INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS

AN ENGINE COMPANY PLAYBOOK

March 30, 2026
Billy Morris
Houston Fire Dept

BILLY MORRIS

Houston Fire Dept

22 yr veteran of the Fire Service currently working for the Houston Fire Department. I'm assigned to firehouse 68 on the Southwest side of City of Houston. I am on the Hose and Nozzle Committee and Joint Labor Management Team.

I am also a member of the instructing Cadre for the IAFF / UL-FSRI's new Evidence Based Fireground Operations Program and a proud member of Local 341.

OUTLINE

- Part 1
  - Building Resilience. Preparing for the fight.
- Part 2
  - Position, Don’t Park. Taking a strong position.
- Part 3
  - Stretching for Success.
- Part 4
  - Making the Push. Evidence Based Fire Attack .
- Part 5
  - Overcoming common challenges on the fireground.

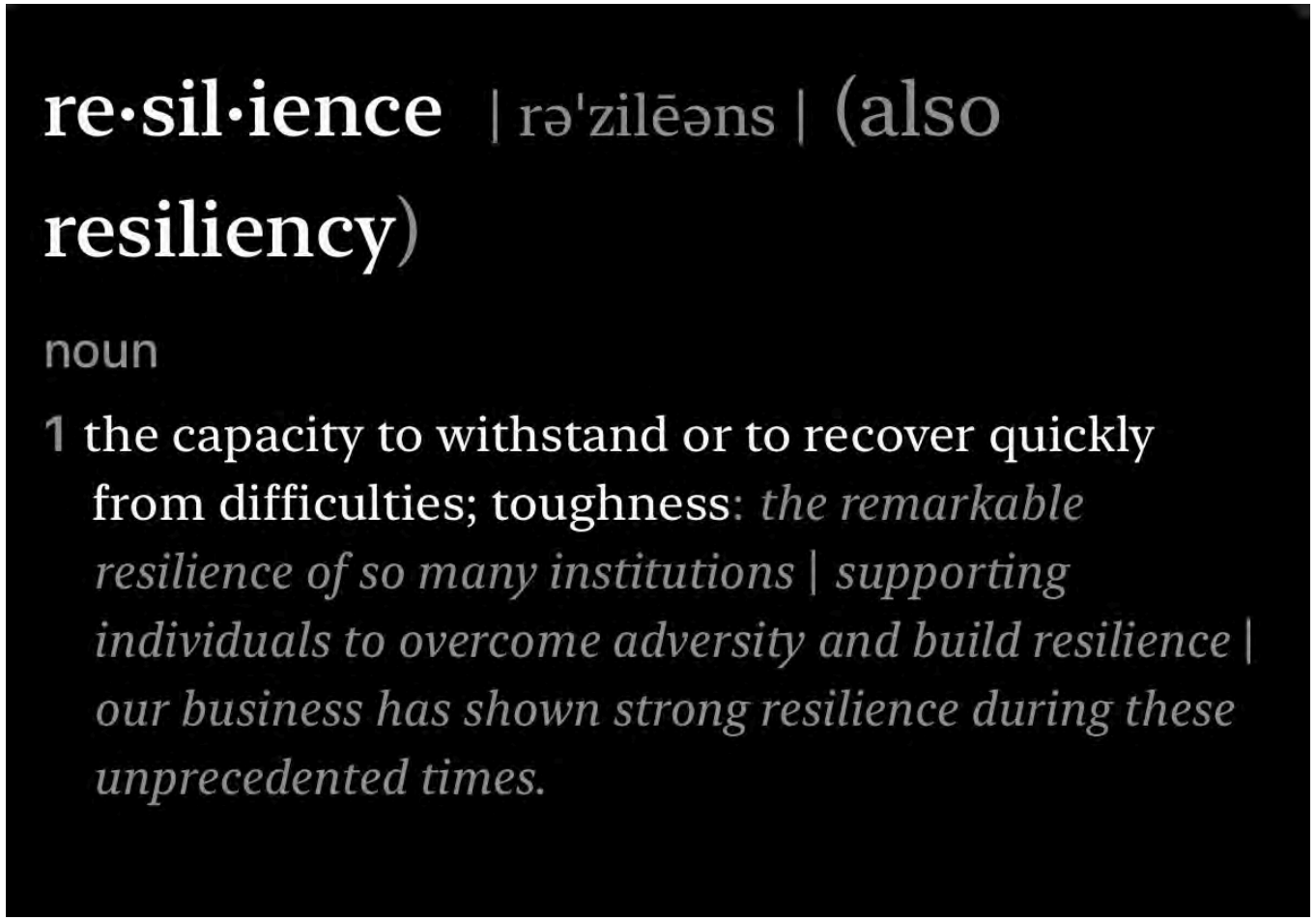
The Two Killers of the Fire Service

A Closed Mind

A Closed Bale

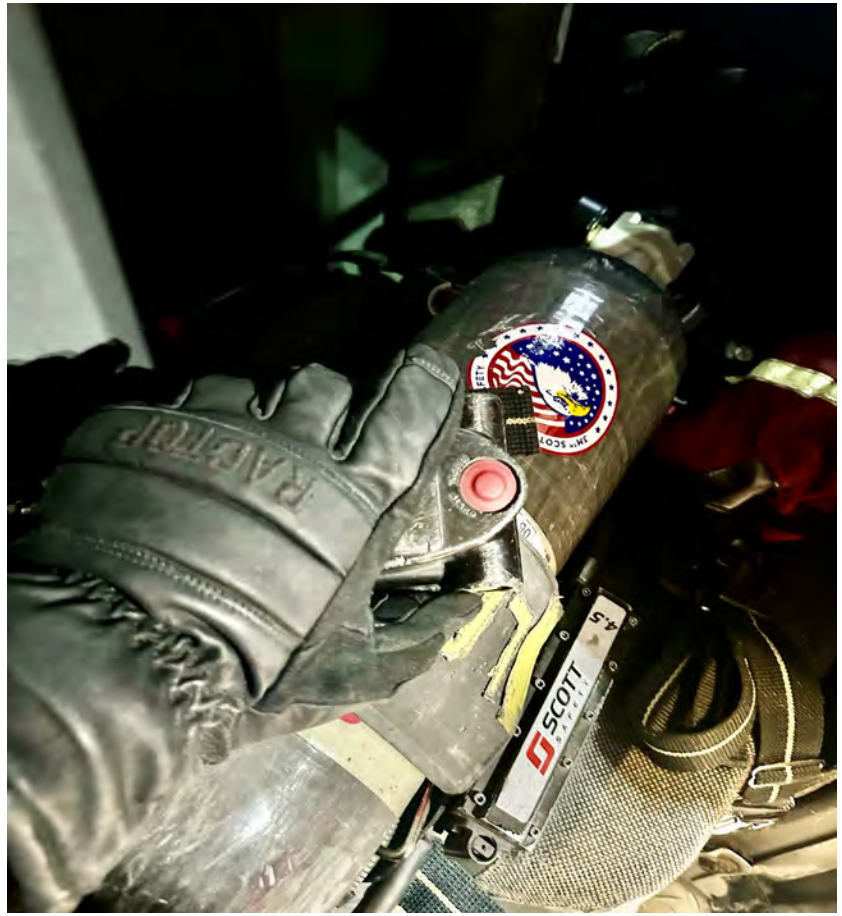
PT 1
BUILDING RESILIENCE

PART 1 - BUILDING RESILIENCE



PART 1 BUILDING RESILIENCE

- Morning pass-on
  - •What they did, what's going on with the rig, and what did B shift break.
- Checkoffs
  - •Is the equipment there, is it in working order, and where is it located.
- The kitchen table
  - •Last shifts fire, tabletop exercises, "One Sheet Class".



PART 1 BUILDING RESILIENCE

PART 1 BUILDING RESILIENCE

- Never Assume They've Been Taught!
  - Don't blame them if you didn't show them.
- Train with Intent!
  - We want to build winning teams.
- Be clear and set expectations!
  - Don't beat them down just to break them down.

PT 2
POSITION DON'T PARK
TAKING A STRONG POSITION OUTSIDE

PART 2 - POSITION, DON'T PARK

Where the Engine Stops, could make or break your hose stretch!

- Allow room for the stretch
- Allow access for the Truck Company
- Safe Distance of IDLH

Position your Engine so that the nozzle reaches the fire area not the door!!

PART 2 - POSITION, DON'T PARK

The Size-Up

- Alpha/Bravo/Delta on approach
- Wind Conditions
- Building Characteristics
- Life Hazards & Rescues
- Water Supply
- B.A.G.
  - Where the Fires **B**EEN
  - Where the Fires **A**T
  - Where the Fires **G**OING

C.A.N. REPORT?

PART 2 - POSITION, DON'T PARK

Size Up Considerations

- The Structure, The Fire & Our Response
- Perform a 360 Walk Around Whenever Possible
- Communicate Findings
- *Assume All Structure Fires Are Ventilation Limited*
- Nothing Showing Means Nothing!
- *Attack Method Comes After Initial Size-Up*
- Attempt Entry on Lowest Level of Fire Conditions
- Keep the Wind At Your Back

PART 2 - POSITION, DON'T PARK

First Due:

- Fast Water or Secure Water?
- Leave Room for additional units
- Stretch no more than 2 attack lines off each engine.
- A 3rd line off should be only be considered in emergencies and with a confirmed water source.

