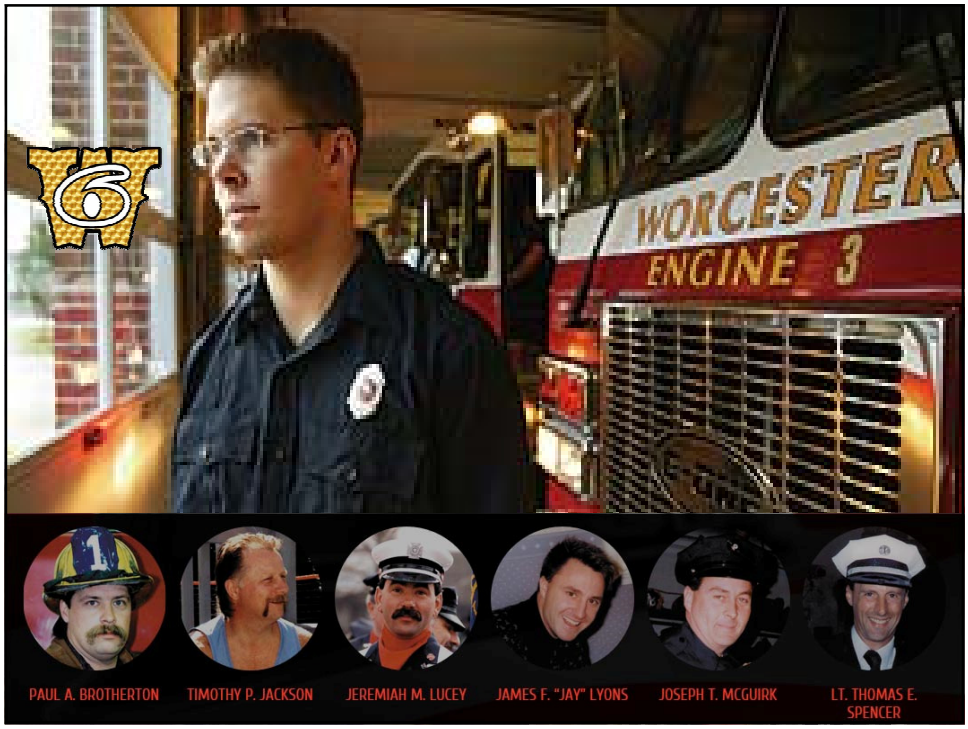

OTTAWA FIRE 2016
Firefighting · Instruction · Research · Engineering
Science vs Experience


Science vs Experience
Cowards
Its worth the Risk
Hit it Hard from the Yard
Aggressive Interior Attack


The Firefighter
Aggressive
Action
Results
Emulate
Risk


WORCESTER
ENGINE 3


December 3, 1999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ENGINE 3
PAUL A. BROTHERTON
TIMOTHY P. JACKSON
JEREMIAH M. LUCEY
JAMES F. "JAY" LYONS
JOSEPH T. MCGUIRK
LT. THOMAS E. SPENCER


