

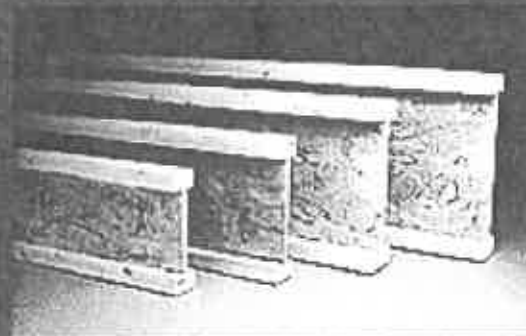
How Fire Safe are Homes with Wood I-Joists?



Primary Considerations

- Safety of occupants
- Safety of firefighters

Let's take a look at **both**



Fire Safety of Occupants: Trends and Causes of Fatalities



20% reduction in occupant deaths in a decade



Cause of Fatal Home Fires

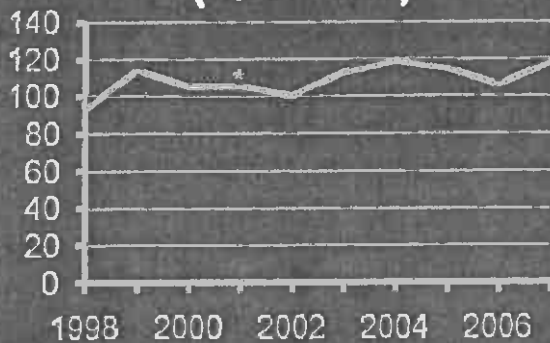


Fire in the United States 1995 to 2004, USFA Report FA-311, 2007, Figure 18
Residential Structure and Building Fires, USFA Report, October 2009, Figure 3

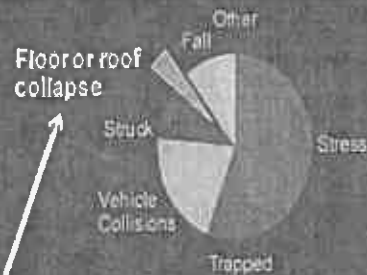
Fire Safety of Firefighters: Affected by Wood I-Joists?



All firefighter fatalities (1998-2007)



Causes of all firefighter fatalities (2000)

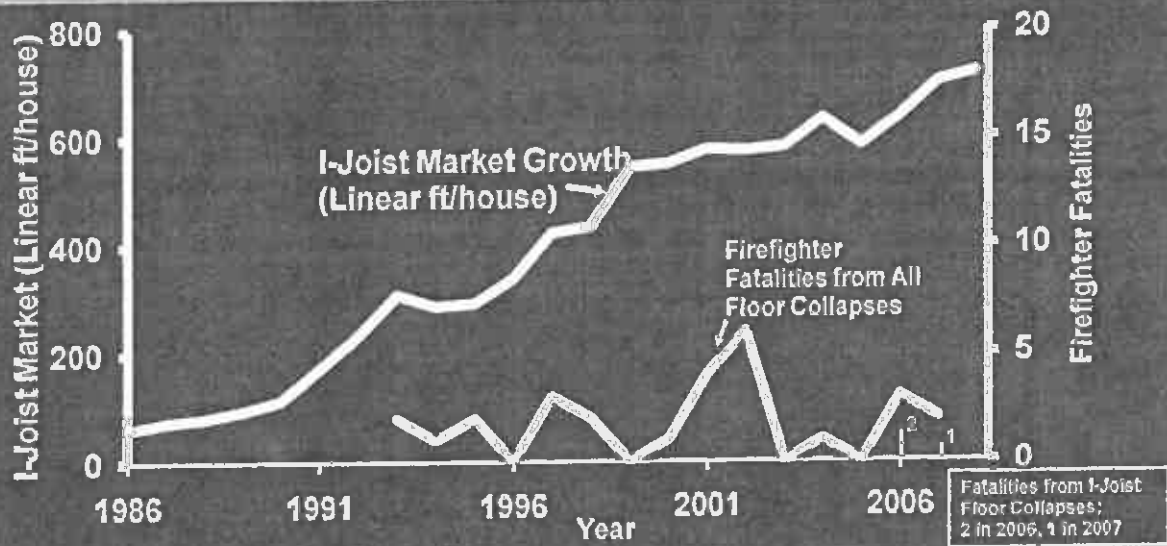


Let's take a close look at floor collapse data

U.S. Fire Administration Firefighter Fatalities in the U.S. in 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007

* Does not include the 344 firefighters who died in the World Trade Center collapse, 2001

Fire Safety of Firefighters: Fatalities in Single-Family Homes Compared to I-Joist Market Growth



Popularity of wood I-joists - no impact on firefighter safety

Source: APA Production Statistics, McGraw-Hill Housing Statistics, FEMA Annual Fatality Reports



Firefighter Fatalities



For the decade of 1998-2007

**A total of 1033* firefighters died in the line of duty
(all causes included)**

- Of those 1033 → 61 died due to structural collapse
- Of those 61 → 19 died in single family floor collapses
- Of those 19 → 12 were over basements
- Of those 12 → 3 died in unprotected I-joist floor collapses over basements