PART 2 - POSITION, DON'T PARK

Second Due:

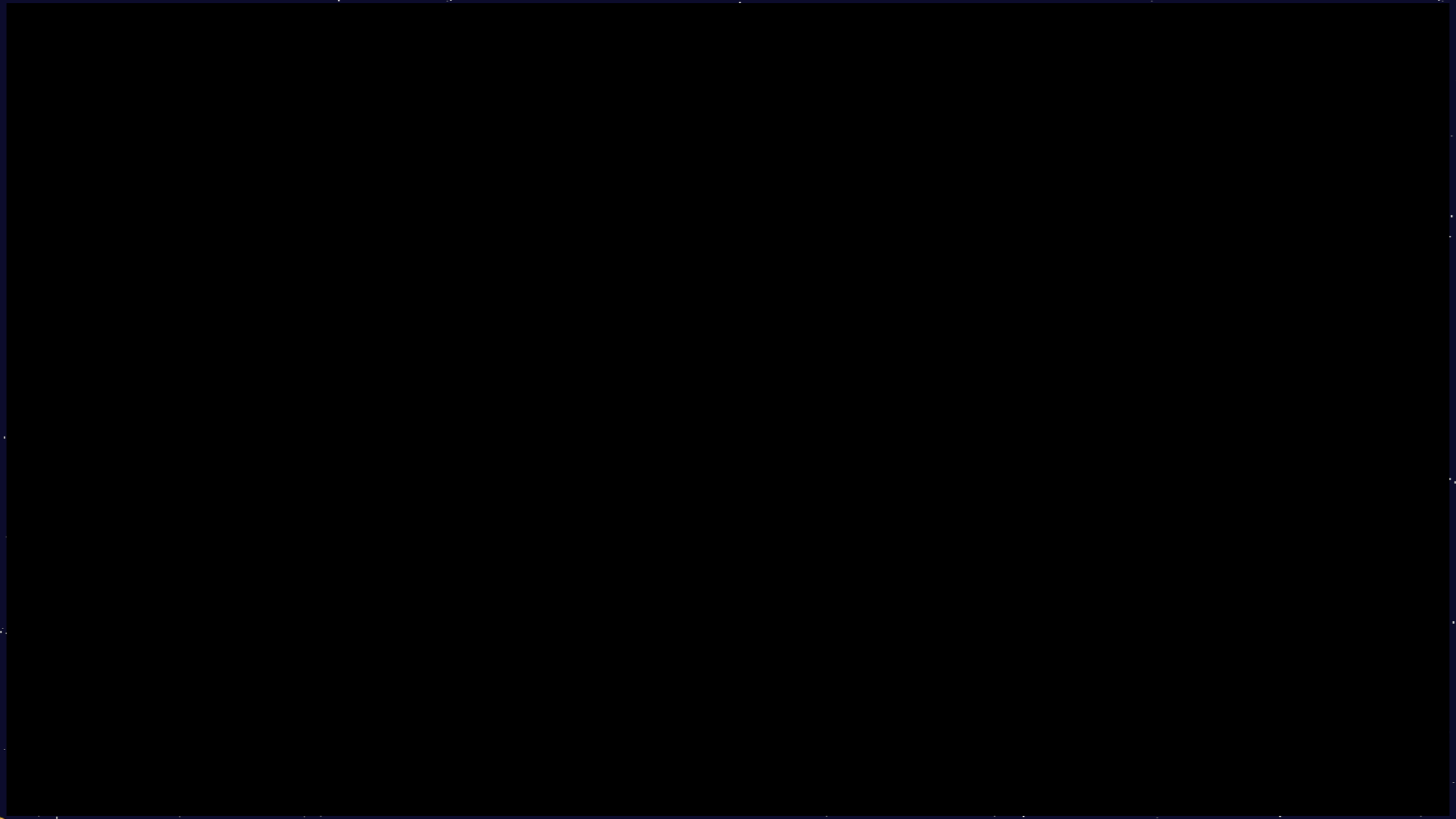
- Bring the water
  - Forward / Reverse / Booster Backup
- Second Line / Backup Line
- Fill Out the First Line
- Attack from a different angle
- Line to the Attic
- Exposure Protection

Second Due Engine has a lot to consider. Positioning Matters!!

PART 2 - POSITION, DON'T PARK

For Big Fires/Long Lays, Don't Forget to Position Pumps on the Hydrant!!

PT 3
STRETCHING FOR SUCCESS



PART 3 - STRETCHING FOR SUCCESS

The Fire Goes, as the First Line Goes - Andy Fredericks

PART 3 - STRETCHING FOR SUCCESS

What Makes a Good Stretch….

- Right Line
- Right Length
- Right Path
- Right Position
- Water on the Fire FAST

PART 3 - STRETCHING FOR SUCCESS

First Line Stretch

- Stretch to place line between fire and victims.
- Prioritize protecting primary paths of egress.
- If life hazard is extreme, fire is advanced, and an immediate interior attack is not possible, consider exterior streams.

Second Line Stretch

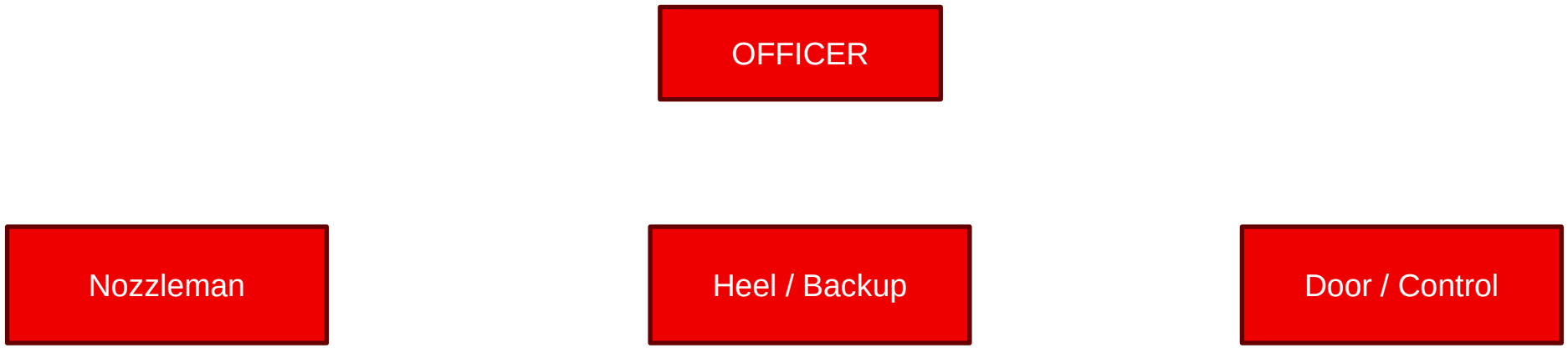
- Equal or Greater than First line.
- Consider going above to cut off fire.
- Shadow the first line as “support” .

Everyone on the Fireground supports the first Stretch!!

The Backup Firefighter is the hardest working!!

PART 3 - STRETCHING FOR SUCCESS

Hose Team Positions



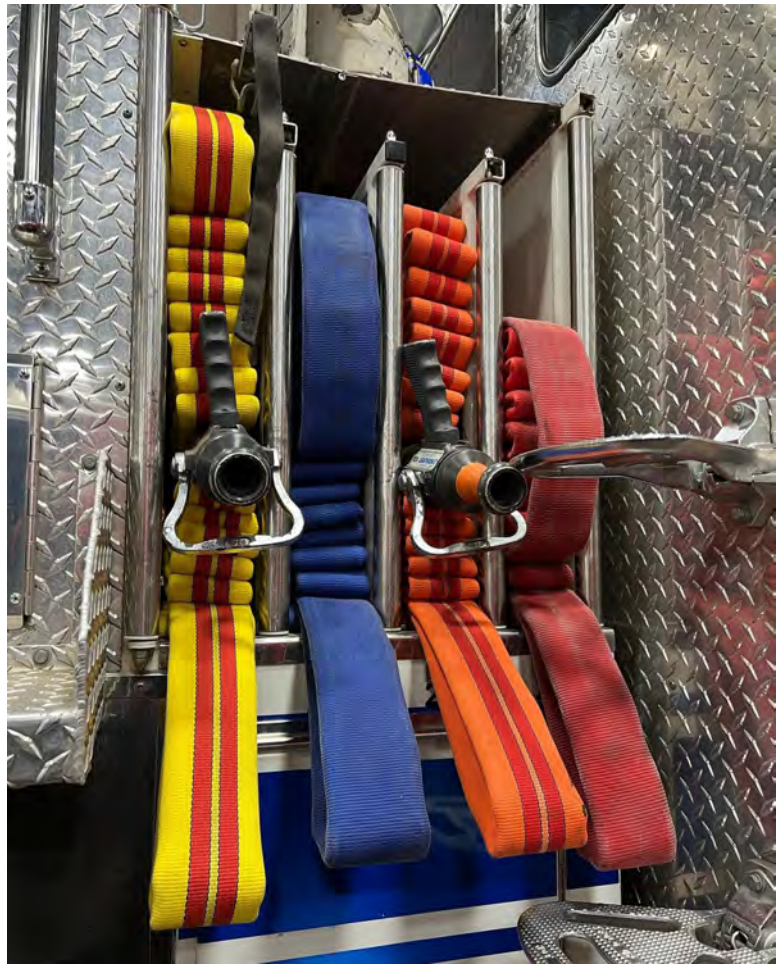
PART 3 - STRETCHING FOR SUCCESS

This is NOT how you support the First Line

PART 3 - STRETCHING FOR SUCCESS

Preconnect vs Bulk Hose

- Territory type
- Stretch length
- Engine Spec



PART 3 - STRETCHING FOR SUCCESS

Preconnect : Pro’s

- Fast Water
- No guessing lengths

Preconnect : Con’s

- Limited by length
- Chiksan Swivel / Pump piping
- Configuration of tray

Preconnected rear vs Crosslay??

PART 3 - STRETCHING FOR SUCCESS

Has the preconnected hose Crosslay ruined our ability to think past 200’???

PART 3 - STRETCHING FOR SUCCESS

Bulk Hose Bed: Pro's

- Allows more mobility in apparatus positioning
- "Unlimited" Amount
- Versatile attack options
- Leader line

Bulk Hose Bed: Con's

- Estimating the stretch
- Training
- Manpower

PART 3 - STRETCHING FOR SUCCESS

Are we a War Wagon?!