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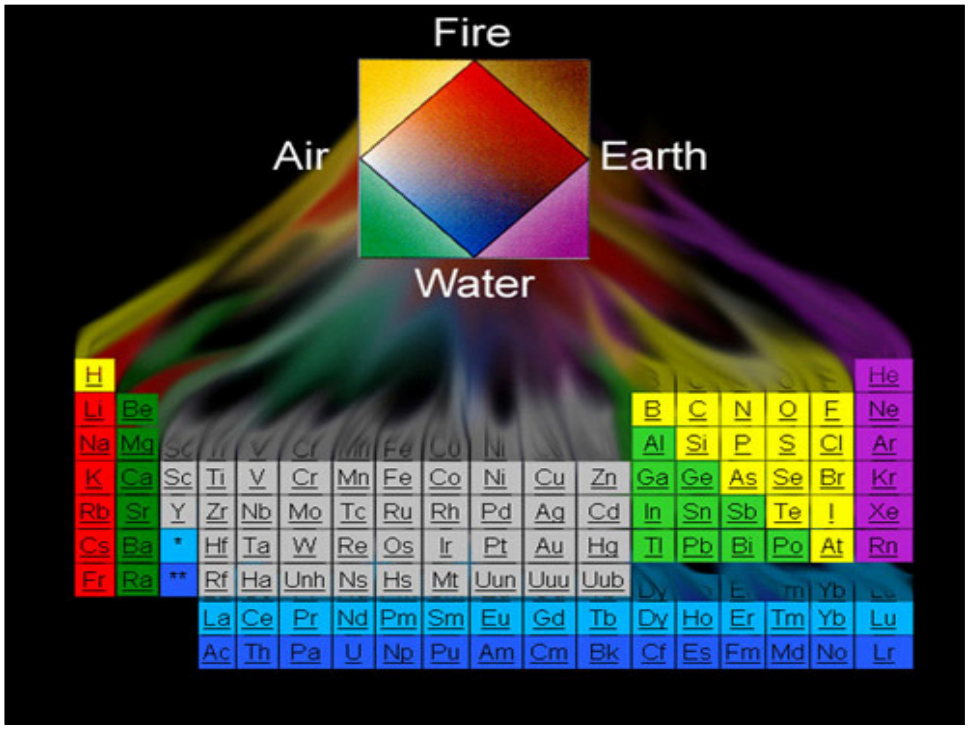
ENGINE 3


