

The *ART* of Reading Smoke

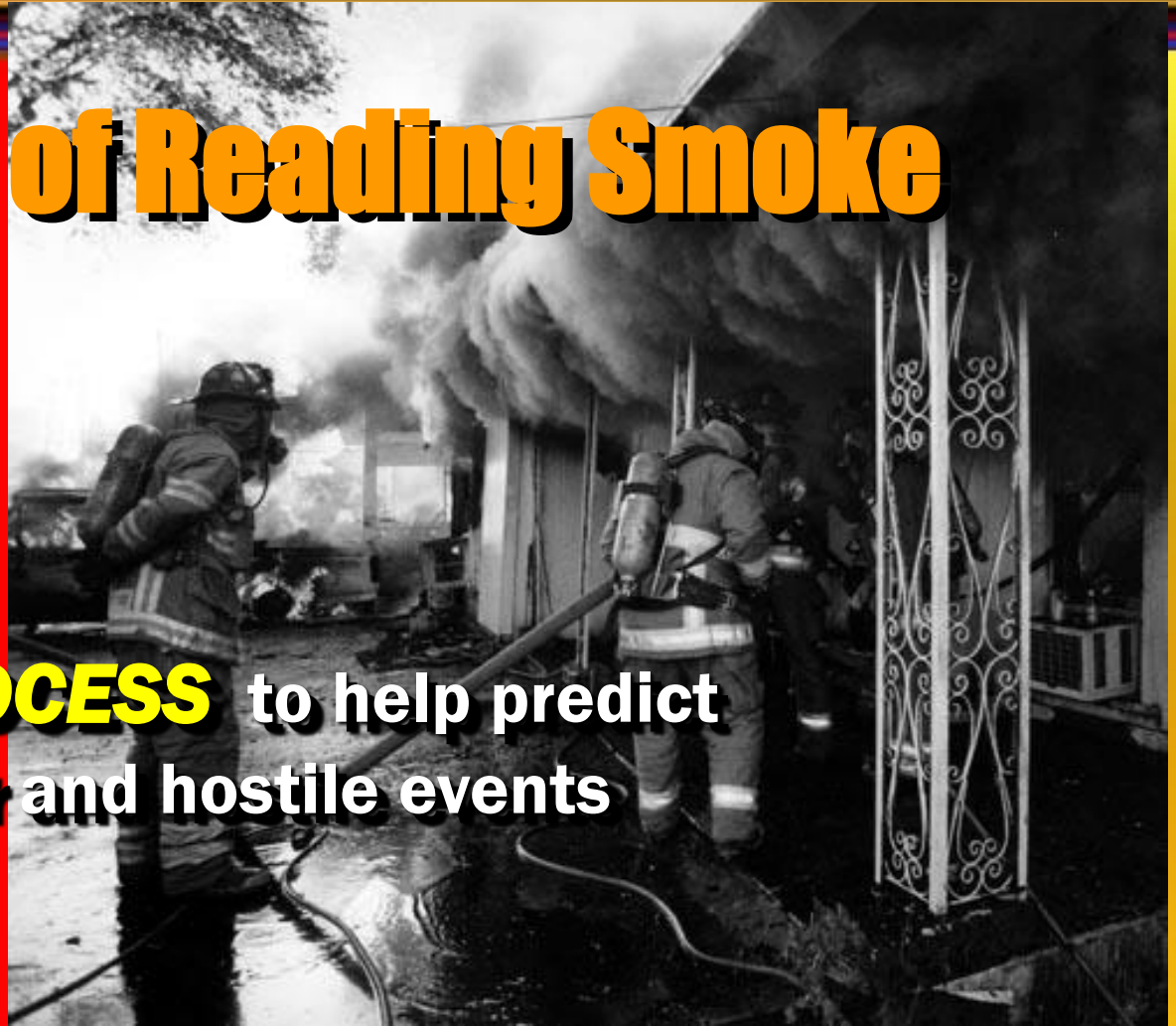
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*With Permission From:
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The ART of Reading Smoke

