



Wildfire Science: From Lab to Field

The 2025 LA Conflagrations

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WHY?

Severe weather disrupts lives, displaces families, and drives financial loss. IBHS delivers top-tier science and translates it into action so we can prevent avoidable suffering, strengthen our homes and businesses, inform the insurance industry and support thriving communities.



Wildfires become **CATASTROPHES**
when they move into a
COMMUNITY and an **URBAN**
CONFLAGRATION unfolds.



Drought



Wind



People

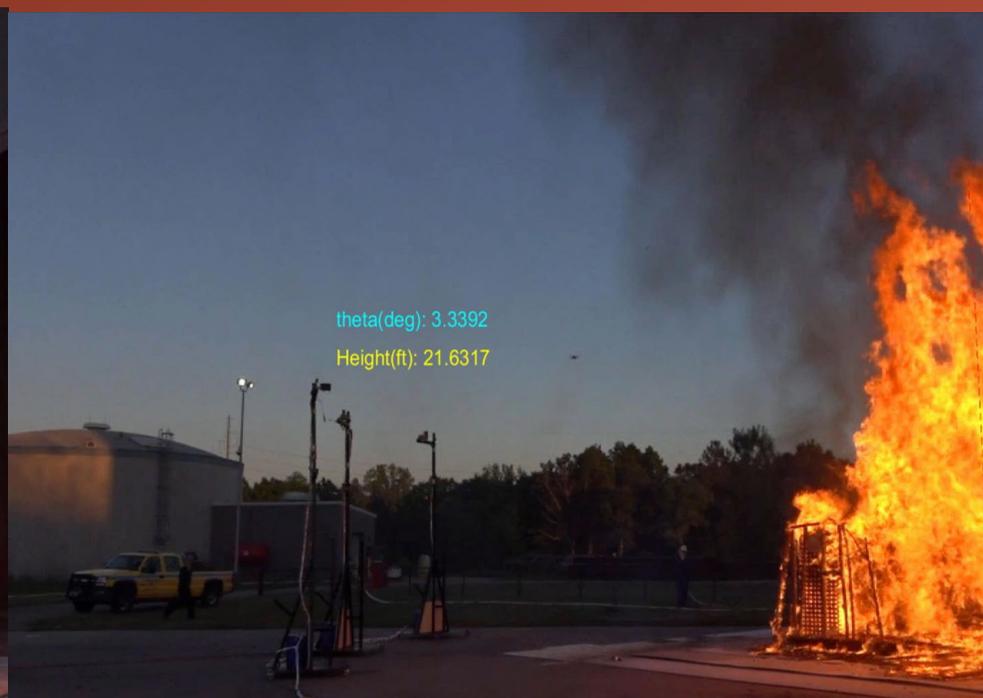
Conflagration

The uncontrolled spread of fire within a community leading to large structure loss.