Science vs Experience


Fire
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Fire Behavior

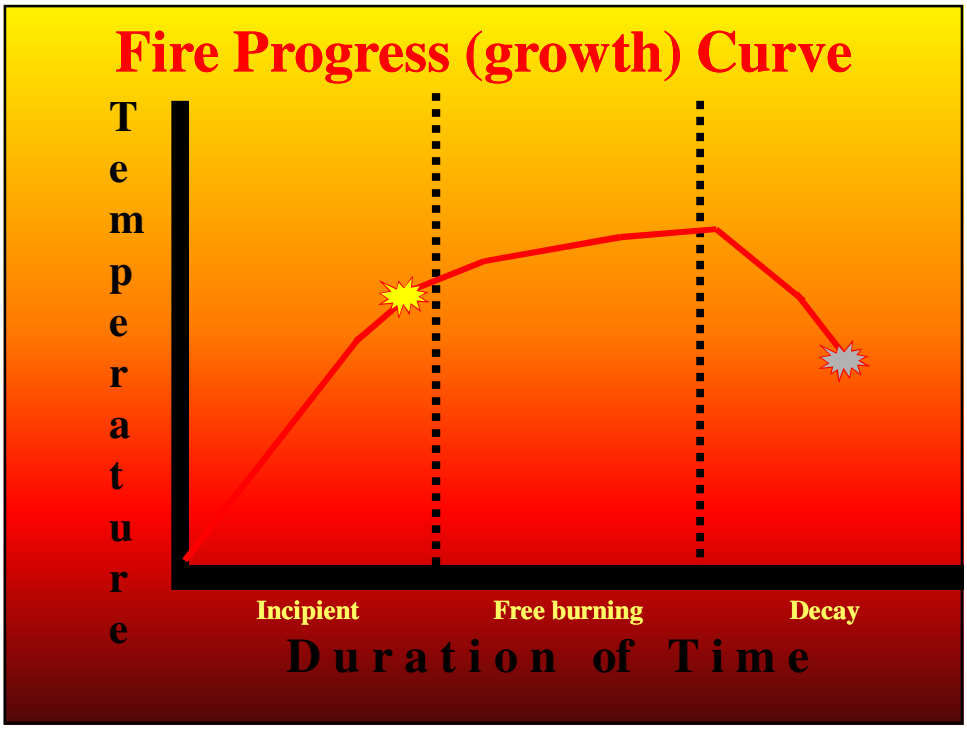

Burning Regime
• Fuel Controlled

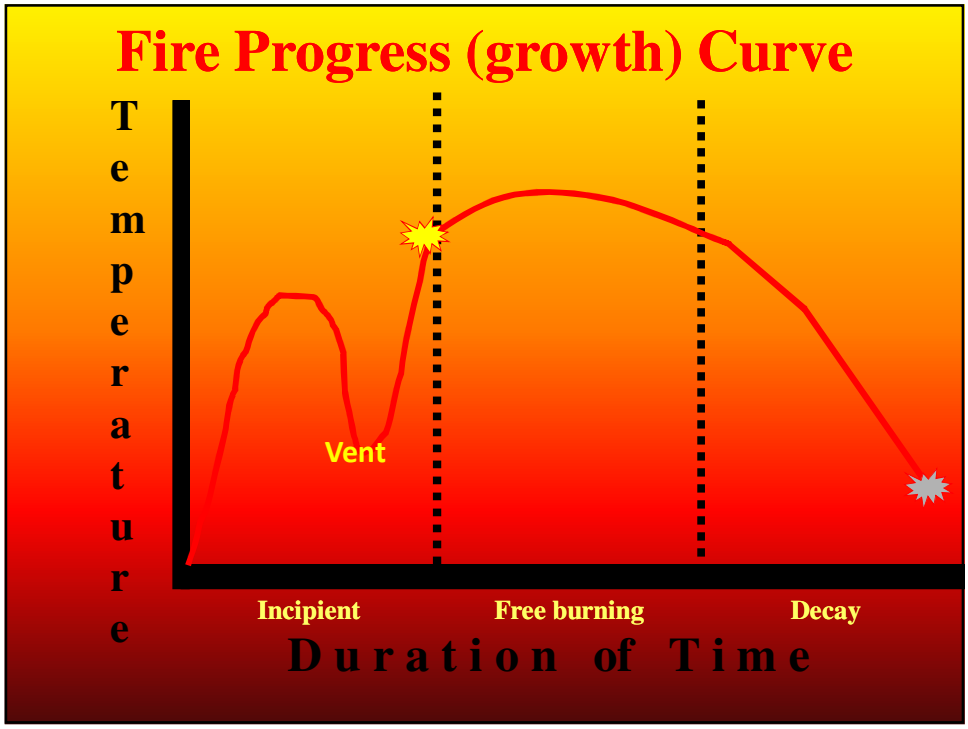

Burning Regime
• Fuel Controlled
• Ventilation Controlled
No Admittance
DANGER
HIGH VOLTAGE
AUTHORIZED
PERSONNEL ONLY