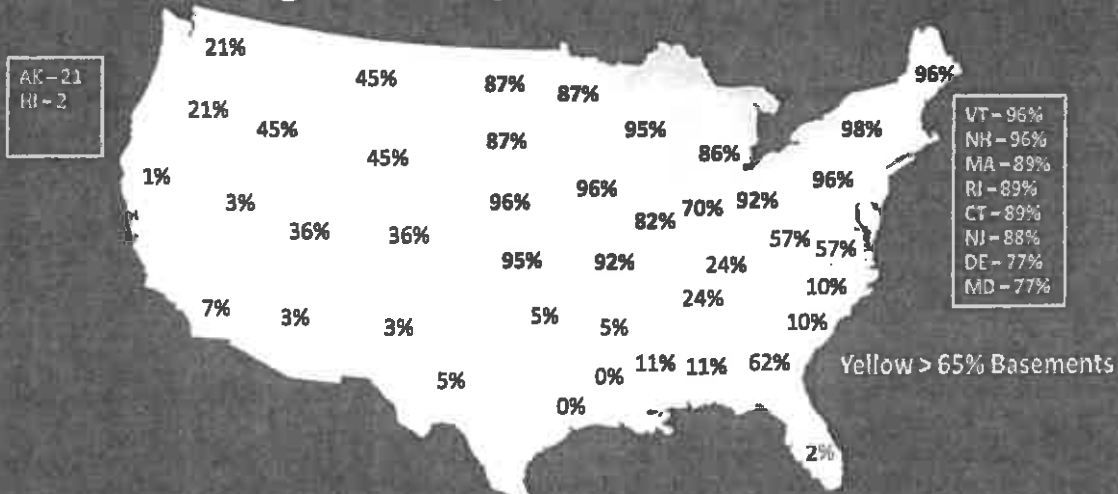


* Does not include the 344 firefighters who died in the World Trade Center collapse

Basements: Where are they?

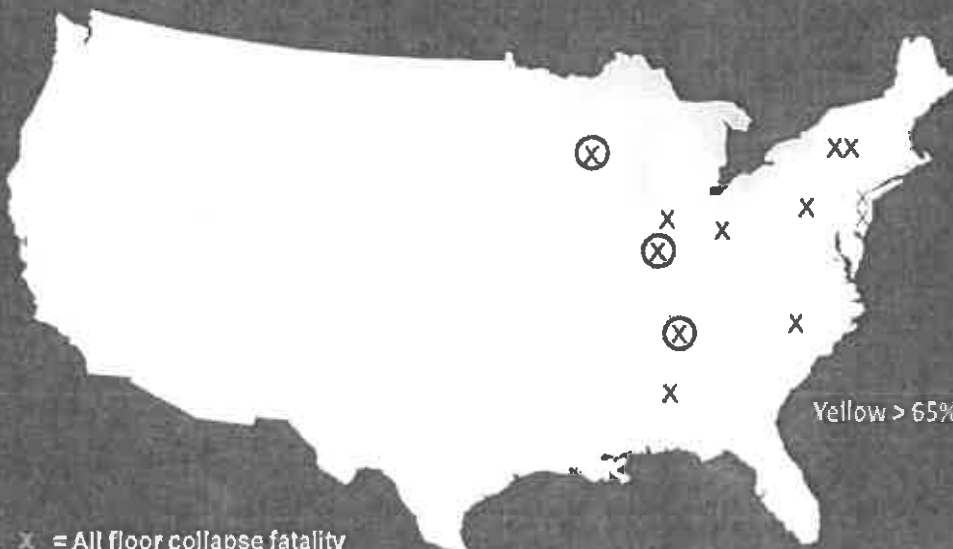


Percent single family houses with basements



Data Source: NAHB 2007 Builder Practices Survey

Basement Collapse with Fatality 1993-2007



Yellow > 65% Basements

- x = All floor collapse fatality
 - ⊗ = I-joist collapse fatality: IN, WI, TN
- Data Source: FEMA Annual Firefighter Fatality Reports

**12 floor collapse events
were over basements**

Firefighter Education and Training



The wood industry is committed to providing education to the fire service to reduce firefighter deaths from collapse.



Firefighter Education and Training



- **Product awareness guides**
 - www.woodaware.info
- **AF&PA website on fire performance of wood**
 - www.awc.org
- **Wood products display cases for firefighter training centers**



Wood I-joist for hands-on training

Wood I-Joists: One of Many New Features of Modern Construction



Feature

- Larger homes
- Open floor plans
- Increased fire loads
- Floor/ceiling/attic voids
- New building materials



Fire Effect

- Faster fire propagation
- Shorter time to flashover
- Shorter escape times
- Shorter time to structural collapse

Source: UL University – Structural Stability of Engineered Lumber in Fire Conditions
– Underwriters Laboratories

Summary



- **Wood I-joists are popular, resource efficient, and recognized as green**
- **Use of wood I-joists has increased without a corresponding increase in firefighter deaths due to collapse**
- **Floor collapse fatalities occur primarily over basements**
- **Changes in building practices and modern furnishings create new challenges for the fire service**



Our Commitment



**AF&PA continues to work
with fire service leaders to:**

- **define collapse risk of
unprotected floors**
- **define factors that
contribute to collapse**
- **develop solutions that
meet their needs**





Thank You

For more information,
please visit:
www.woodaware.info

WOOD I-JOIST AWARENESS GUIDE



American
Forest &
Paper
Association

Photo: Wood Source