



SDSO Basic Fire Academy

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Introduction/Objectives

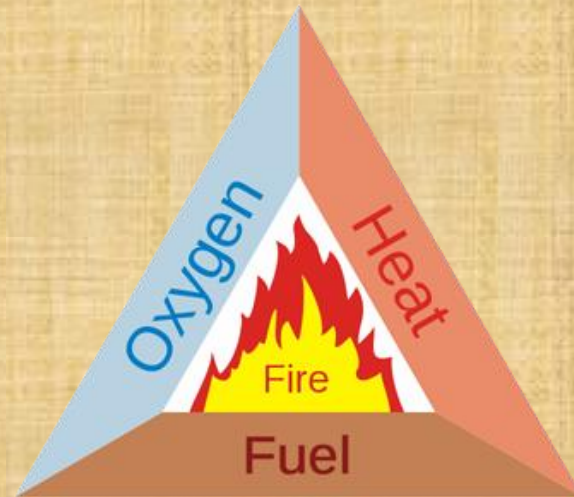
- *Class Introductions*
- *Classroom*
 - What is fire?
 - Extinguishers
 - Self Contained Breathing Apparatus
 - Personal Protective Equipment
 - Fire Protection Systems

Introduction/Objectives

- **Hands-On**
 - Donning Turn-outs
 - Donning SCBA
 - Safety Briefing on Live Fire Training
 - Simulated events with Turn-outs and Equipment
 - Extinguisher Training
 - Fire Hose Training
 - Obstacle course

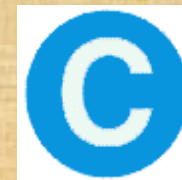
What is Fire?

- Fire is the rapid oxidation of a material in the chemical process of combustion, releasing heat, light, and various reaction products.
- Fire Triangle
 - Oxygen
 - Heat
 - Fuel



Types of Fires

- *Four basic categories:*
 - Class A-Ordinary combustibles
 - **Green Triangle**
 - Class B-Flammable liquids
 - **Red Square**
 - Class C-Energized electrical
 - **Blue Circle**
 - Class D-Combustible metals
 - **Yellow Star**



Phases of Fire:

- **Four phases:**
 - Incipient/ Ignition
 - Growth
 - Fully Developed/ Steady-State/ Free-Burning
 - Decay/ Smoldering