Smoke is Fuel

The Changing Environment

Fire Progress (growth) Curve

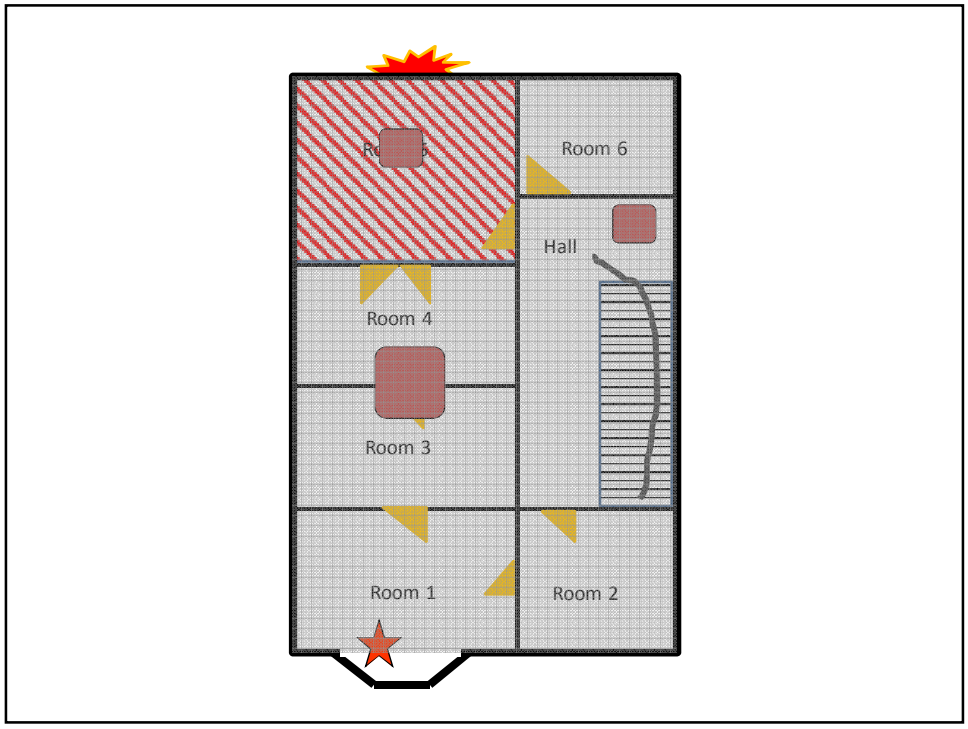



Fire Progress (growth) Curve
Temperature
Vent
Incipient
Free burning
Decay
Duration of Time

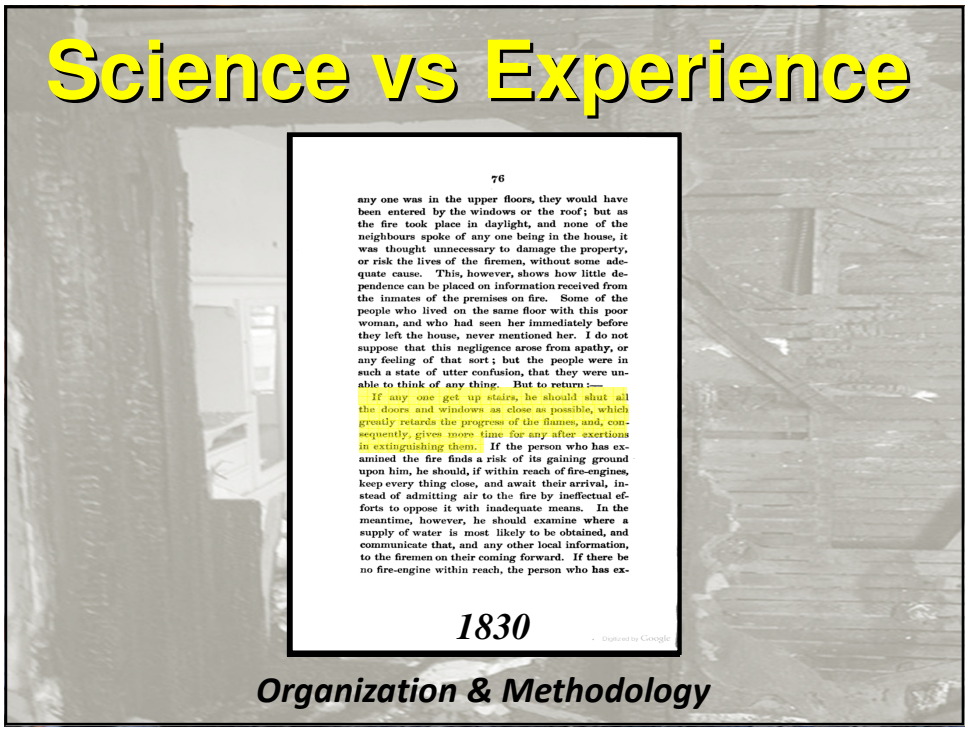

The Changing Environment
Flow Path
James DiDomenico
Deputy Chief - Division 13


Set the Example
Chin Strap
F.D.N.Y.