IMPACT OF WIND



WIND



NO WIND

Wildfire = Wildland fuels

Embers

Radiant Heat

Flame Contact



Wildfire = Wildland fuels

Embers

Radiant Heat

Flame Contact

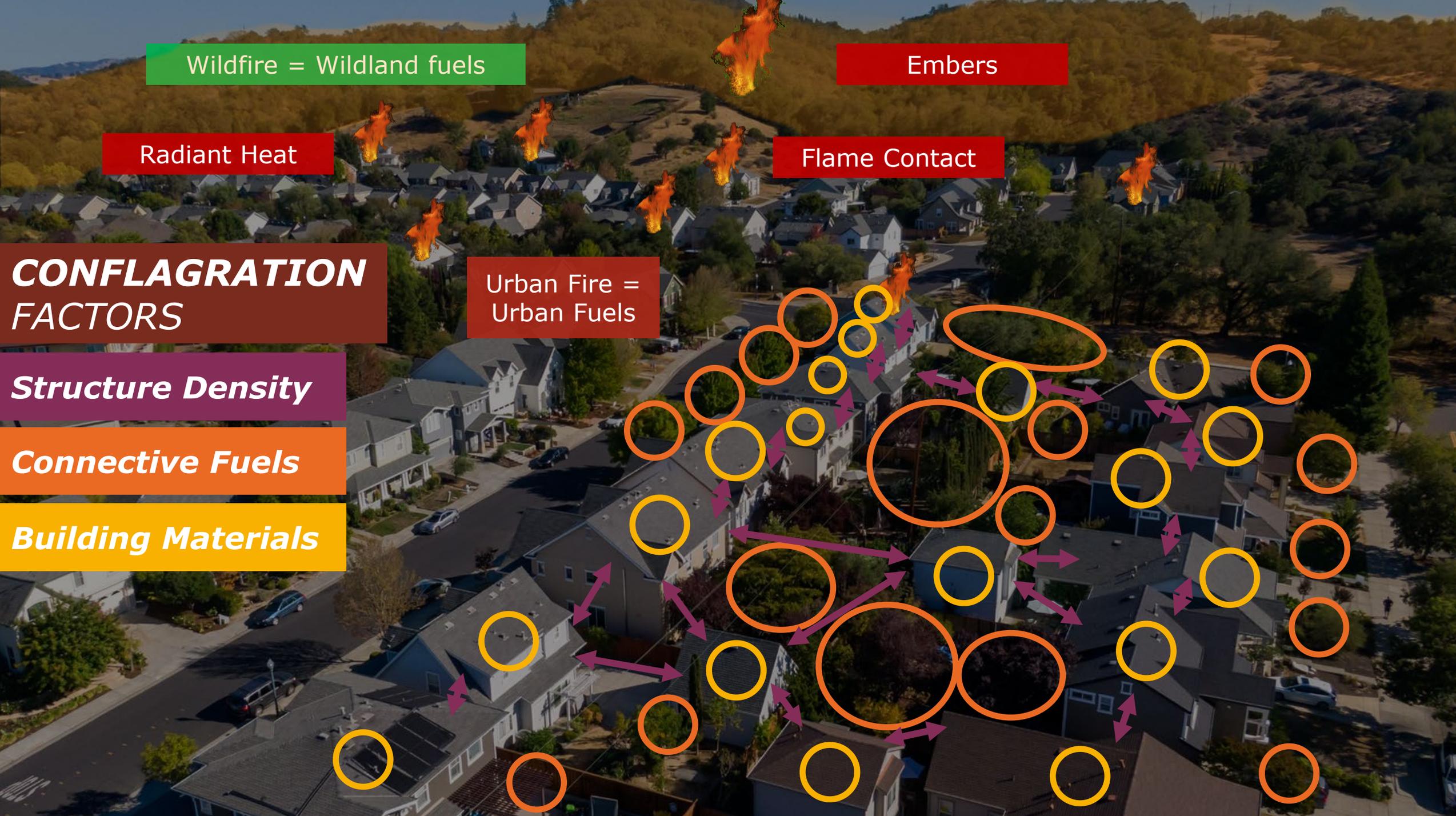