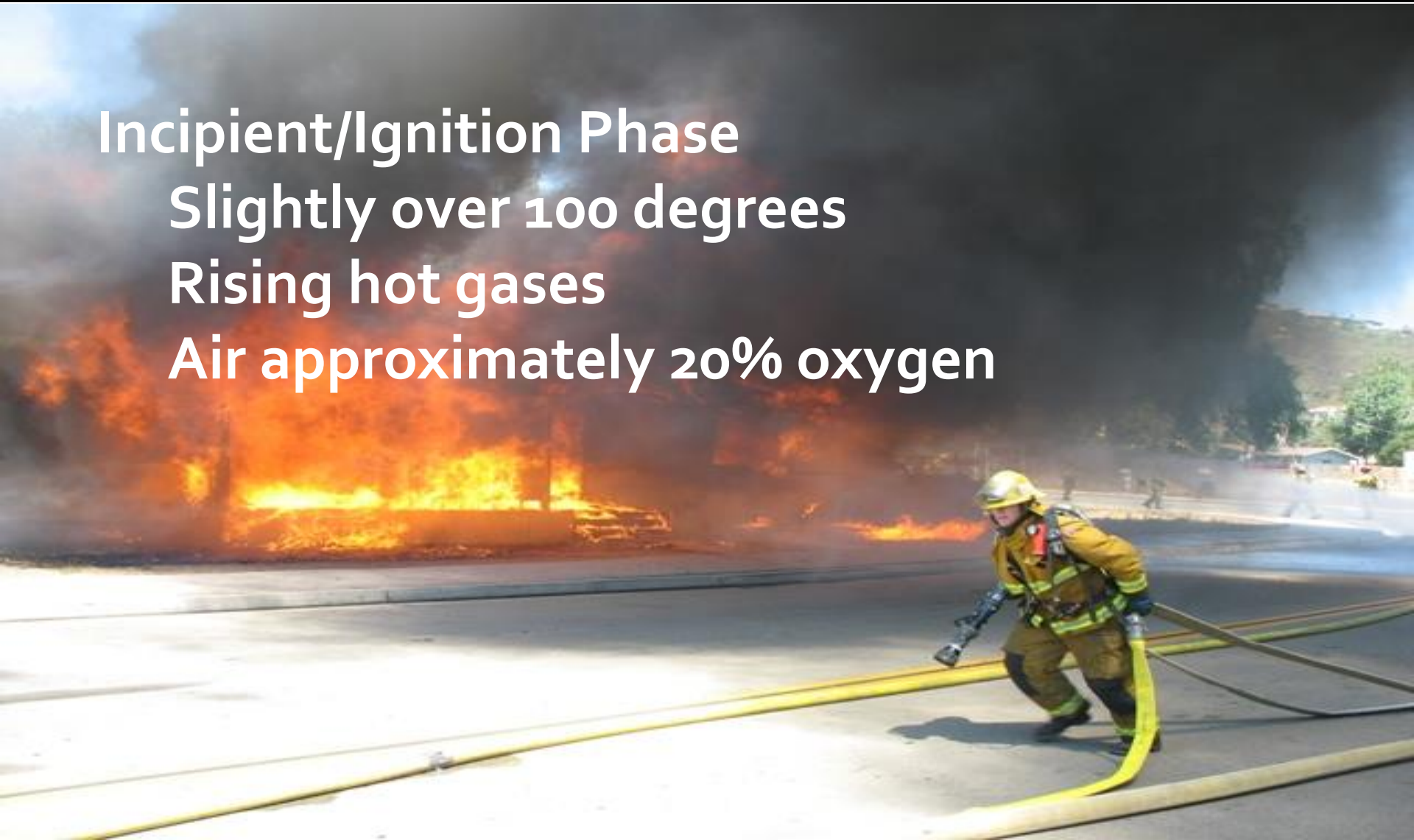
Phases of Fire:

Incipient/Ignition Phase

Slightly over 100 degrees

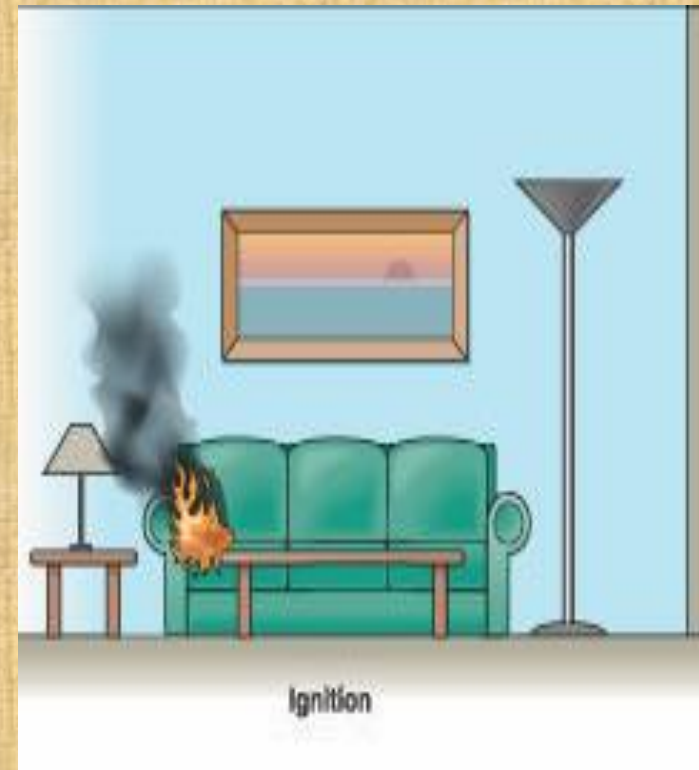
Rising hot gases

Air approximately 20% oxygen



Phases of Fire:

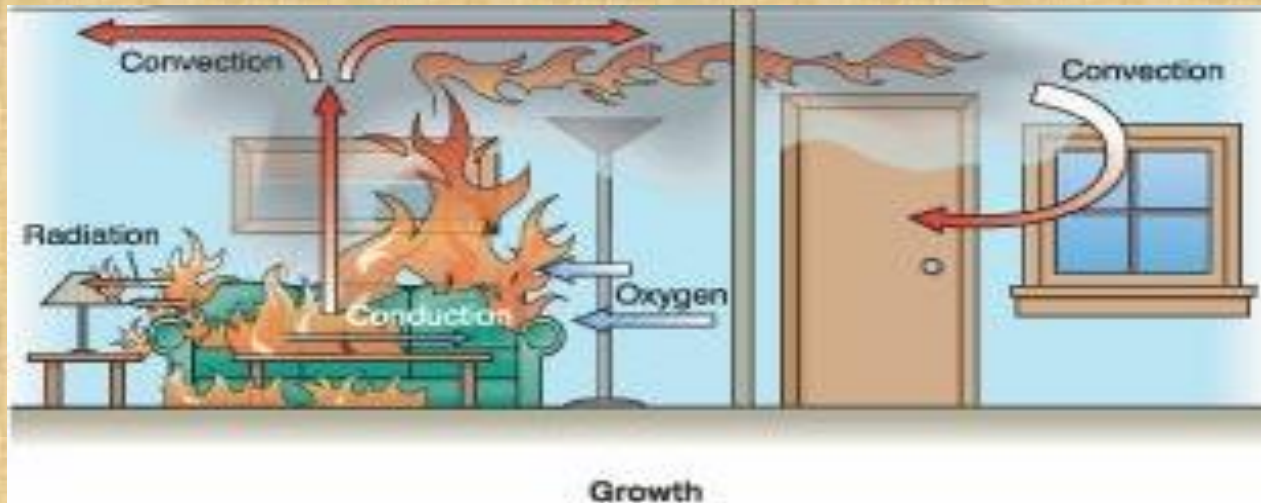
- Incipient/Ignition Phase:
 - This is where rollover usually occurs: Rollover is unburned gases accumulating at the ceiling reaching their flammable range ignite and roll over the ceiling



Phases of Fire:

■ Growth:

- Fire load and oxygen are used as fuel for the fire
- It is during this shortest of the 4 stages when a deadly “flashover” can occur; potentially trapping, injuring or killing firefighters



Phases of Fire:

- **Flashover:**
 - Flames flash over an entire surface of a room or area
 - All contents reach their ignition point



These flashover videos

Phases of Fire:

■ Fully Developed/Steady-State/Free-Burning

- Free-burning fire
- Smoke and superheated gases collecting at the ceiling level
- Temperatures at upper regions +/- 700 degrees



Phases of Fire:



- **Decay/Smoldering**
 - Oxygen below 15%
 - Temperature throughout is high
 - CO, carbon, & gases may cause Backdraft

