the rig

Note: If fan was NOT Plugged in make sure you have the extension cord with you, Battery could give you limited Time of Use



Fans Should be plugged in Before and After use.

4

Putting Fan into Operation

When you pull from rig, it should come off rig in nice neat package.

The Extension Cord attached to frame of fan – so its not left behind

The Carrying Shoulder Strap also attached to the fan

These item may need to be removed Before the fan is put into operation – but Should ALWAYS be put back to Fan before Stowed back in the rig for its next use.



5

Putting Fan into Operation

After carrying to location of use:

Place Fan on ground 6-18' from opening - The bigger the opening the further the distance needed (standard door – typically 6-8' required)

For Positive Pressure (fan blowing in) The carry handles should be facing out

For Negative Pressure (fan sucking outwards) The Carry handles should be facing in towards opening



6



Putting Fan into Operation

To open the fan and set the desired angle:

Looking down at the fan –at the handle side at the right handle - on the fan itself there is A locking lever

This Locking Leaver need to be pushed towards the fan (inwards) and the fan head will unlock and be able to move and put to the desired angle, once released it will lock into that position

Position can be re-adjusted by again pushing leaver inwards

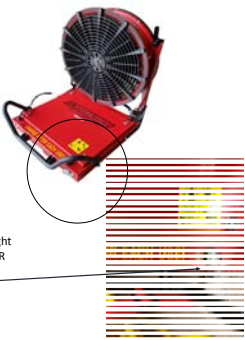
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Putting Fan into Operation

Once Fan is opened – (in the same position the Locking Leaver was before it was opened) You'll see a knob

This knob is the OFF/ON switch and fan speed control

Turning Knob to right will turn the fan ON (you'll get a green light showing fan is active) and the more you turn to right the FASTER the fan speed > CFM air movement.



8

Putting Fan into Operation

Once Fan is operation – You'll want to test the air flow assuring the flow is covering the opening.

Adjustments can be made by increasing/decreasing **Distance** For the **Width**
Or
Angle of fan head For **Height**



9

Putting Fan into Operation

*Running the Fan on Battery Power –
At Fan Max = 20-30 mins operation
< fan speed > run time*

When exceed capacity of battery –
The fan will need to be plugged into 110 power
To continue operating
(same plug that was used when you stored
Fan on rig and plug it)



10

Putting Fan back in service After Use

Reverse the process:

- Turn Fan off
- Secure extension cord
- Assure Shoulder straps back on fan
- Fold back to Home position
- Carry back to rig

Back At Rig:

- Put in position and secure with strap
- Plug fan back into plug

Recharging:

- After about 60 Min on charge the Battery will be at about 80% capacity.



11

Questions



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MSA Evolution 6000+ Thermal Imaging Camera (TIC)



(click on Camera To play overview)

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Camera Features/Use

Switching ON and OFF

- Switching ON in normal mode,
- Press **green ON/OFF button** for approx. 1 second. (Within 5 seconds, the TIC carries out a self-test of the sensor electronics).

Status LEDs under display illuminate according to battery status "Battery Status Indicator"

- Check camera function: Direct the camera toward an object or person until the thermal image shows on the display. The camera is now ready for use.

Switching OFF

- Keep **ON/OFF button** pressed for approx. 3 seconds until all LED indicators switch off.
- Release the ON/OFF button as soon as all LED indicators switch off. The camera is switched OFF.



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Camera Features/Use

Switching ON and OFF

- If the Camera won't turn on or battery indicators are **yellow or red**:
 - 4 Green = Battery 75-100%
 - 3 Green = Battery 50-75%
 - 2 Yellow = Battery 25-50%
 - 1 Red = Battery 25-0% capacity



Change Battery with Spare in the **Charging Unit** before Using
Inside – in Fire conditions


Changing Battery

- Open Latch on Bottom
- Remove old Battery
- Insert New Battery (fits 1 way like old MSA Cameras)



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Camera Features/Use




What are you seeing in screen:

- Green Square in center = Target and what you're aiming at
- Color Reference Bar works with Temperature Indicator Bar – Increases higher as temperature goes up -
- At the same time giving you a digital read out of the temperature at the center target

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Camera Features/Use



What are you seeing in screen:

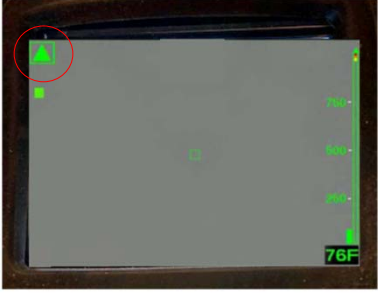
- The square off to left = Shutter indicator

Not of concern –
When you see this = means the image has frozen for approx. 3 seconds as it access' the temperature (for the camera protection) and so camera can determine the mode to operate in.
Higher Temp = More it will Shutter

When you turn camera on = It will be in High Sensitivity Mode

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Camera Features/Use



What are you seeing in screen:

- The camera automatically switches from High to Low Sensitivity Mode in case of extreme temperatures
32% camera Picture > 284 degree F
or
89% camera picture > 248 degree F
- Operating in High Sensitivity Mode will be indicated in to Left Corner

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Camera Features/Use

In High Sensitivity Mode

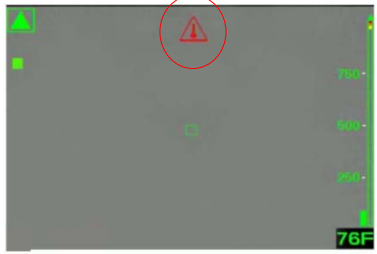
When Temperatures are	Objects:
below 291 °F (144 °C)	Are shown as standard gray scale images
between 291 °F (144 °C) and 302 °F (150 °C)	Turn yellow , starting with light shades changing to darker shades
between 302 °F (150 °C) and 311 °F (155 °C)	Turn orange , starting with light shades changing to darker shades
over 311°F (155 °C)	Turn red , starting with light shades changing to darker shades

In Low Sensitivity Mode

When Temperatures are:	Objects:
between 1000 °F (540 °C) and 1047 °F (564 °C)	Turn yellow , starting with light shades changing to darker shades
between 1047 °F (564 °C) and 1090 °F (588 °C)	Turn orange , starting with light shades changing to darker shades
over 1090 °F (588 °C)	Turn red , starting with light shades changing to darker shades

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Camera Features/Use




What are you seeing in screen:

- When you get a Red triangle with thermometer in it - **flashing** = The camera itself is at it's **overheat limit** and the electronics are approaching maximum recommended temperature.

Maybe a good sign that **YOU ARE TOO?**

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Camera Features/Use



Trigger on the Handle of Camera:

- This has 3 functions:

- Squeezing trigger – A Laser pointer will be displayed at your target points.

This can be useful for an Officer to direct attention to a specific point:

Nozzle cool this point,
Truck open here....


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Camera Features/Use

Palette Button:

- Under the screen the Right button = **Palette Button:**

Pushing allows you to change Color Modes:




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Stowing On Rig

When Put back on Rig Or when doing Rig Checks:

- Make sure Spare Battery **and** Camera are in charging units correctly and get lights

Red Light = Charging
Green Light = Full Charged
Flashing Red = Error –readjust



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Questions



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