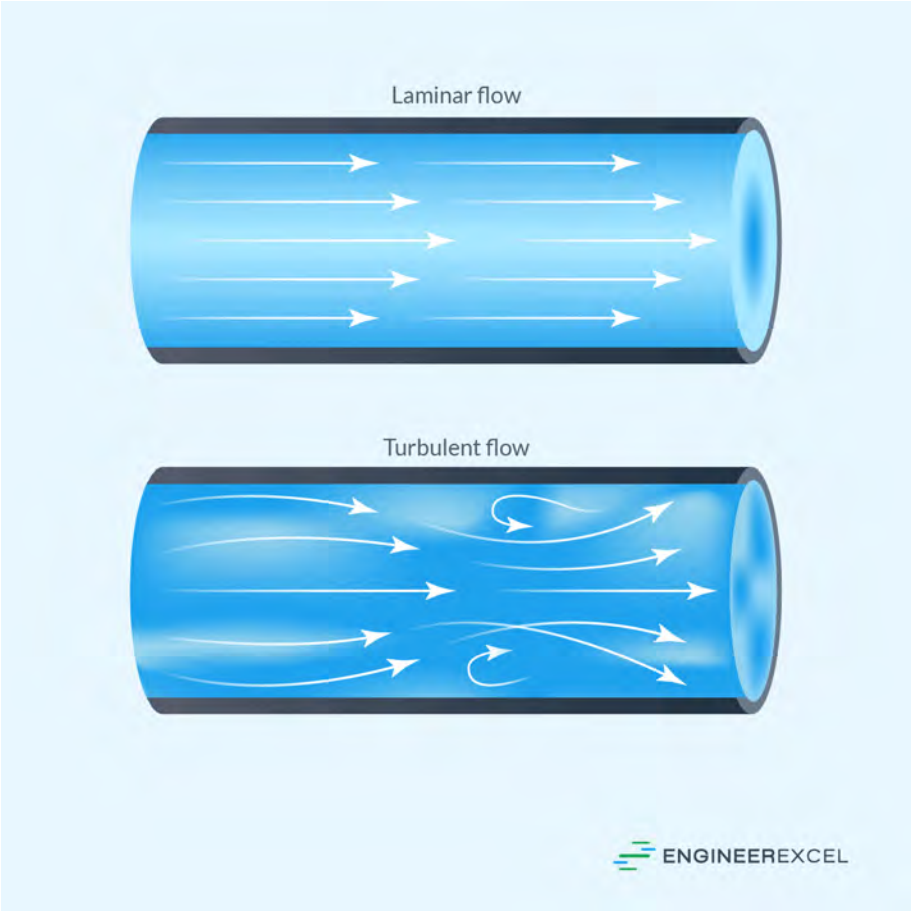
Or

Just here to move water?

PART 3 - STRETCHING FOR SUCCESS

Soft Kink > Dry Kink > Hard Kink

PART 3 - STRETCHING FOR SUCCESS



PART 3 - STRETCHING FOR SUCCESS

Kink Testing

Under pumped / Over pumped

Laminar / Turbulent

128 GPM / Laminar Flow / 2 Kinks
200’ of 1.88 hose 15/16th SB Tip

PART 3 - STRETCHING FOR SUCCESS

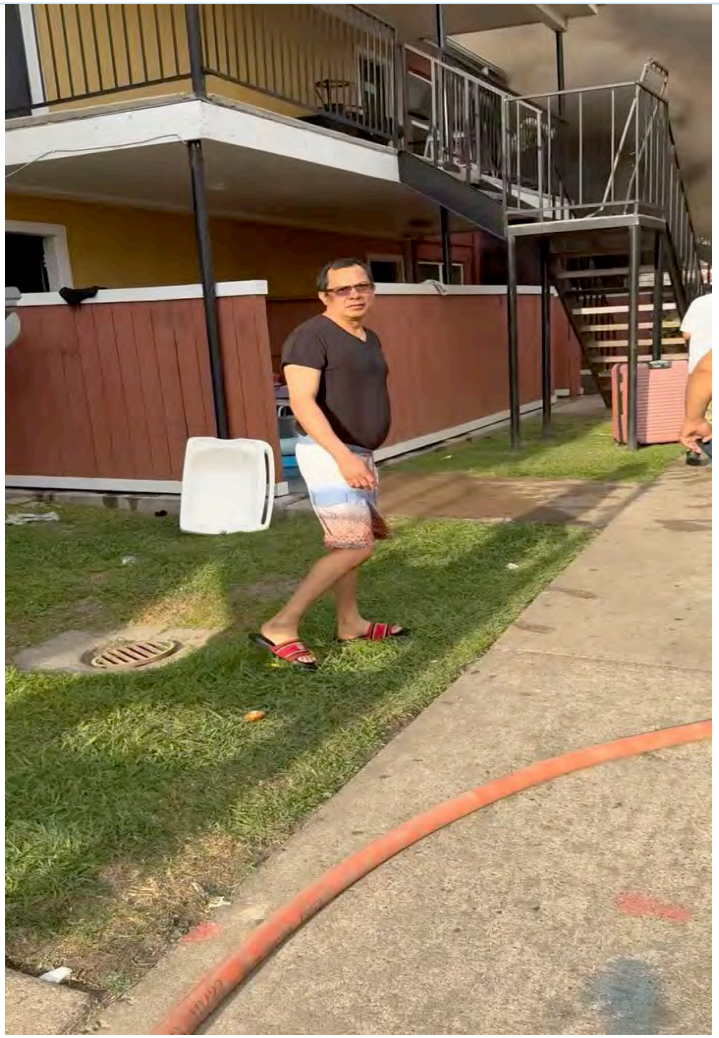
Common Kinking Issues :

- Too Much Hose
- Under Pumped
- Hard Corners
- Poorly Constructed Hose
- Negligence

DRY KINK REMOVAL →

PART 3 - STRETCHING FOR SUCCESS

Its <u>EVERYONES</u> Responsibility to chase Kinks! ;)



Chauffers' have the first 100’

The Yard!

PART 3 - STRETCHING FOR SUCCESS

HOSE LOADS

PART 3 - STRETCHING FOR SUCCESS

Do Hose Loads Matter!?

THEY CAN!!!

PART 3 - STRETCHING FOR SUCCESS

PART 3 - STRETCHING FOR SUCCESS

Drags vs Carry Debate

Both have pro's and con's. It is up to your Engine Crew to make the best decision based on your staffing, territory, and attack package.

Train with both to make the most educated decision

WE SHOUD BE FIGHTING THE FIRE NOT OUR HOSE!

PART 3 - STRETCHING FOR SUCCESS

DRY STRETCH BASICS

PART 3 - STRETCHING FOR SUCCESS

The Stretch is a critical tactic on the fireground.

We should practice stretching hose until we can't get it wrong.

The firegrounds Ops tempo can usually be dictated by the first due stretch!!

WE SET THE TONE

PT 4
MAKING THE PUSH
EVIDENCE BASED FIRE ATTACK

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

- The race against time
- Water on the Fire ASAP

Smoke Kills / Fire Burns

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

Bidirectional Flow:
- On plane with fire or fire below

Unidirectional Flow (Inward):
- Fire Above with Elevated Neutral Plane
- Wind Driven

Unidirectional Flow (Outward):
- Fire Below
- Well Advanced Fire

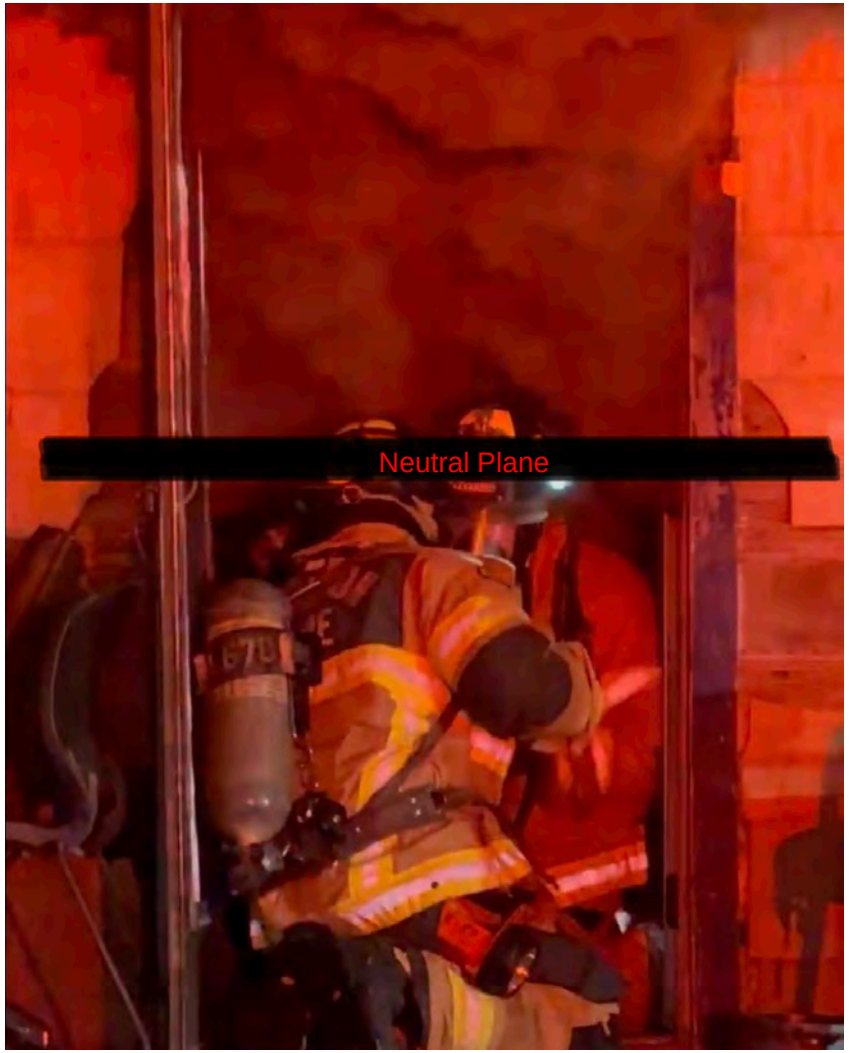
Exhaust
(Hot Air)

Neutral Plane

Intake
(Cool Air)