CONFLAGRATION FACTORS

Urban Fire = Urban Fuels

Structure Density

Connective Fuels

Building Materials



ring

Embers



Flames & Heat



Exposure



Connective Fuels



Structure-to-Structure

Dec 27 10:02 AM MST

KUNA

Preventing Ignition

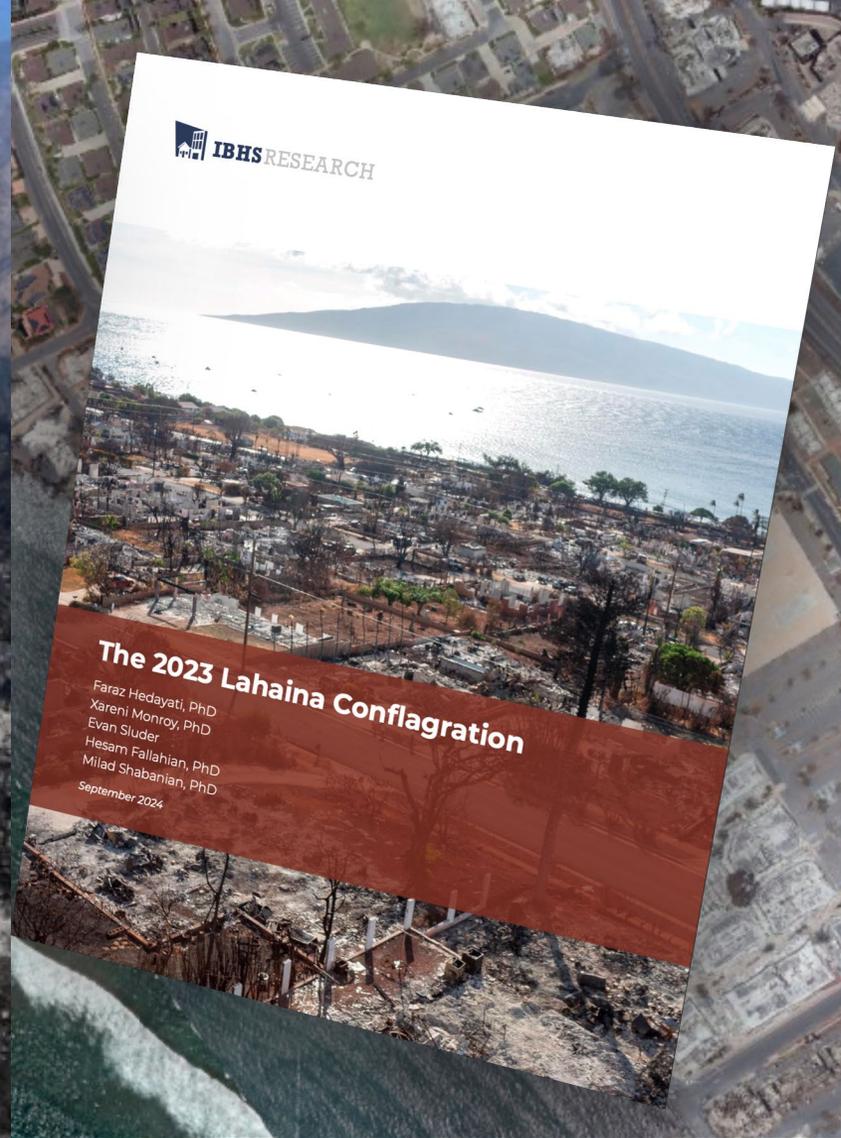
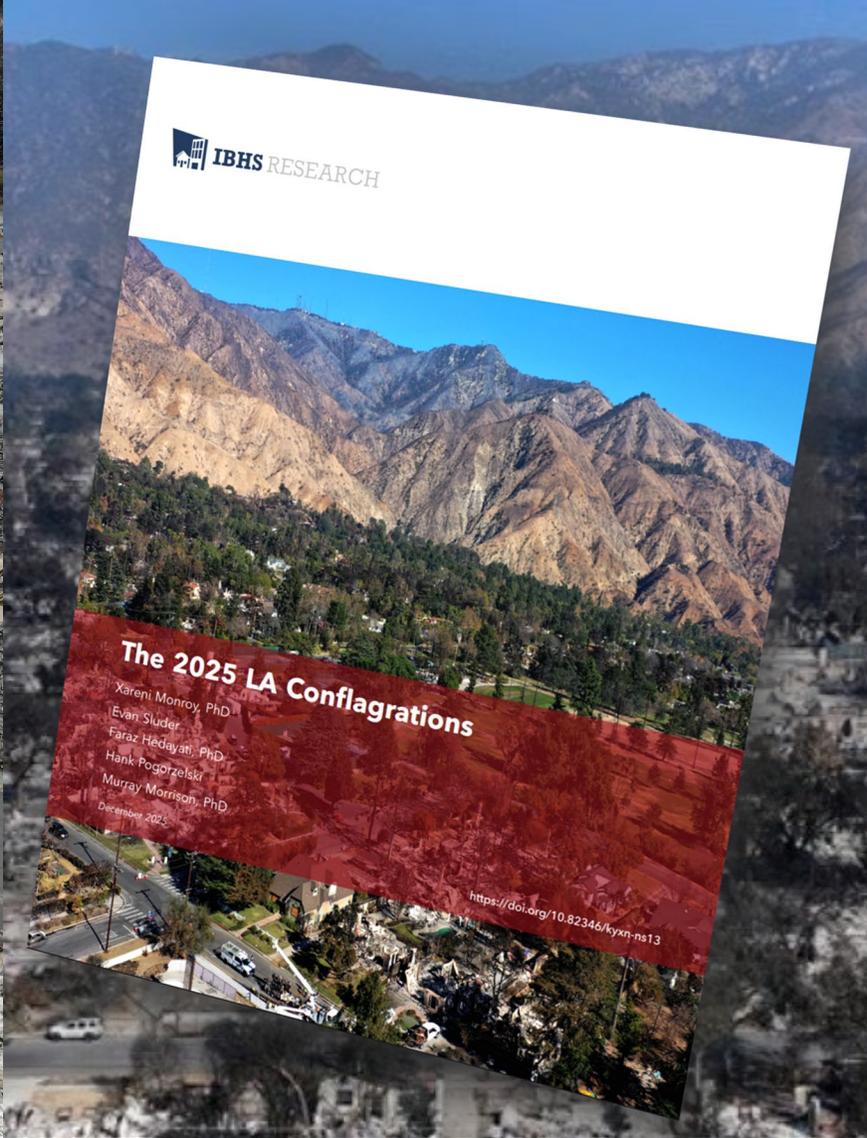
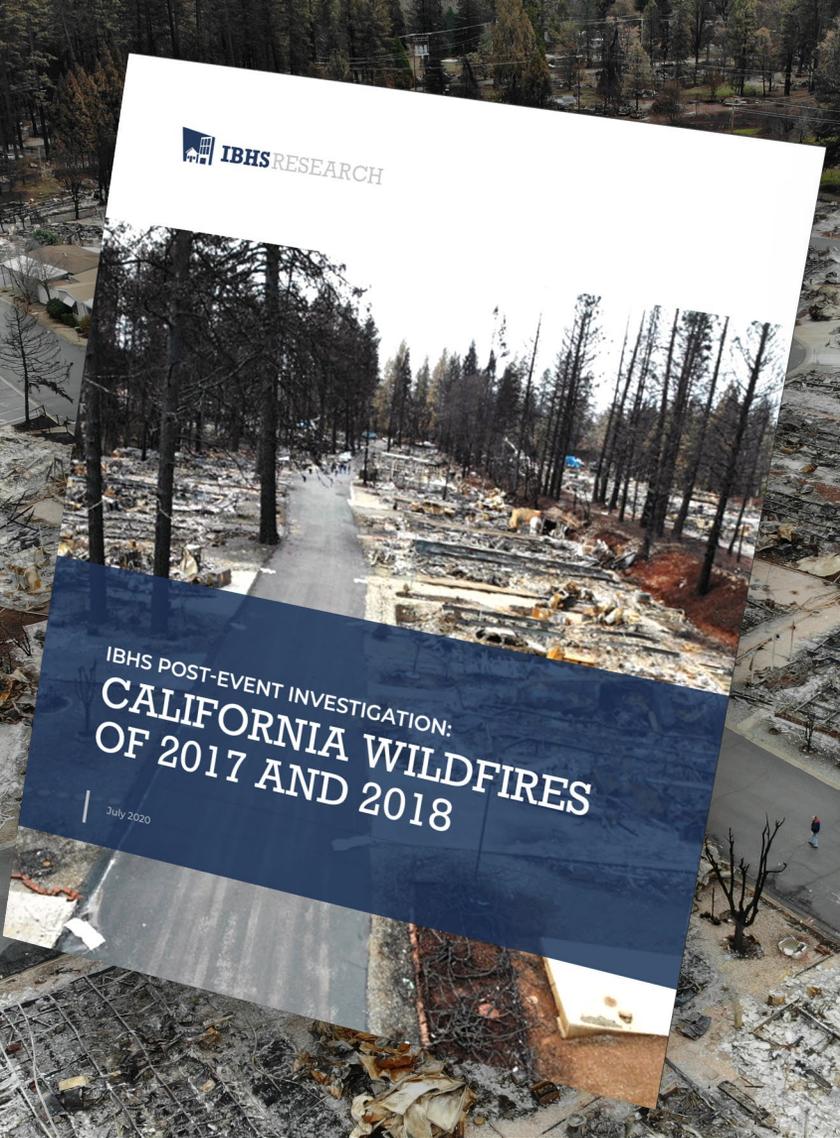


