

FDIC Webcast 2020

# Reading Smoke: The Next Generation

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# Hello Internet Students!

Let's start with a few questions:

Why am I here today?

Why are YOU here today?



# No “B.S.” Learning Objectives

- Discuss the “NEW NORMAL” of today’s structure fire
- Present a real-world, time-proven approach to evaluate smoke conditions in order to predict fire behavior at structure fires
- Strengthen previous “reading smoke” concepts for the benefit of evaluating tactical outcomes
- Give you some real-incident practice using the reading smoke process



# Three Points to Start:

1. Smoke **IS** Fuel!

VIDEO: 1 Density Velocity Continuity

Three Points (cont.):

2. The “NEW NORMAL” is  
Rapid Rate of Change

Video: 2 The NEW normal

Three Points (cont.):

3. Ignition Trigger Points!

# "Ladder Fuels"

| FUEL             | Self-Ignition Temperature | Flammable Range |
|------------------|---------------------------|-----------------|
| Acrolein         | 450°F                     | 3%–31%          |
| Fuel Oil Residue | 460-500°F                 | Aerosol         |
| Benzene          | 928°F                     | 1%–8%           |
| Hydrogen cyanide | 1,000°F                   | 5%–40%          |
| Carbon monoxide  | 1,128°F                   | 12%–74%         |



# Three Points:

1. Smoke **IS** Fuel!
2. The 'NEW NORMAL'
3. Ignition Trigger Points



# Moving from Why? To HOW?

- HOW? Is a 3-step process.

# From Why? To HOW?

Step 1: Inventory

FOUR ATTRIBUTES OF SMOKE:

- VOLUME
- VELOCITY
- DENSITY
- COLOR

# From Why? To HOW?

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FOUR ATTRIBUTES OF SMOKE:

- **VOLUME!**
- Establishes relativity
  - Building size
  - Opening size

# VOLUME: The Volume Paradox!

- Vent vs. Fuel controlled

Video 3-1 Volume Paradox ULFSRI



# VOLUME: The Volume Paradox!

- Vent vs. Fuel controlled
- What happened to the volume we saw while responding?

Video 3-2 Volume Paradox - Hendrix

# From Why? To HOW?

FOUR ATTRIBUTES OF SMOKE:

- **VELOCITY**
- **Indicates HEAT**

Video 4: Velocity vs Volume



# From Why? To HOW?

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## FOUR ATTRIBUTES OF SMOKE:

- DENSITY
- Indicates upcoming severity
- Why?

# From Why? To HOW?

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## FOUR ATTRIBUTES OF SMOKE

- COLOR
- Material vs. Heat
- White smoke TRAPS

# From Why? To HOW?

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**Step 2: What is influencing the FOUR?**

**The BOX!**

**The Weather?**

**Our Actions!!**

# From Why? To HOW?

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Step 3:  
**ANSWER THREE QUESTIONS!**

1. Where is the Fire?
2. How Big is the Fire?
3. What will happen next (how fast)?



# Video Practice and discussion!

Video – Apartment fire - 1

Let's add three questions:

What are we going to do about it?

- Tactics

What do we expect to happen?

- Operational Pace

What actually happens?

- Reality



# Video Practice and discussion!

Video – Apartment fire - 2

# Final thoughts:

- Reading Smoke is a Skill
- Practice improves any skill
- Feel free to reach out to me at:

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