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

- **Life**
- **Fire**
- **Layout**

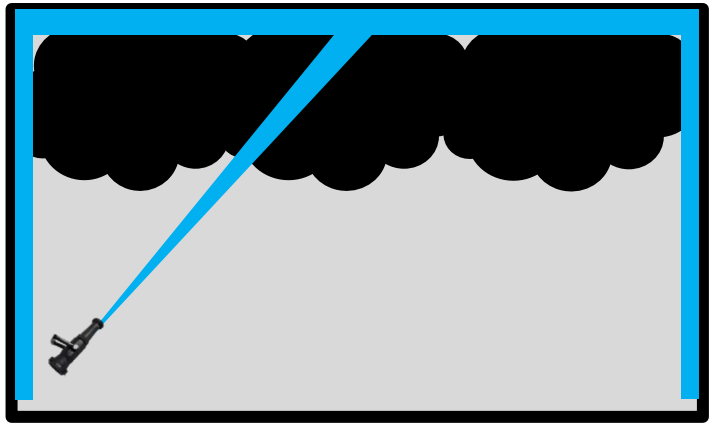


15% of fire victims were found within a few feet of an exterior door
(firefighter rescue survey)

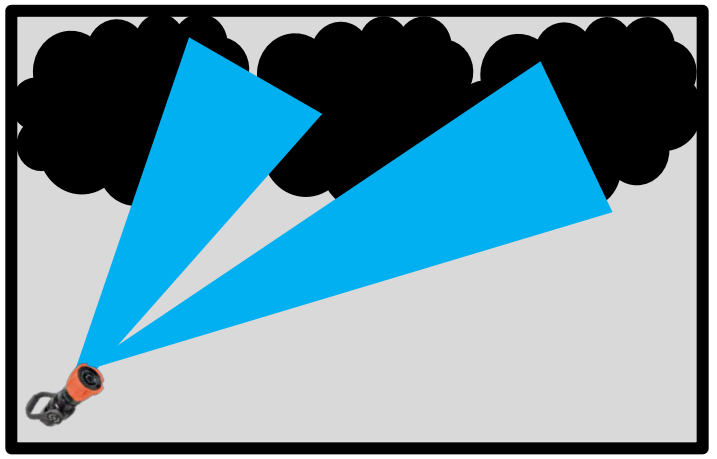
PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

Surface Cooling

- Use of Solid or Straight streams to coat ALL surfaces.
- Cool surfaces in order to cool gasses.
- Stream type matters!



VS



PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

Why Do We Surface Cool Today?

What we now know today, is that Gas Contraction, is greater than gas expansion.

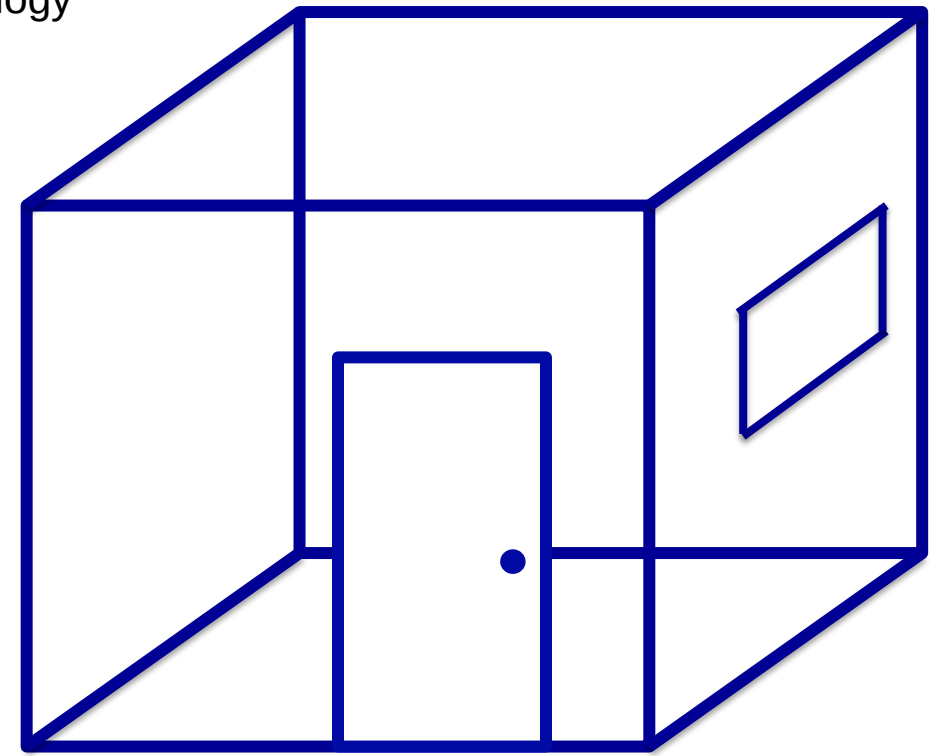
Fire gases are being cooled from temperatures over 1,200ºF to below 200ºF rapidly, over the order of seconds or less.

WITH SURFACES, THE WETTER THE BETTER!!!

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

Surface Cooling Methodology

=



Treat Every Compartment As If It Were The Can
(Can Walls = Room Walls/Ceiling/Floor)

More Surfaces Cooled **Simultaneously** = More Gas Contraction

Improved Conditions Adjacent To & Remote From Water Application

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

WATER MAPPING

Definition:

The ability to distribute water throughout compartments in the fire building

- Stream Shape and Placement Matters
- Placement Trumps Gallons
- Steeper angles coat more surfaces

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

Perpendicular Streams radiate water in 360º

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

Steep angle provides greatest surface coverage

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

AIR ENTRAINMENT

- Line Size, Nozzle Flow/Pressure, Application Patterns, Stream Type, Stream Angle……

THEY MATTER

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

Airflow Values:

- Smooth Bore / Straight Stream
  - 1,000 – 2,000 CFM
- Smooth Bore / Straight Stream ”O” Pattern
  - 4,000 – 6,000 CFM
- Fog Nozzle 20º- 30º
  - 10,000 CFM
- Fog Nozzle 20º- 30º “O” Pattern
  - 15,000 + CFM

A BROKEN STREAM MOVED QUICKLY CAN ENTRAIN AS MUCH AIR AS A PPV FAN!!

CHECK YOUR TIP BEFORE FLOW!!

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

Flow and Move Advancement:

Ahead of the Line:

- Reach & Surface Cooling
- Begin Knock-Back of Fire
- Keep FF & Victim Safety By Isolation With Water

‘O’ Pattern Acts As Doorway Moving Through Structure – Compartmentation

Behind the Line:

- Fresh Air Entrained
- Improved Visibility
- Improved Victim Survivability
  - (O2 Increase)

Paint Rainbows

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

Flow & Move: Why?

- Reversing the Flow Path
- Keep bad stuff out ahead
- Isolation / Compartmentalize
- Own the Space

Flow & Move: When?

- When working in the flow Path
- Wind Driven
- Instant Rebounding when flowing stops
- When half the space fills with superheated dark smoke
- Convective Currents headed your way

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

Hit & Move Advancement:

- Hit and Sit for R&R
- Watchout for rebound
- Temps will build back up if the nozzle isn’t open

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

Hit & Move: Why?

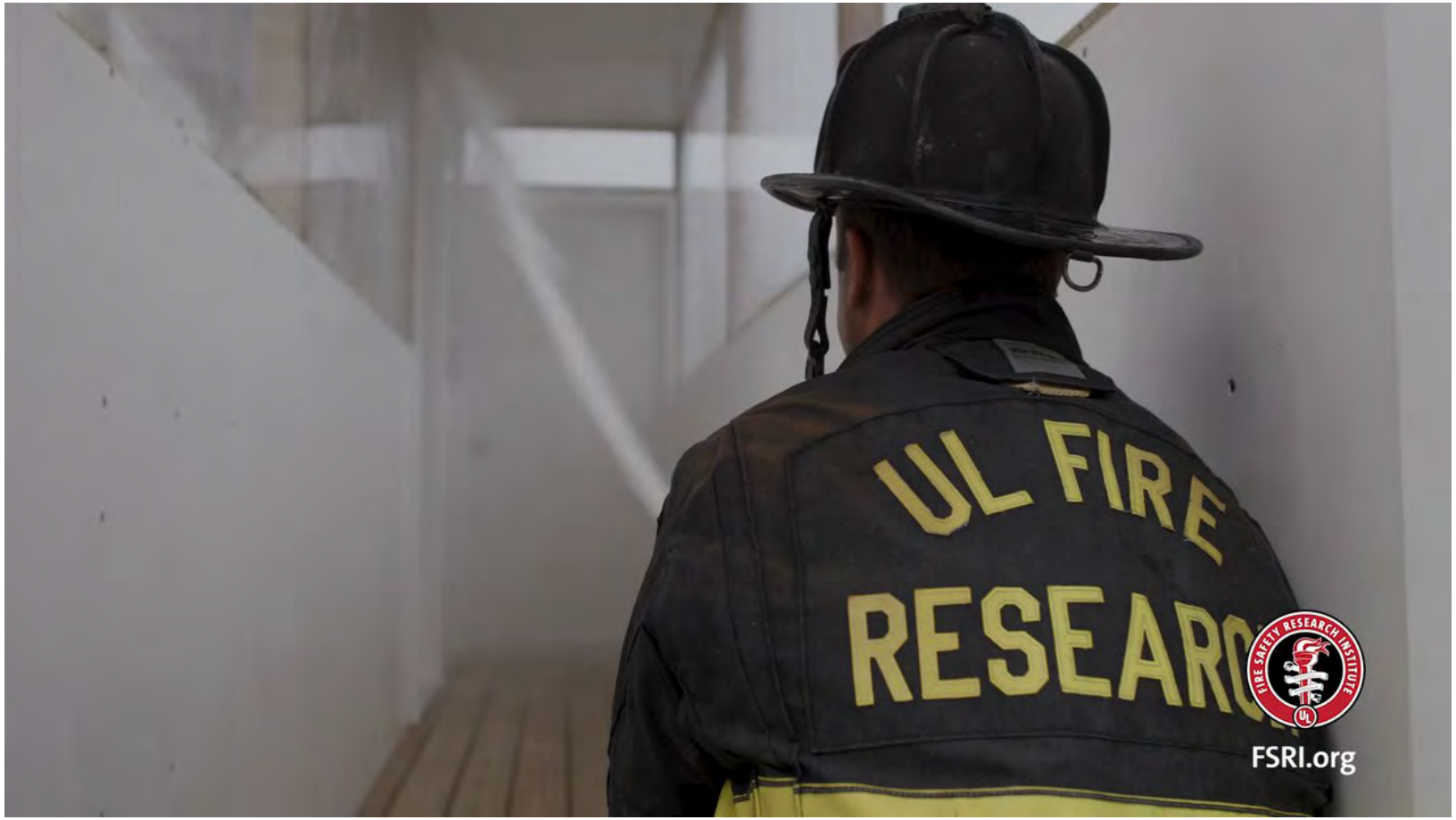
- Rent The Space
- Stream Sounds (sonar)
- No Rebounding When Flow Stops

Hit & Move: When?