LA County



**IBHS
Research**





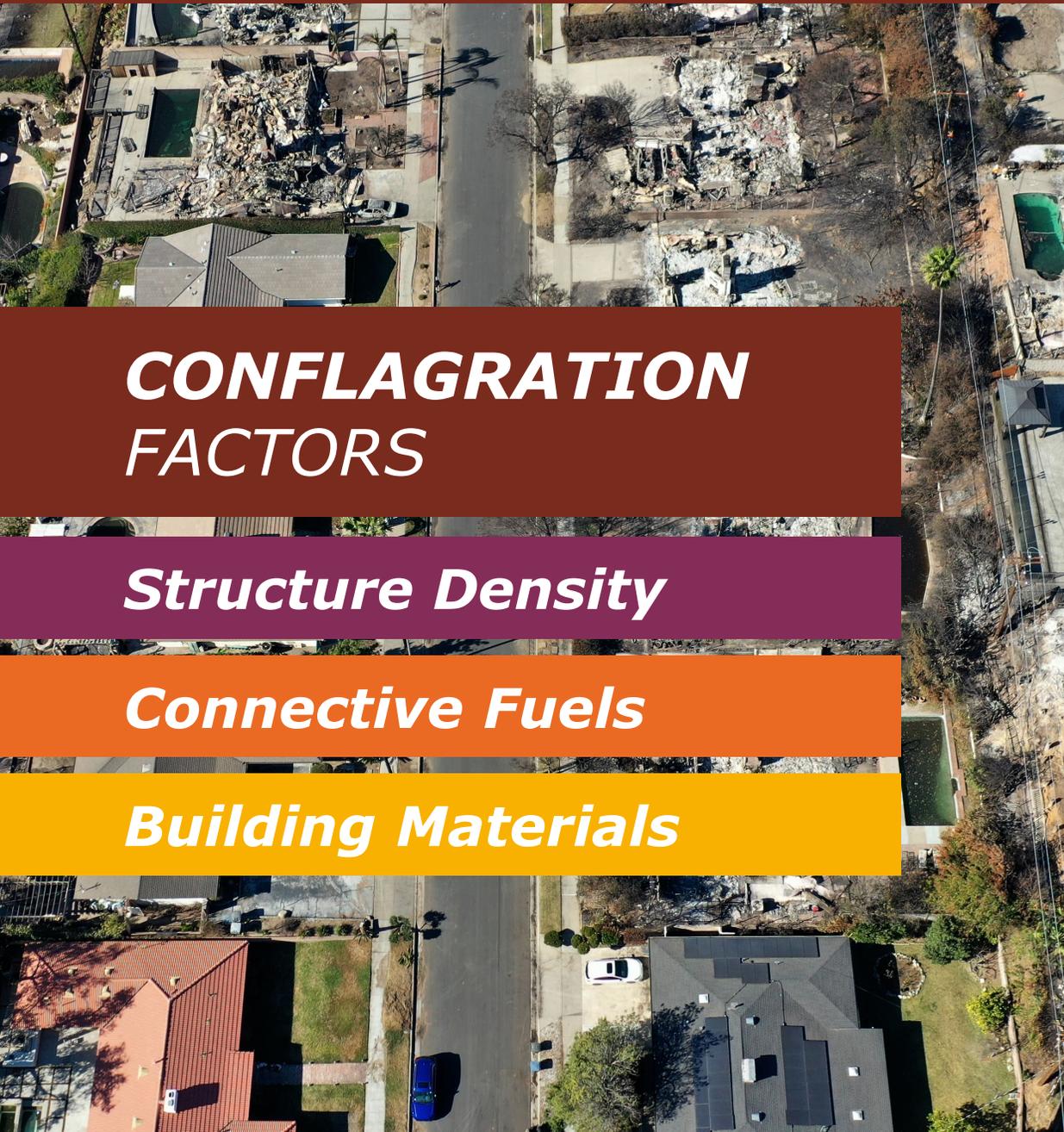
Camp Fire
Paradise, CA

LA Fires
Los Angeles, CA

Lahaina Fire
Lahaina, HI

POST-FIRE FIELD INVESTIGATION

KEY DATA COLLECTED



CONFLAGRATION FACTORS

Structure Density

Connective Fuels

Building Materials

EXPOSURE

STRUCTURE DENSITY

CONNECTIVE FUELS

Structure spacing

Urban fuels

Fuel coverage in Z0 and Z1

RESILIENCE

BUILDING MATERIALS

Roof

Siding

Gutters

Windows

Eaves

Doors

Vents

Decks



The 2025 LA Conflagrations

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Evan Sluder
Faraz Hedayati, PhD
Hank Pogorzelski
Murray Morrison, PhD