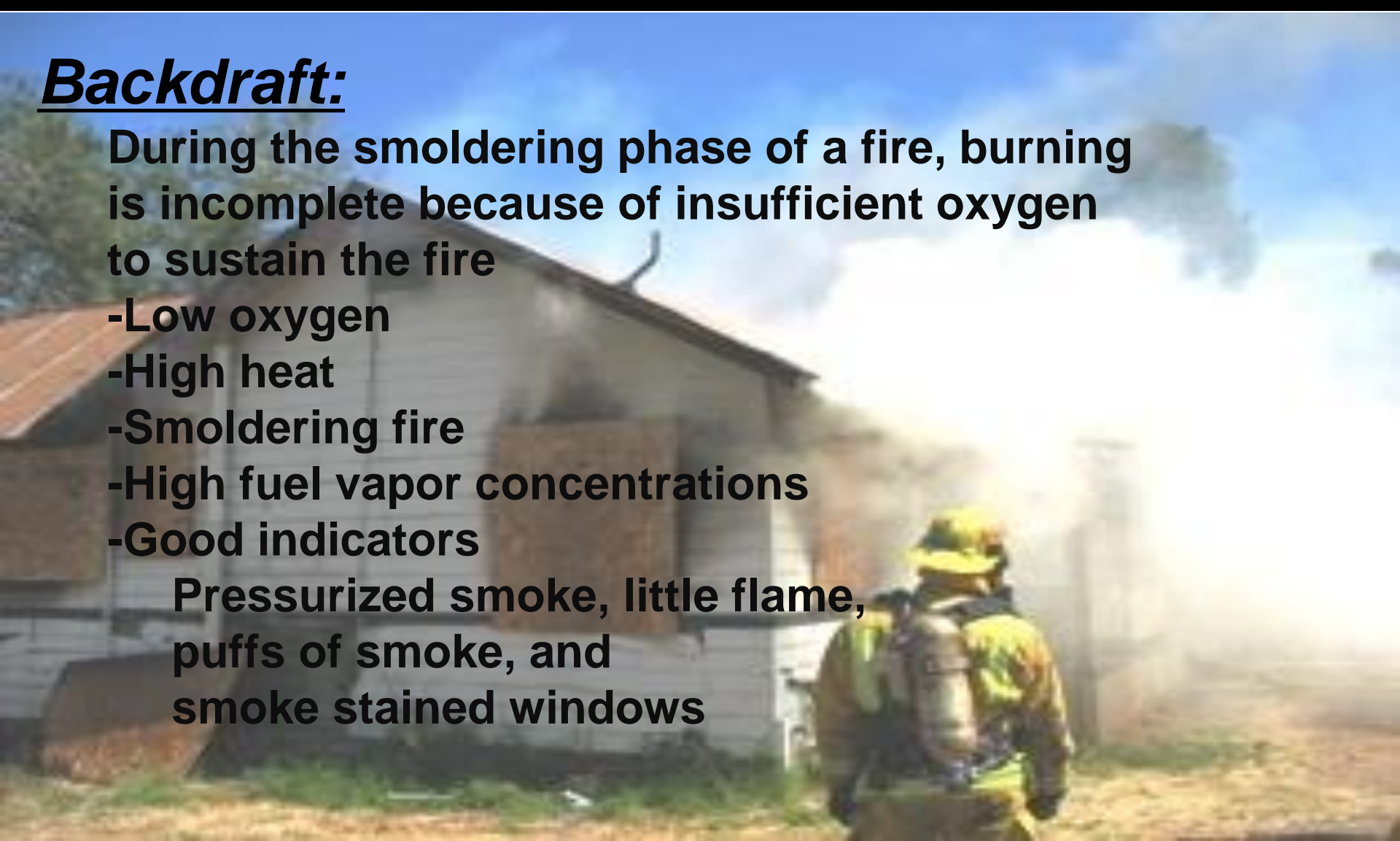
Phases of Fire:

Backdraft:

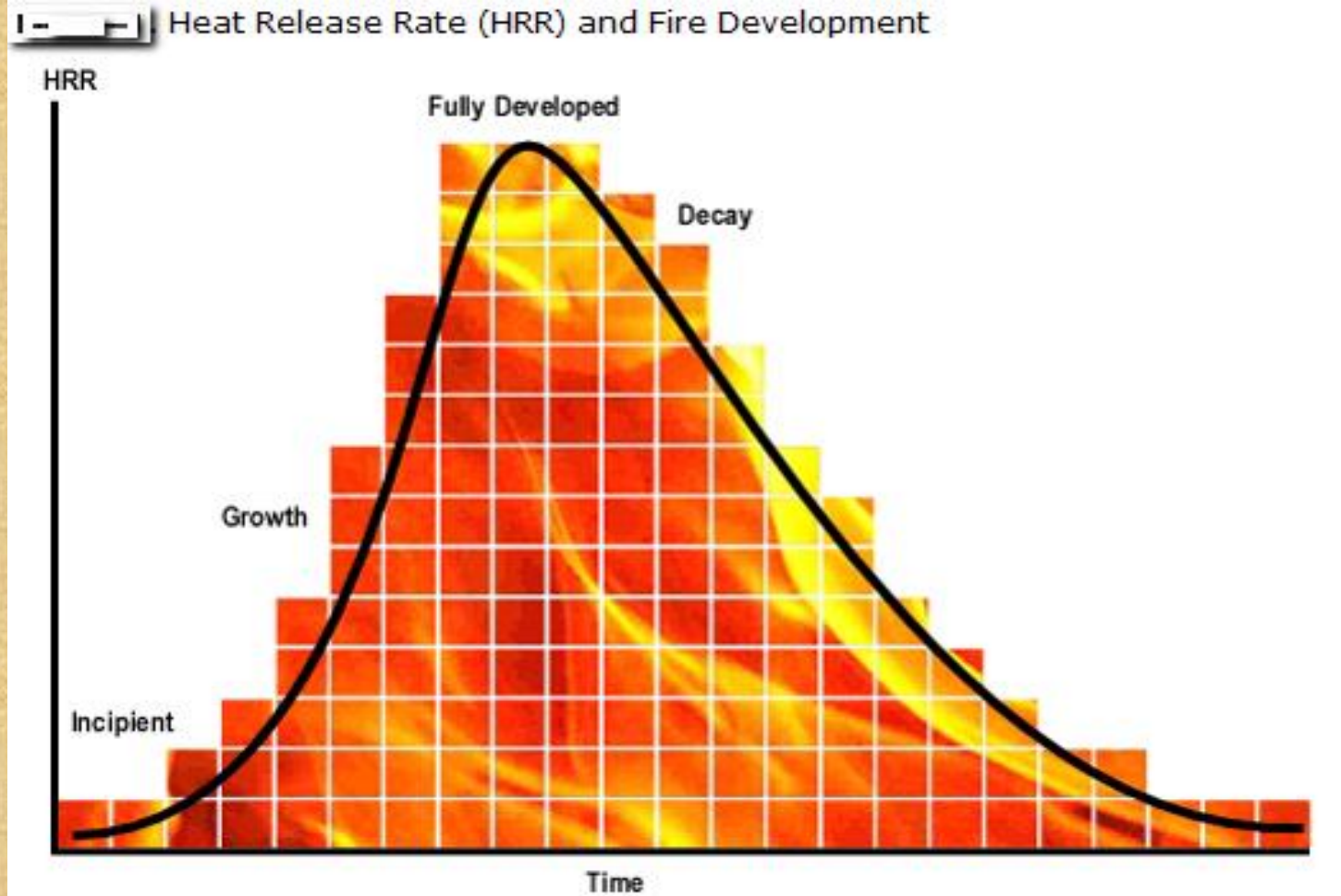
During the smoldering phase of a fire, burning is incomplete because of insufficient oxygen to sustain the fire

- Low oxygen
- High heat
- Smoldering fire
- High fuel vapor concentrations
- Good indicators