- Active Rest
- Kill Shot (attack solid fuels)
- Not in the active Flow Path

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

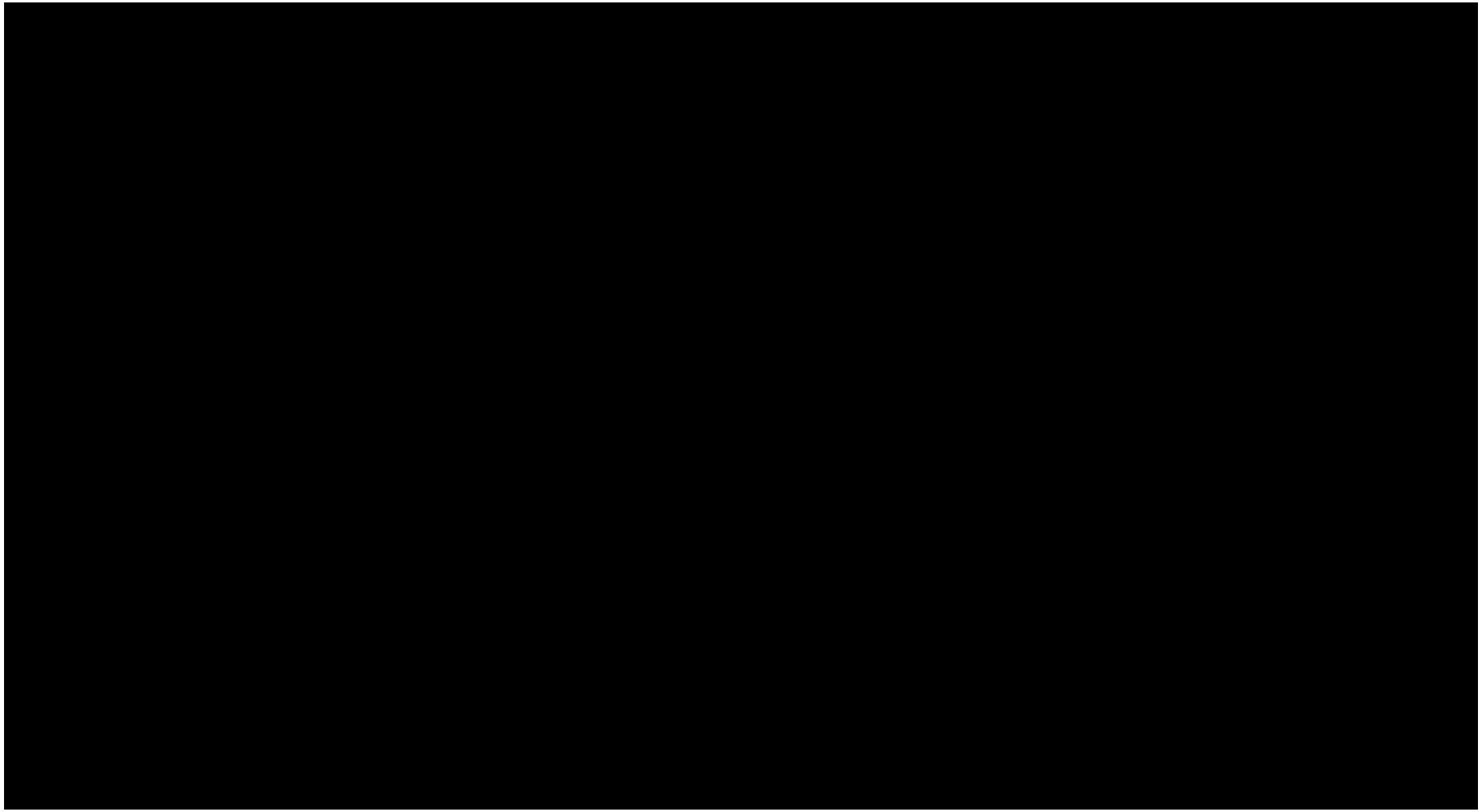
Alternative Hits



PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

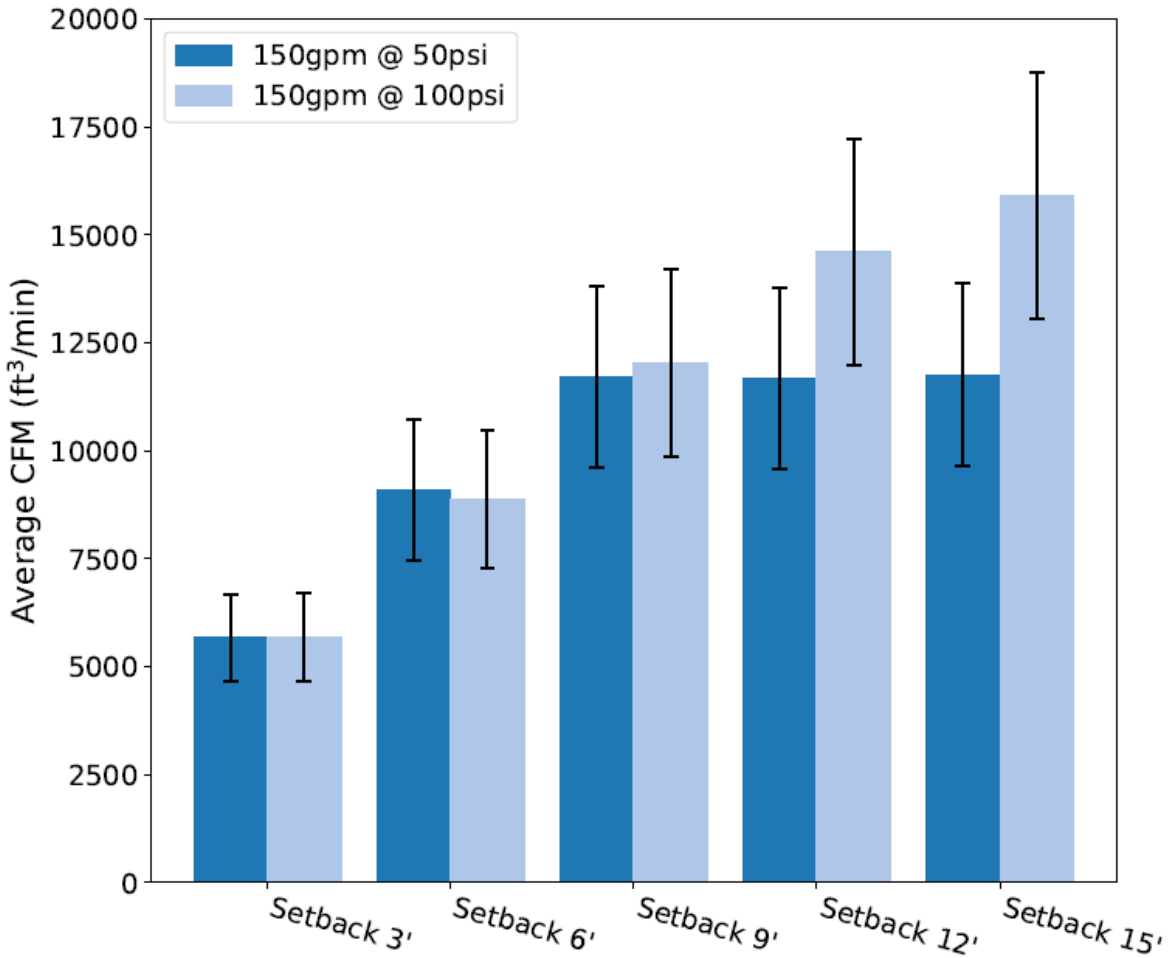
- King Stud Hit / Doorway Deflection (interior hit)
- Lintel / Header Hit (exterior hit)