Smoke is Fuel
• Ventilation Increases Fire Development
• Don't get caught in its Flow Path


Room 6
Hall
Room 4
Room 3
Room 1
Room 2


Door Control


Science vs Experience
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any one was in the upper floors, they would have been entered by the windows or the roof; but as the fire took place in daylight, and none of the neighbours spoke of any one being in the house, it was thought unnecessary to damage the property, or risk the lives of the firemen, without some adequate cause. This, however, shows how little dependence can be placed on information received from the inmates of the premises on fire. Some of the people who lived on the same floor with this poor woman, and who had seen her immediately before they left the house, never mentioned her. I do not suppose that this negligence arose from apathy, or any feeling of that sort; but the people were in such a state of utter confusion, that they were unable to think of any thing. But to return :—
If any one get up stairs, he should shut all the doors and windows as close as possible, which greatly retards the progress of the flames, and, consequently, gives more time for any after exertions in extinguishing them. If the person who has examined the fire finds a risk of its gaining ground upon him, he should, if within reach of fire-engines, keep every thing close, and await their arrival, instead of admitting air to the fire by ineffectual efforts to oppose it with inadequate means. In the meantime, however, he should examine where a supply of water is most likely to be obtained, and communicate that, and any other local information, to the firemen on their coming forward. If there be no fire-engine within reach, the person who has ex-
1830
Organization & Methodology


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Old Firefighters teaching
Young Firefighters
to become Old Firefighters


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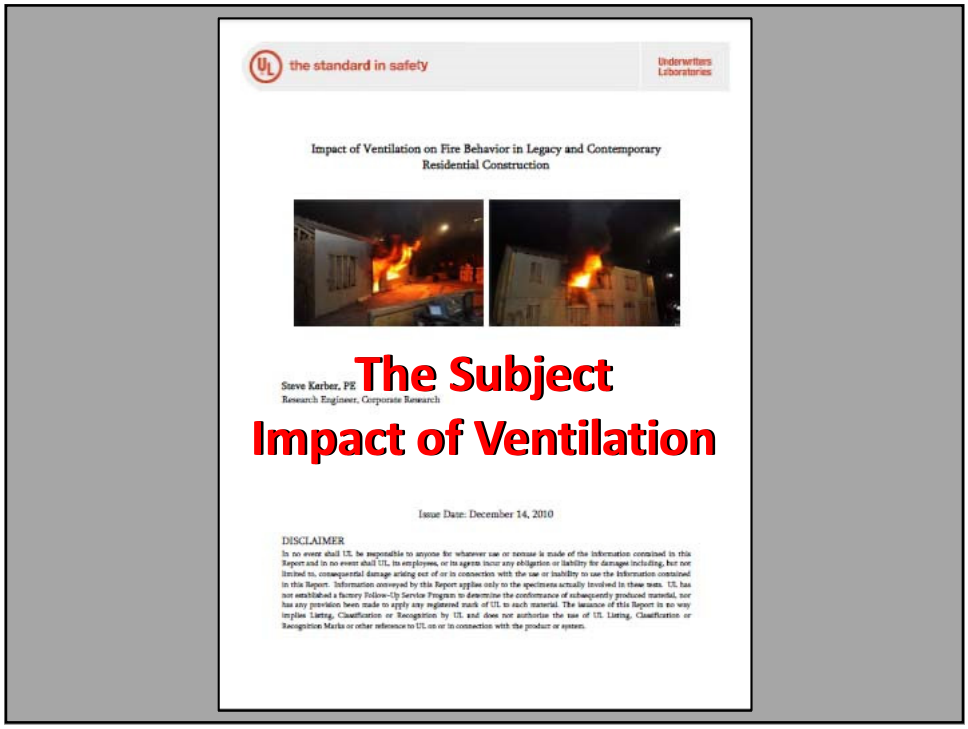
the standard in safety
Underwriters Laboratories
Impact of Ventilation on Fire Behavior in Legacy and Contemporary Residential Construction
Steve Kerber, PE
Research Engineer, Corporate Research
The Subject
Impact of Ventilation
Issue Date: December 14, 2010
DISCLAIMER


Impact of Ventilation on Fire Behavior in Legacy and Contemporary Residential Construction
(00:06 / 70:26)
NAVIGATION HELP
ATTACHMENTS
EXIT
UL UNIVERSITY
Menu
Narration
Impact of Ventilation on Fire Behavior in Legacy and
Overview
Technical Panel Members
Module 1 – Background
Module 2 – Modern Residential Fire Challenges
Module 3 – Furnace Tests
Module 4 – House Experiments
Module 5 – Fire Service Tactical Considerations
Impact of Ventilation on Fire Behavior in Legacy and Contemporary Residential Construction
Underwriters Laboratories
SLIDE 1 OF 41
PLAYING
00:06 / 00:30