December 2025

<https://doi.org/10.82346/kyxn-ns13>

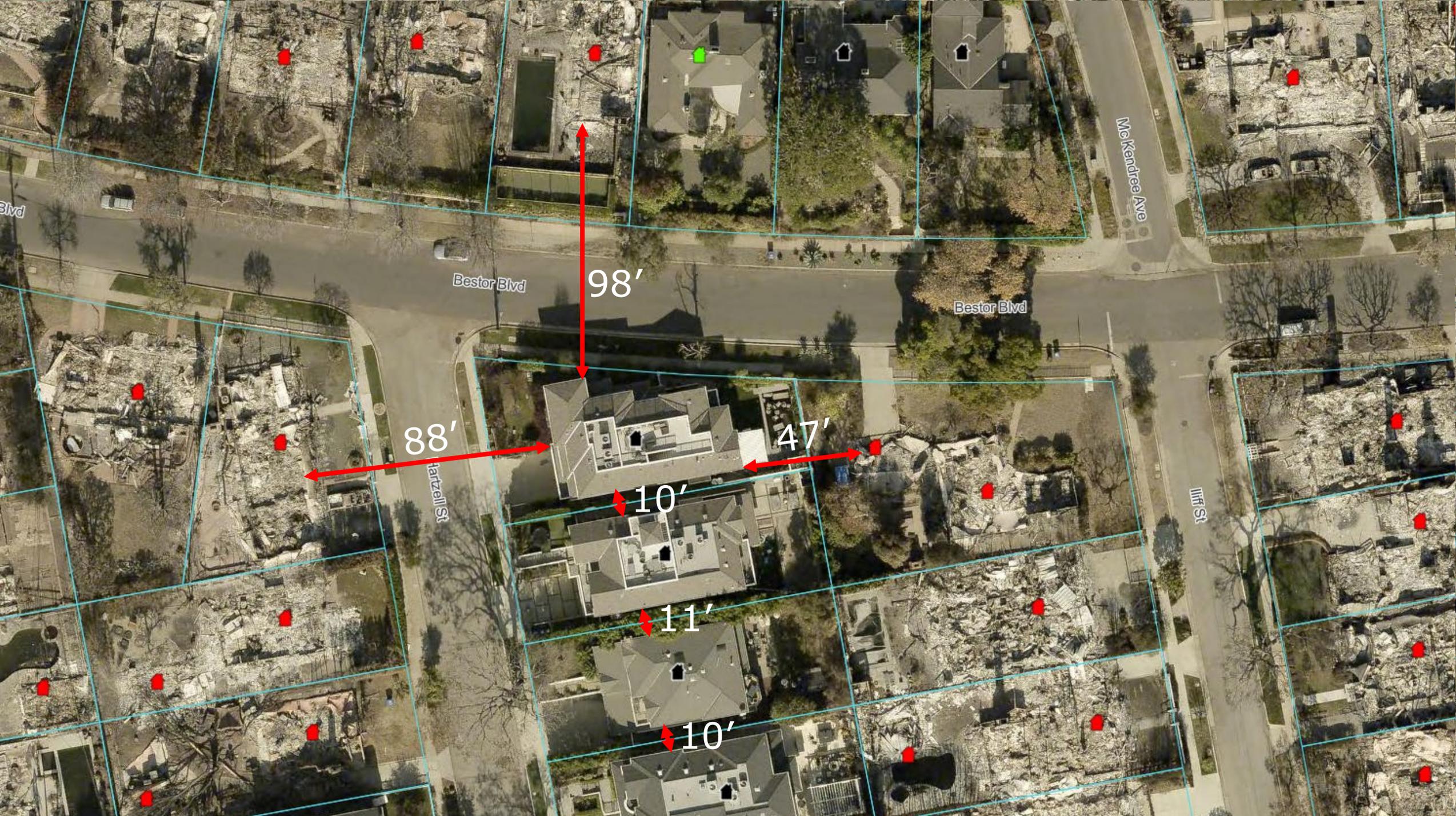


CONFLAGRATION FACTORS

Structure Density

Structure separation is one of the **most critical factors** in wildfire resilience.

At 10 foot spacing, even **well-hardened structures** can experience substantial damage/loss.