A **4-STEP PROCESS** to help predict fire behavior and hostile events



Step 1: Evaluate Key Factors

- Volume
- Velocity (Pressure)
- Density
- Color



VOLUME



- Always relative to the “Box”
- Tells “how much” fuel has off-gassed
- Sets the Stage

VELOCITY (Pressure)



- **How fast is the smoke leaving?**
- **Can indicate volume or heat**
- **Helps find the location of the actual fire**

DENSITY



- **Most Important Factor**
- **Quality of Burning**
- **Continuity of Fuel**
- **Likelihood of an event**
- **“Degree” of the Event**

COLOR



- **Rarely tells “material burning”**
- **Stage of Heating**
- **Location of Fire**
- **Amount of Flaming**
- **“Brown” Smoke**
- **“Black Fire”**

“BLACK FIRE”



“Black Fire” is the term we give to High Volume, High Velocity, Extremely Dense, Black Smoke.

It is the sure sign of impending flashover – **VENT & COOL** are your only choices.

Step 2: Weigh Factors

- **Container (most important factor)**
- **Thermal Balance**
- **Weather**
- **Firefighting efforts**



Step 3: Judge the Rate of Change



How fast are SMOKE conditions getting better or worse?

Step 4: Predict the **EVENT**

Consider that:

- One hostile event can - *and usually will* - lead to another event.
- Communicate your observations.
- Warning Signs are not always visual – use your **KNOWLEDGE** and **EXPERIENCE**.

TRUST YOUR INSTINCTS...



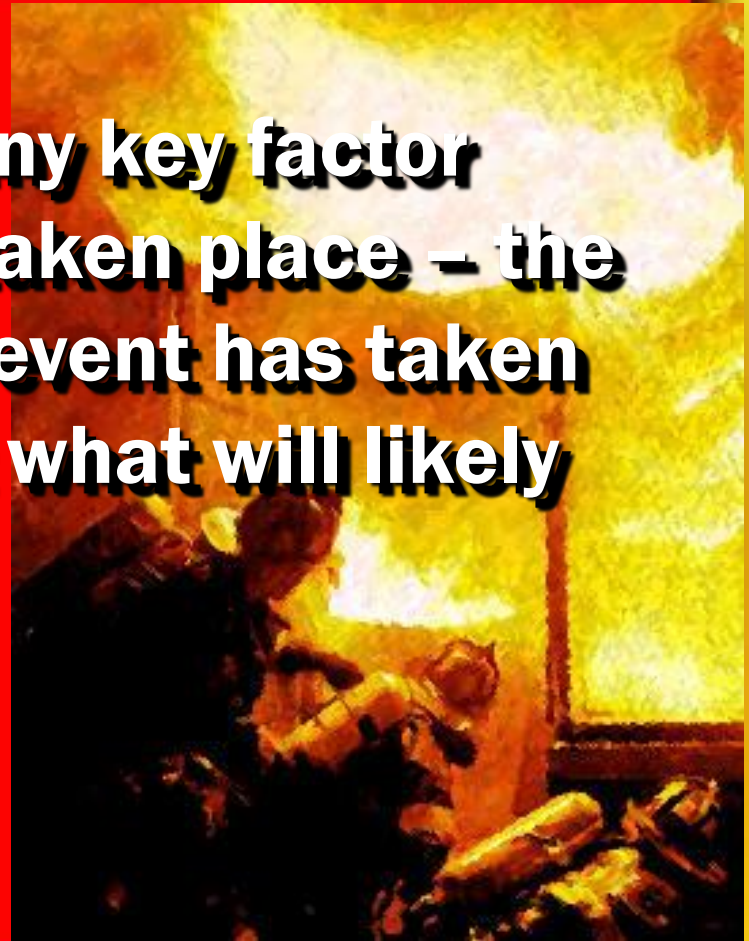
Some other “Tricks”

When you open a door or window - watch what the smoke does - and what the fresh air does!



Some other “Tricks”

A 5-second change in any key factor means an event has taken place – the key is to define what event has taken place and to forecast what will likely happen next.



THE ART OF READING SMOKE



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