Pressurized smoke, little flame, puffs of smoke, and smoke stained windows

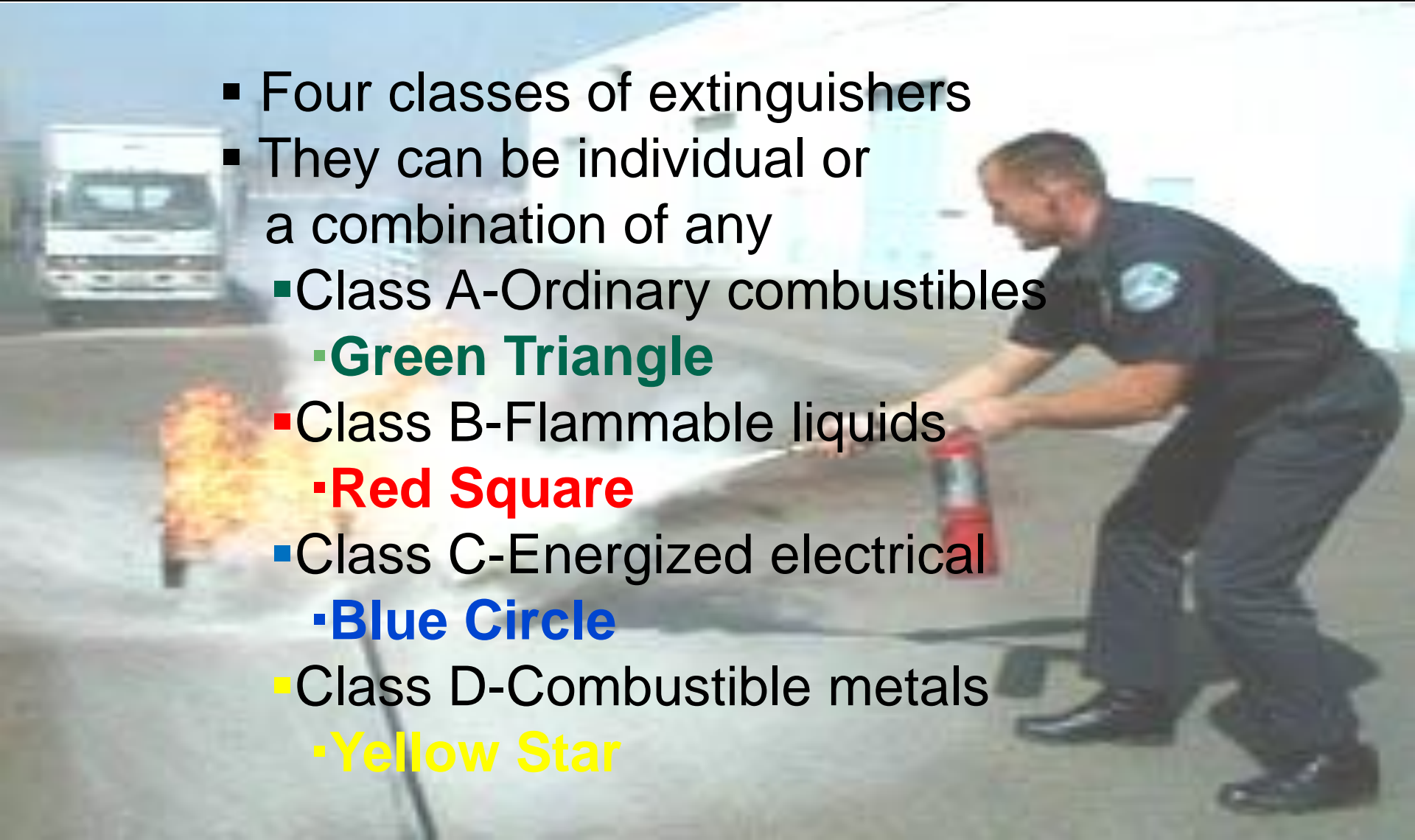


Time/Temperature Curve



Fire Extinguishers:

- Four classes of extinguishers
- They can be individual or a combination of any
 - Class A-Ordinary combustibles
 - **Green Triangle**
 - Class B-Flammable liquids
 - **Red Square**
 - Class C-Energized electrical
 - **Blue Circle**
 - Class D-Combustible metals
 - **Yellow Star**



Fire Extinguishers:

Ratings:

Class A- 2A rated extinguisher can extinguish a wood crib 25x26x26" or a 10x10' panel of wood.

Class B- 10-B extinguisher can extinguish 25 square feet of liquid or approximately 31 gallons of Heptane.

Class C- Must pass a series of conductivity tests.

Class D- Must pass a test on the type of metal it is designed for. There are multiple types of class D extinguishers.



Fire Extinguishers:

How to Use:

P

Pull the pin

A

Aim at base of fire

S

Squeeze the handle

S

Sweep side to side



SCBA



Personal Protective Equipment

- Helmet
- Nomex Hood
- Jacket
- Gloves
- Pants/suspenders
- Boots
- Misc Personal equipment



Personal Protective Equipment

- *Layers of Protection (3)*
 - Outer Shell
 - Nomex/Kevlar
 - Moisture Barrier
 - Protects from water, steam, hot vapors, or corrosive liquids
 - Thermal Barrier
 - Protects from heat

Fire Protection Systems:



Questions?