Fire Formula of Modern Homes

Larger Homes

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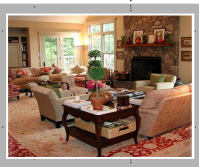

Open Spaces

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Inc. Fuel Loads

Voids Spaces

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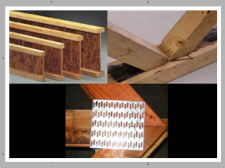

Changing Bldg Materials

=

- Faster fire propagation
- Shorter time to flashover
- Rapid changes in fire dynamics
- Shorter escape times
- Shorter time to collapse

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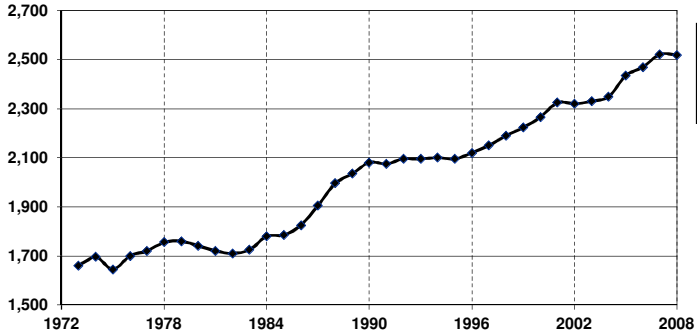
Larger Homes

Average Square Footage of New Single-Family Homes



26% of Houses built in 2008 were greater than 3000 ft²

Source: http://www.census.gov

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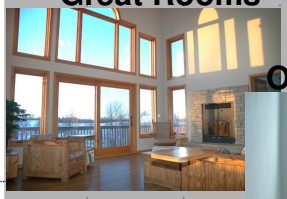
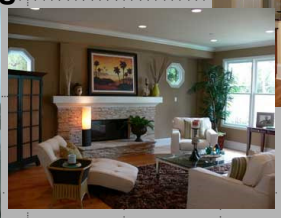
Open Spaces

Great Rooms



Open Foyers



9-14 ft Ceilings

Open Floor Plans

•All of these features add volume/air which allows the fire to grow and smoke to spread.

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Increased Fuel Loads

The contents of a single-family home.

Now dominated by synthetic materials.

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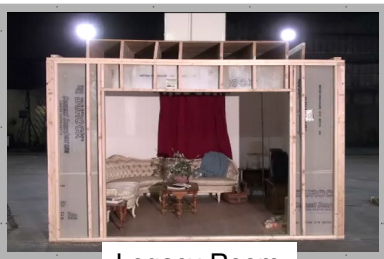
Increased Fuel Loads - Experiment

Modern Room



Legacy Room

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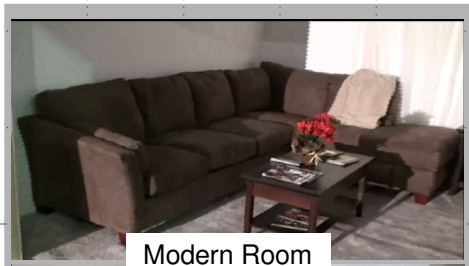
Increased Fuel Loads - Experiment

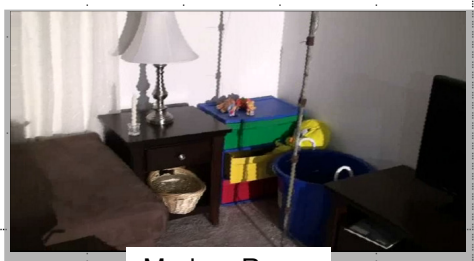


Modern Room

Legacy Room

the standard in safety

Increased Fuel Loads - Experiment



Modern Room

Legacy Room

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