Bestor Blvd

McKendree Ave

Bestor Blvd

98'

88'

Hartzell St

47'

10'

11'

10'

Hartzell St



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CONFLAGRATION FACTORS

Connective Fuels

More than **25%** fuel coverage in Zone 0 pushed the risk of damage or destruction to nearly **90%**.

More than **25%** fuel coverage in Zone 0 reduces the effectiveness of Zone 1 fuel reduction.

CONNECTIVE FUELS

**FIELD OBSERVATIONS:
LA COUNTY**



**Bushes
Privacy Hedges**



Trash Cans



Hot Tubs



Fences



Fence w/Veg



Decks



Pergola



Vehicles



Sheds

Vegetation within five feet of a structure acts as a **damage amplifier**, creating ignition sources that compromise windows, siding, and eaves.

An aerial photograph showing a house with a large fire burning in the yard. The fire is bright orange and yellow, with thick smoke rising from it. The house is visible on the left side of the frame.

Vegetation in Zone 0:

Amplifying Damage to Structures

Insurance Institute for Business & Home Safety
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<https://doi.org/10.82346/kqx1-s839>



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CONFLAGRATION FACTORS

Building Materials

Homes with four hardening features — Class A roof, noncombustible siding, double-pane windows, and enclosed eaves.

Had a **54%** chance of avoiding damage, compared to **36%** when only a single mitigation was in place.

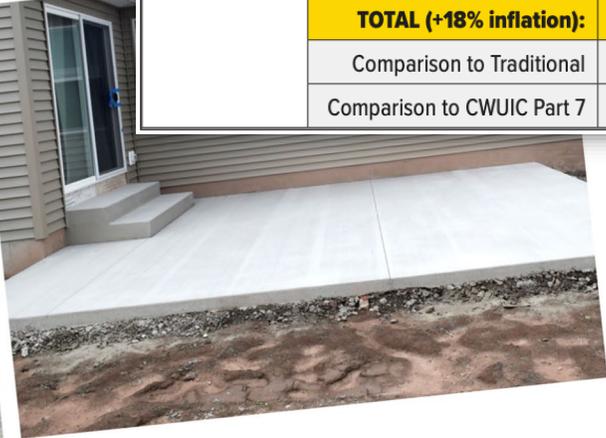
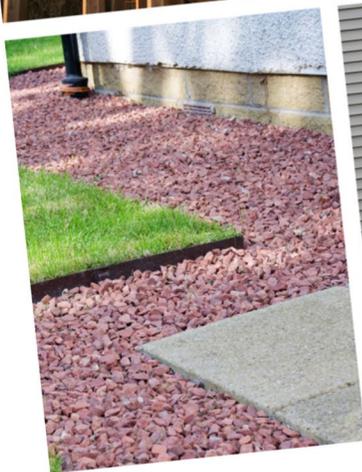
BUILDING MATERIALS

FIELD OBSERVATIONS: LA COUNTY





Assembly	Component	Traditional	CWUIC Part 7	IBHS WFPH Base	IBHS WFPH Plus
Roof	Subtotal:	\$25,321	\$26,311	\$26,311	\$26,311
Eaves	Subtotal:	\$1,900	\$4,284	\$3,681	\$5,253
Exterior Walls	Subtotal:	\$11,461	\$13,569	\$13,578	\$13,591
Windows/ Doors	Subtotal:	\$8,431	\$11,391	\$8,431	\$12,241
Deck	Subtotal:	\$1,968	\$1,968	\$1,968	\$1,968
Zone 0	Subtotal:	\$1,106	\$3,742	\$3,742	\$3,742
	TOTAL (+18% inflation):	\$59,223	\$72,293	\$68,099	\$74,465
	Comparison to Traditional	\$-	\$13,070	\$8,876	\$15,242
	Comparison to CWUIC Part 7	\$-	\$-	\$(4,194)	\$2,172



Construction Costs for Wildfire-Resistant Homes

A comparison between California Wildland-Urban Interface Code (CWUIC) Part 7, IBHS Wildfire Prepared Home Base, and IBHS Wildfire Prepared Home Plus

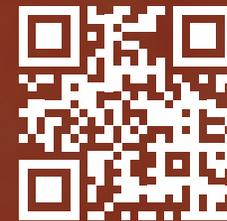
Fall 2025



Building to **WFPH Plus** adds about \$15,000 to construction costs — *around 3%* — only \$50 a month on a typical 30-year mortgage.



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