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK



PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

Hydraulic Vent



PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

Hydraulic Ventilation Takeaways

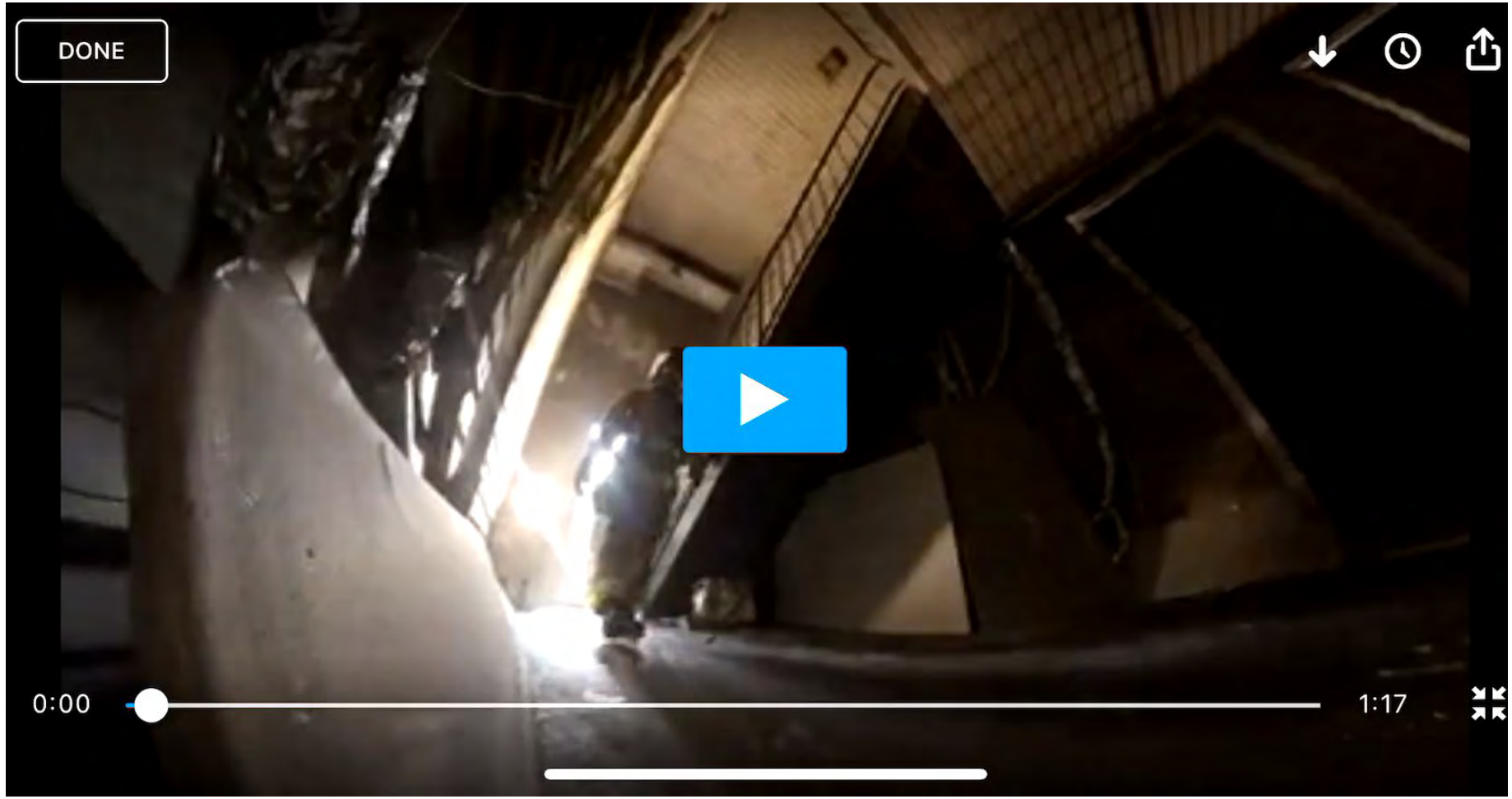
Benefits:

- Provides the quickest Return to tenable conditions
- Should be thought of as a ”Life Safety” measure

Technique:

- Begin IMMEDIATELY after knockdown
- Open ALL other doors and windows for fresh air intake
- Droplets must leave the room
- Further into the room (Further away from window) the better

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK



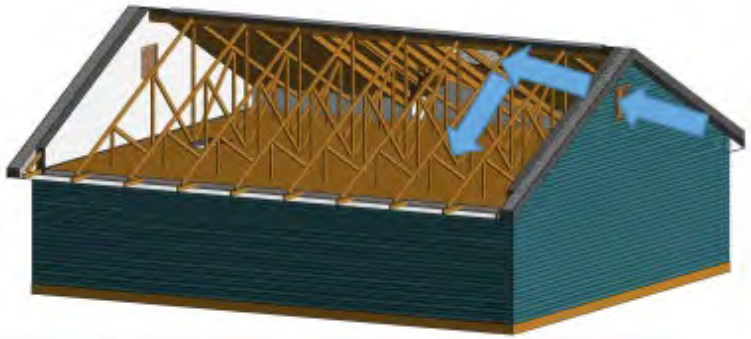
PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

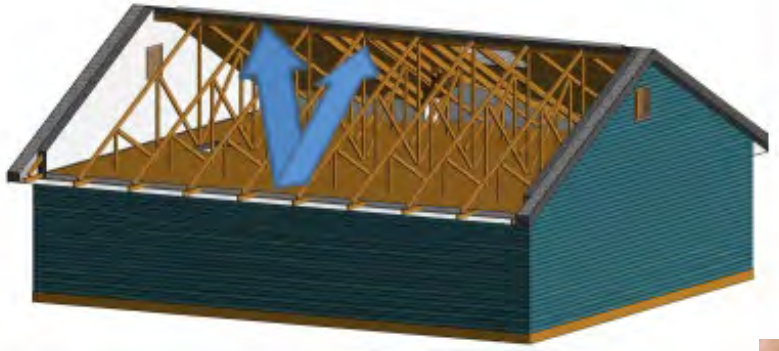
Attic Fires

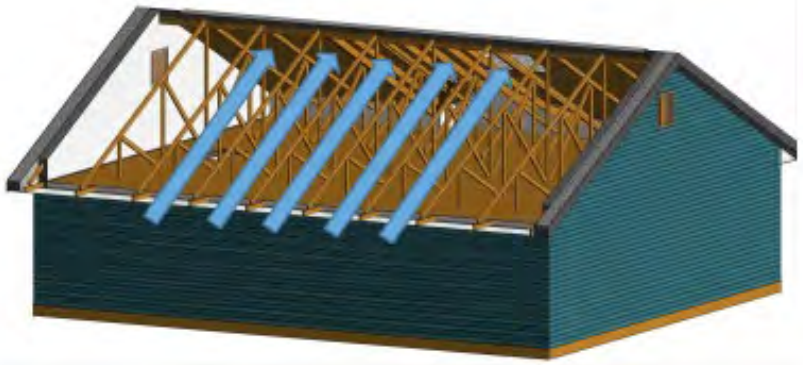
- Limited access
- Complicated stretch
- Challenging in Multi-fam / Apartments

PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

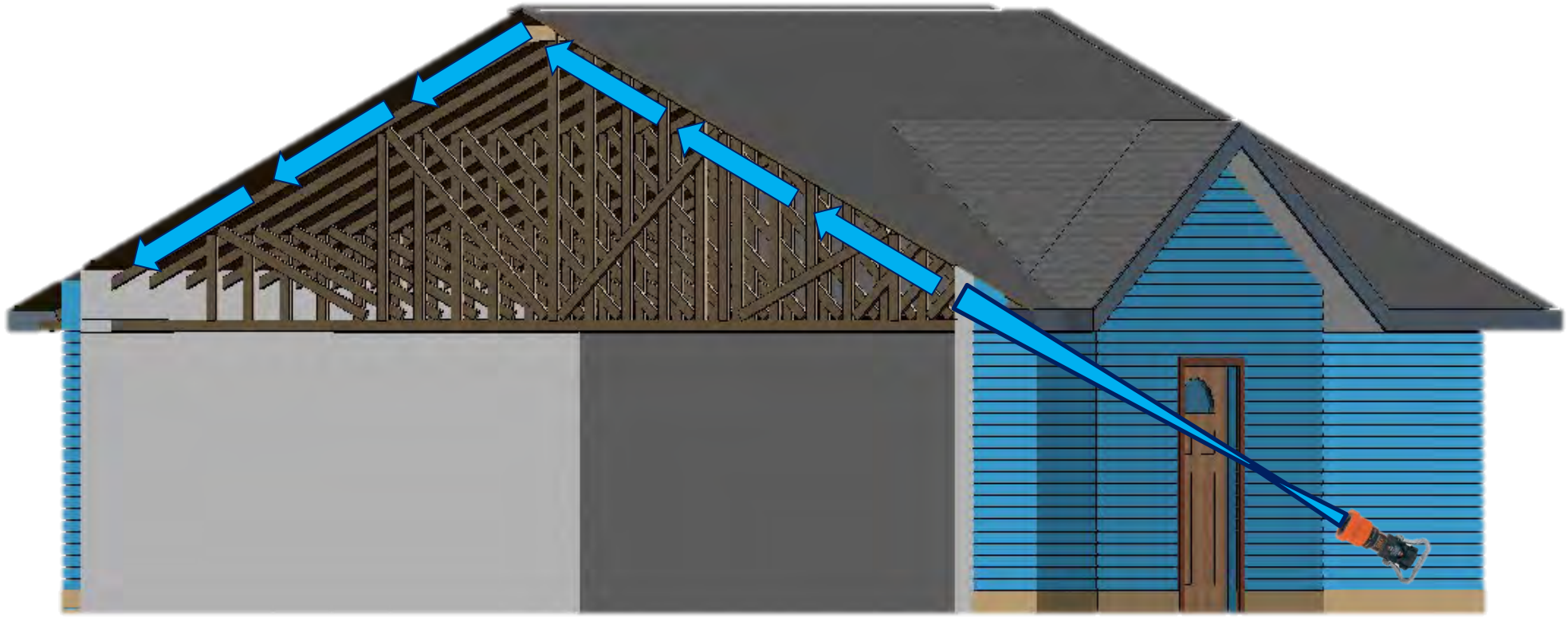
Attic Construction Affects Hose Stream Penetration







PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK



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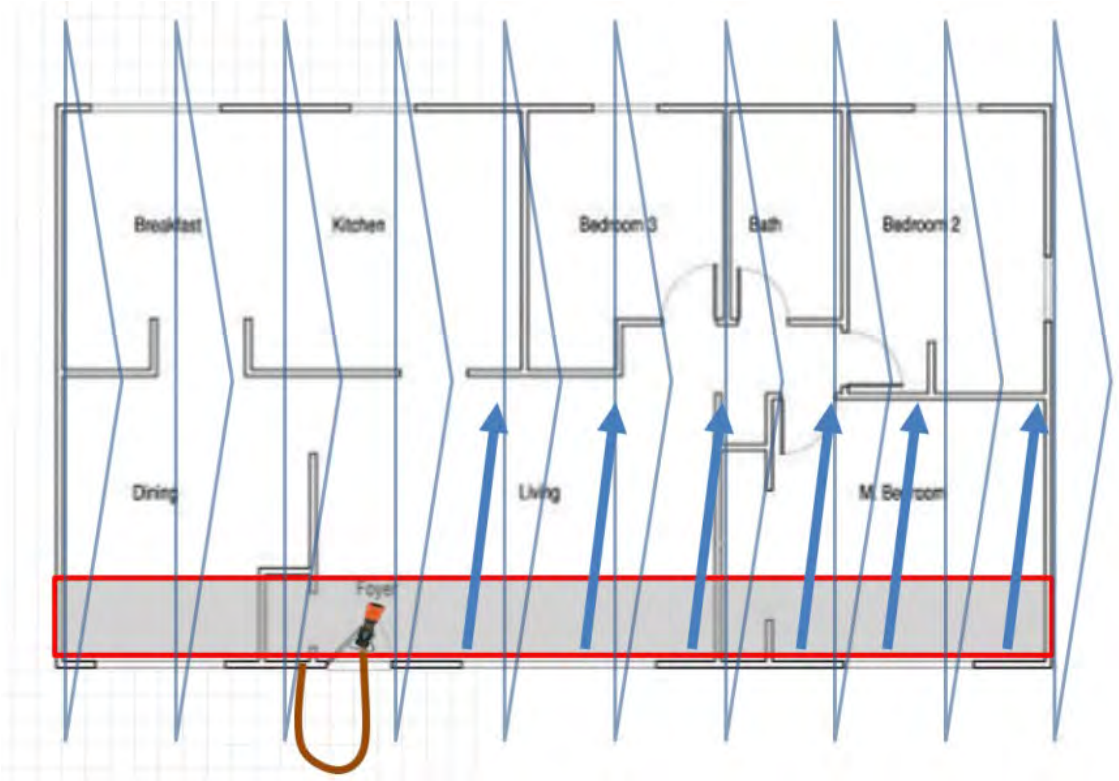
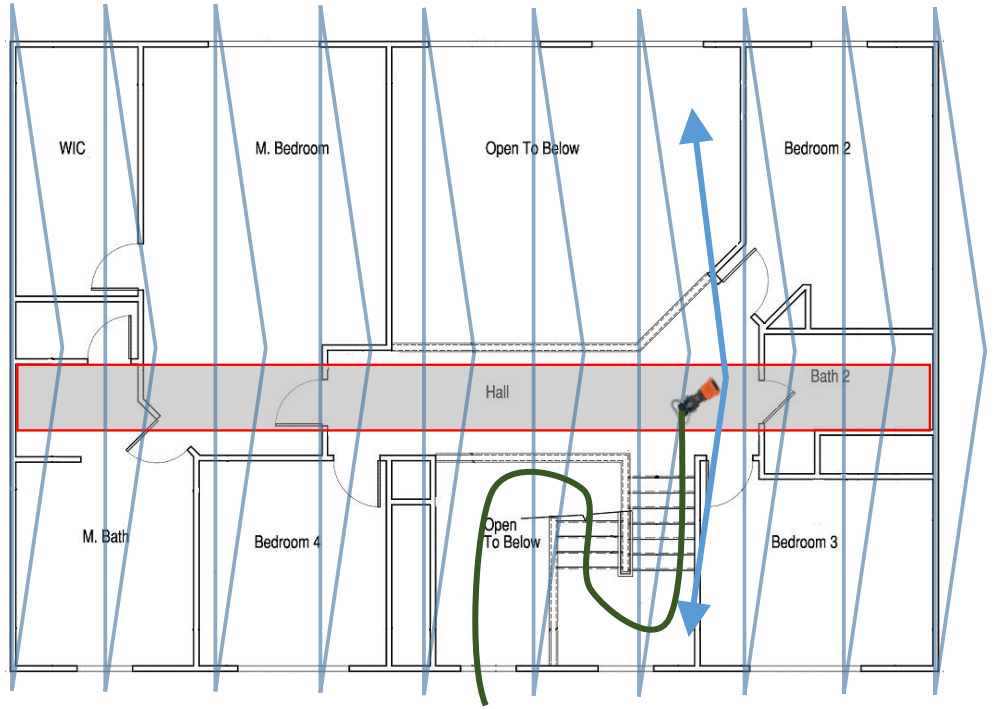


Water in the eaves, from the inside…

Attic Access to make a stop…



PART 4 - MAKING THE PUSH. EVIDENCE BASED FIRE ATTACK

RECAP FIRE ATTACK

- Stream shape matters
- Cooling all surfaces is paramount
- Flow early & Flow often
- Contraction outweighs Expansion with solid streams

PT 5
COMMON CHALLENGES
OVERCOMING COMMON CHALLENGES ON THE FIREGROUND

PART 5 - OVERCOMING COMMON FIREGROUND CHALLENGES

Nothing Showing?

360º Look

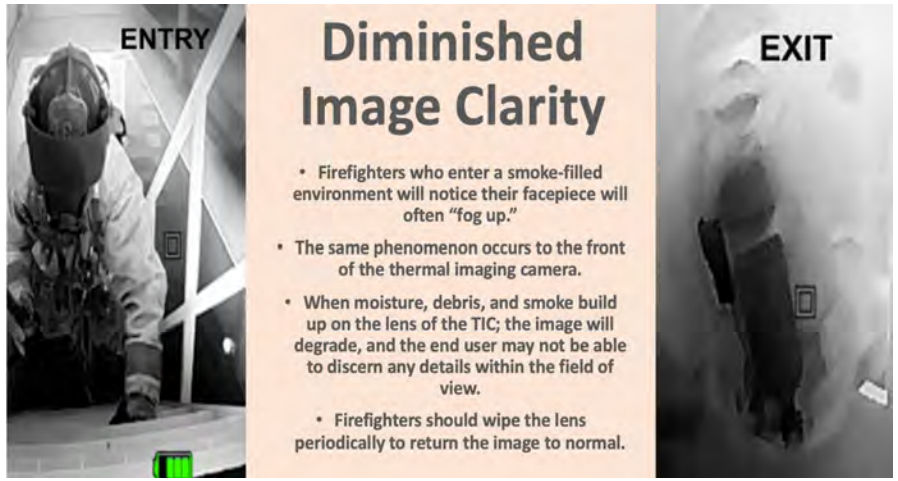
Thermal Bridging

Search / Survey Mode

Where Do you think the stairs are?

PART 5 - OVERCOMING COMMON FIREGROUND CHALLENGES

Overcoming Thermal Imaging Common Challenges



"White Out" = Moisture / Debris

1.Wipe Lense ➡ 2.Wipe Mask ➡ 3.Wipe Display

"Glitch or Lag"

Slow Yo Roll

"Washed Out"

Everything is comparable in temperature

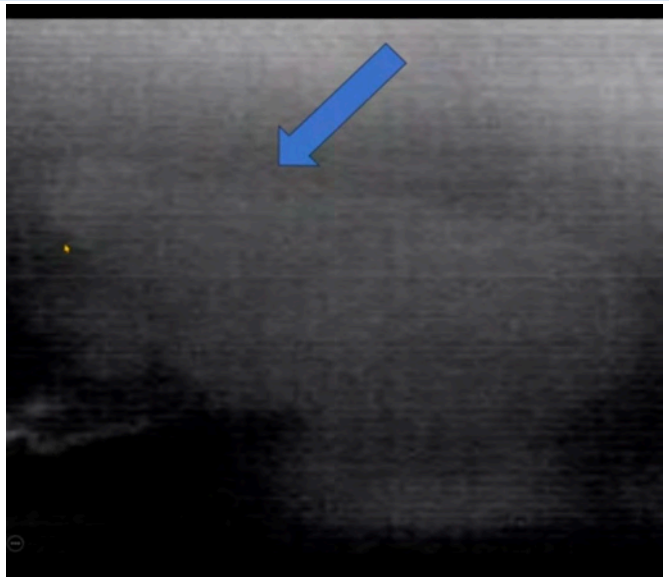
Common in floor above searches

Engines can use the stream against a surface to get contrast.

Photos Credit: Andrew Starnes

PART 5 - OVERCOMING COMMON FIREGROUND CHALLENGES

LOOKING FOR LUMPY!



Don’t focus on color shade
Focus on Shape

Poor Image Quality due to Dirty Lens

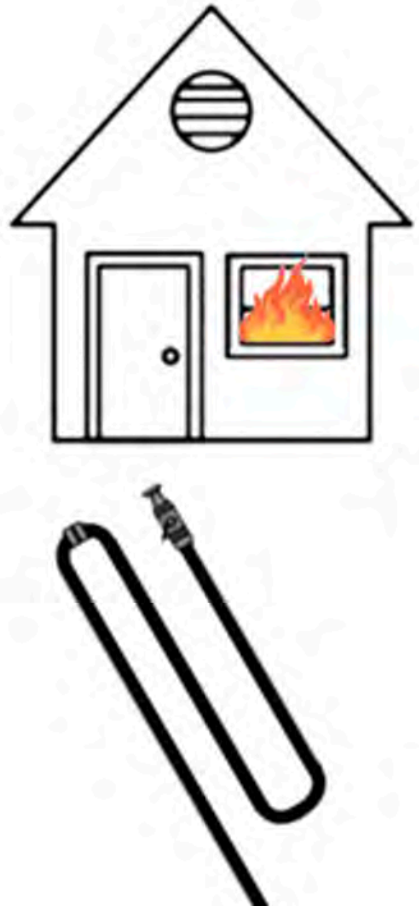
PART 5 - OVERCOMING COMMON FIREGROUND CHALLENGES

Going Vertical

PART 5 - OVERCOMING COMMON FIREGROUND CHALLENGES

Stretch Orientation

- In-line
- First Coupling to the door



It should be almost effortless to advance the first 50’

