Wildfire Science: From Lab to Field

The 2025 LA Conflagrations

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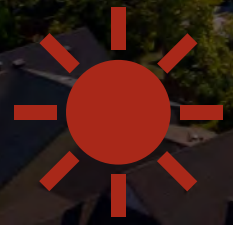
WHY?

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 our BUILT ENVIRONMENT and a CONFLAGRATION unfolds.



Drought

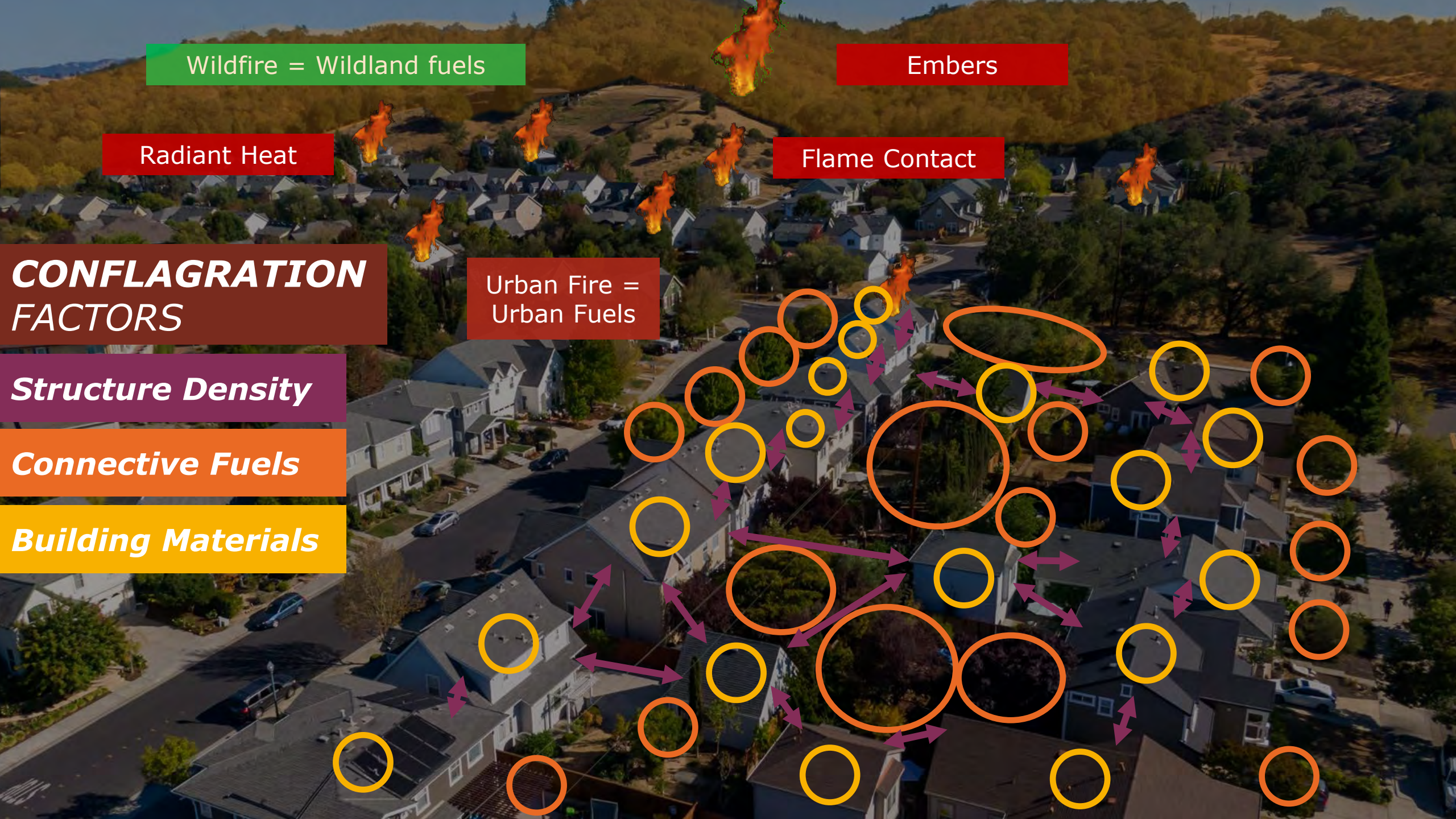
Wind

People

Conflagration