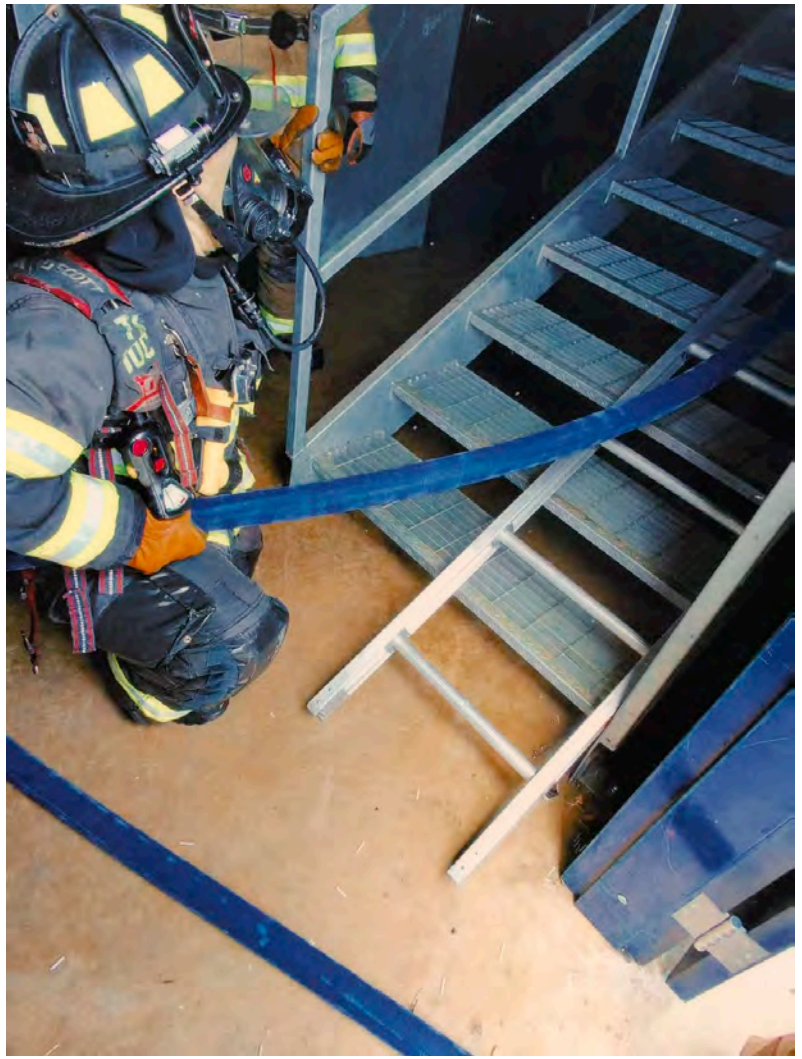
PART 5 - OVERCOMING COMMON FIREGROUND CHALLENGES

Leader Line Woes

2.5 to 1.5

PART 5 - OVERCOMING COMMON FIREGROUND CHALLENGES

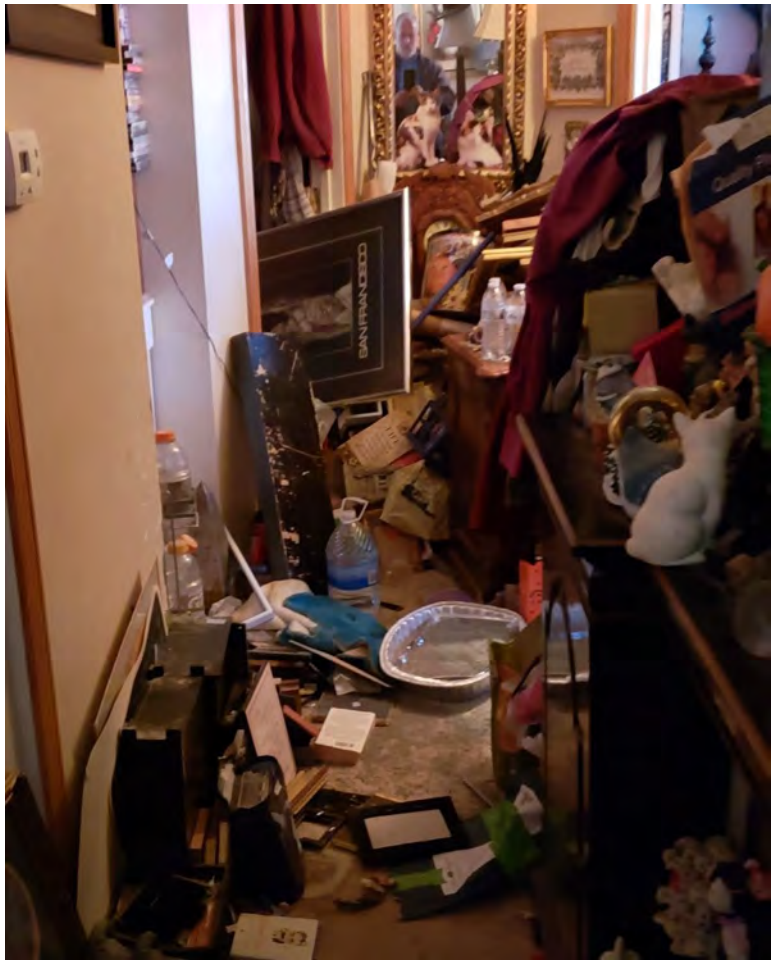
Burned Up Stairwell

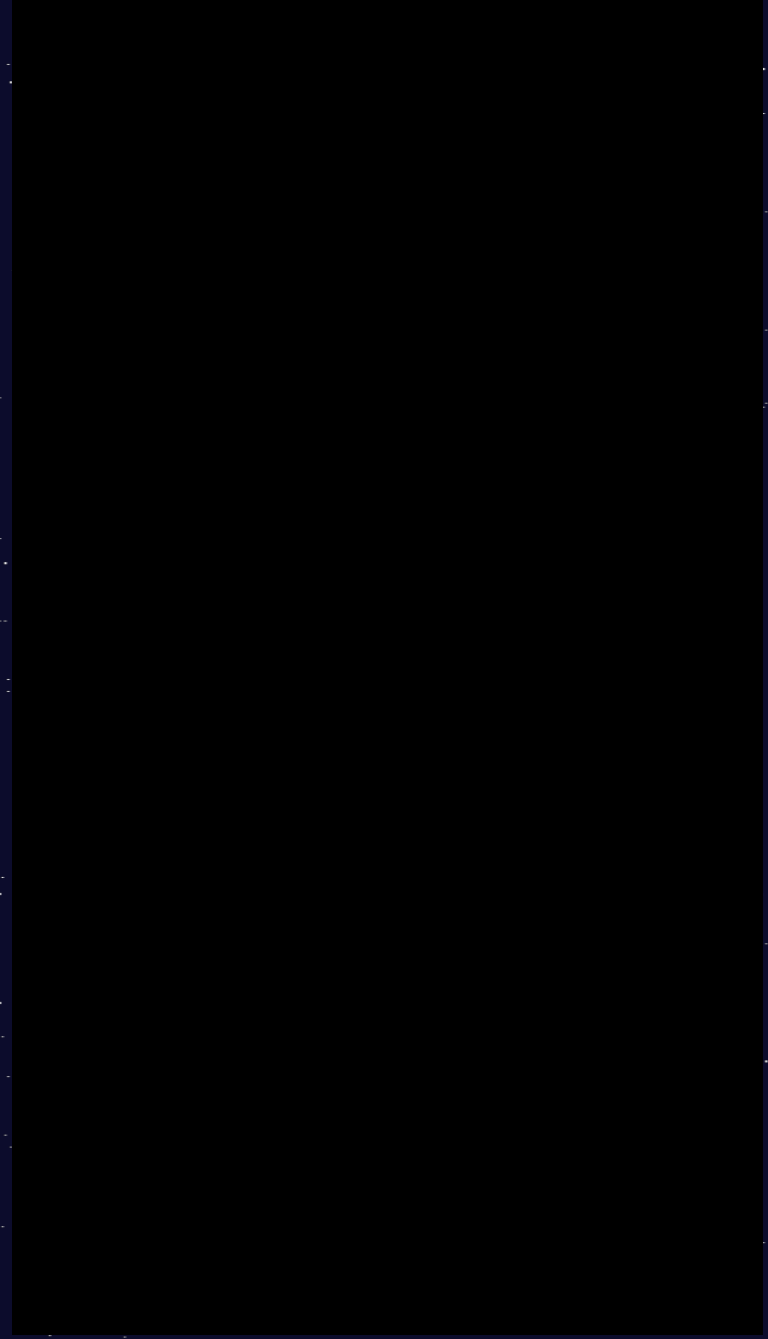


PART 5 - OVERCOMING COMMON FIREGROUND CHALLENGES

Disoriented / Poor Visibility / Hoarding

- Use a Checkpoint System
- Communication is Paramount
- Allow the Nozzleman to see through your TIC





THANK YOU!

ANY QUESTIONS?

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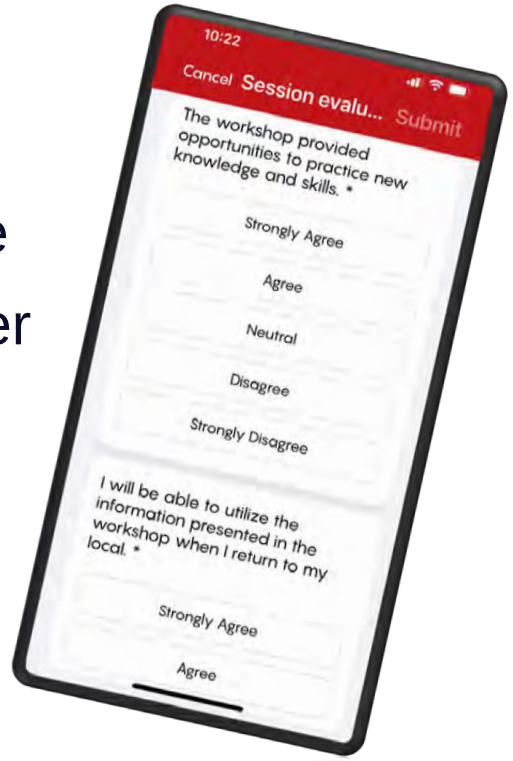
Texasreiguy@yahoo.com

EVALUATION AND WIN AN IPAD!

- **Submit your workshop and overall evaluations to be automatically entered in two drawings for a new iPad!**
- **Complete your evaluations using the IAFF app:**
  1. Download the IAFF app and sign in with your iaff.org username
  2. Tap the 2026 Strive for Excellence Summit event image to enter the event's dashboard
  3. Tap "Sessions" and tap on the workshops you attended
  4. Tap "Evaluation" and complete the evaluation
  5. Tap "Submit"



For the event's overall evaluation, follow steps 1 and 2, then tap "Event Evaluation" located in the event's Dashboard.