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


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


Embers
Flames & Heat
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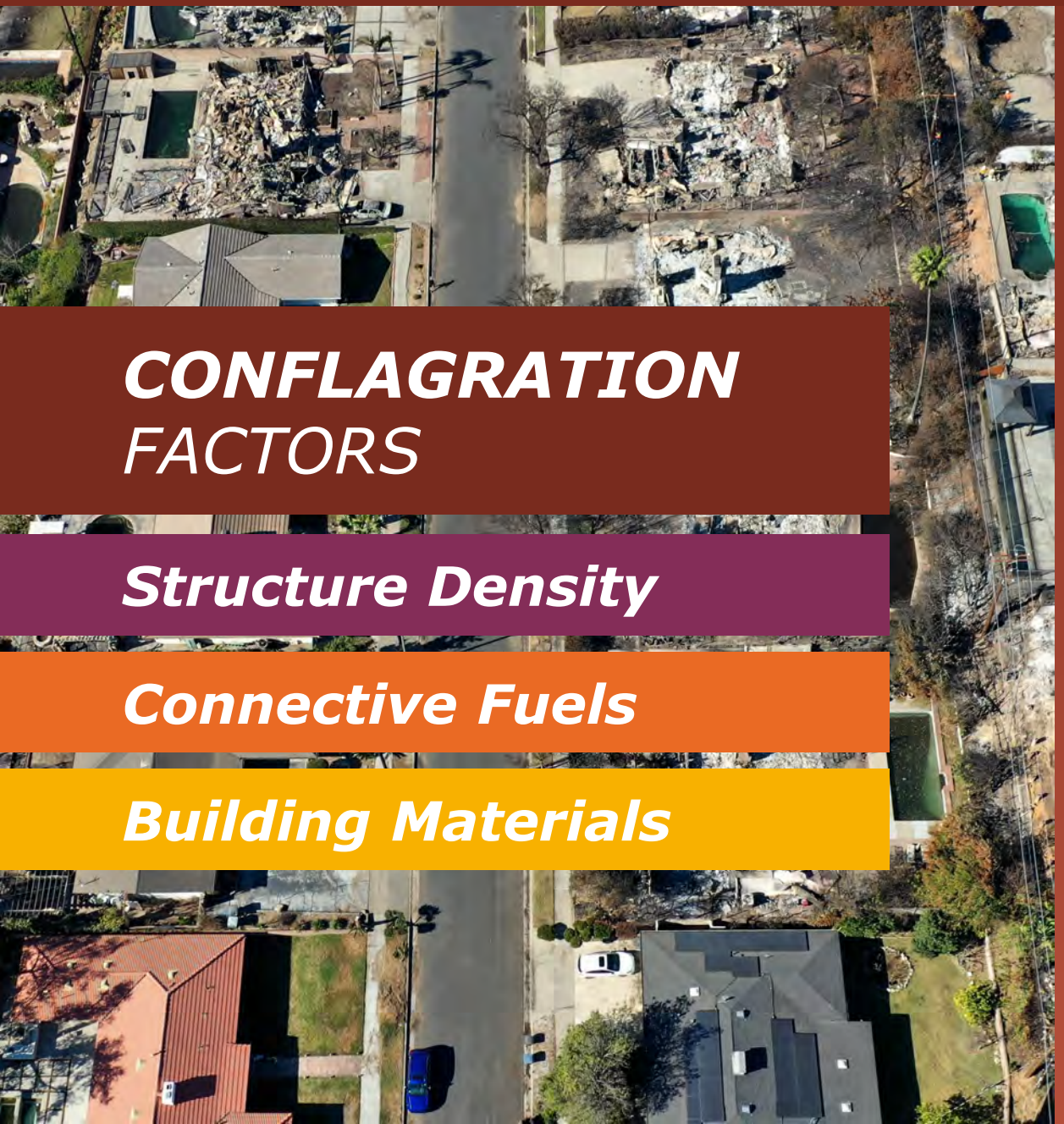
KUNA
Connective Fuels
Structure-to-Structure

Preventing Ignition

POST-FIRE FIELD INVESTIGATION



CONFLAGRATION *FACTORS*

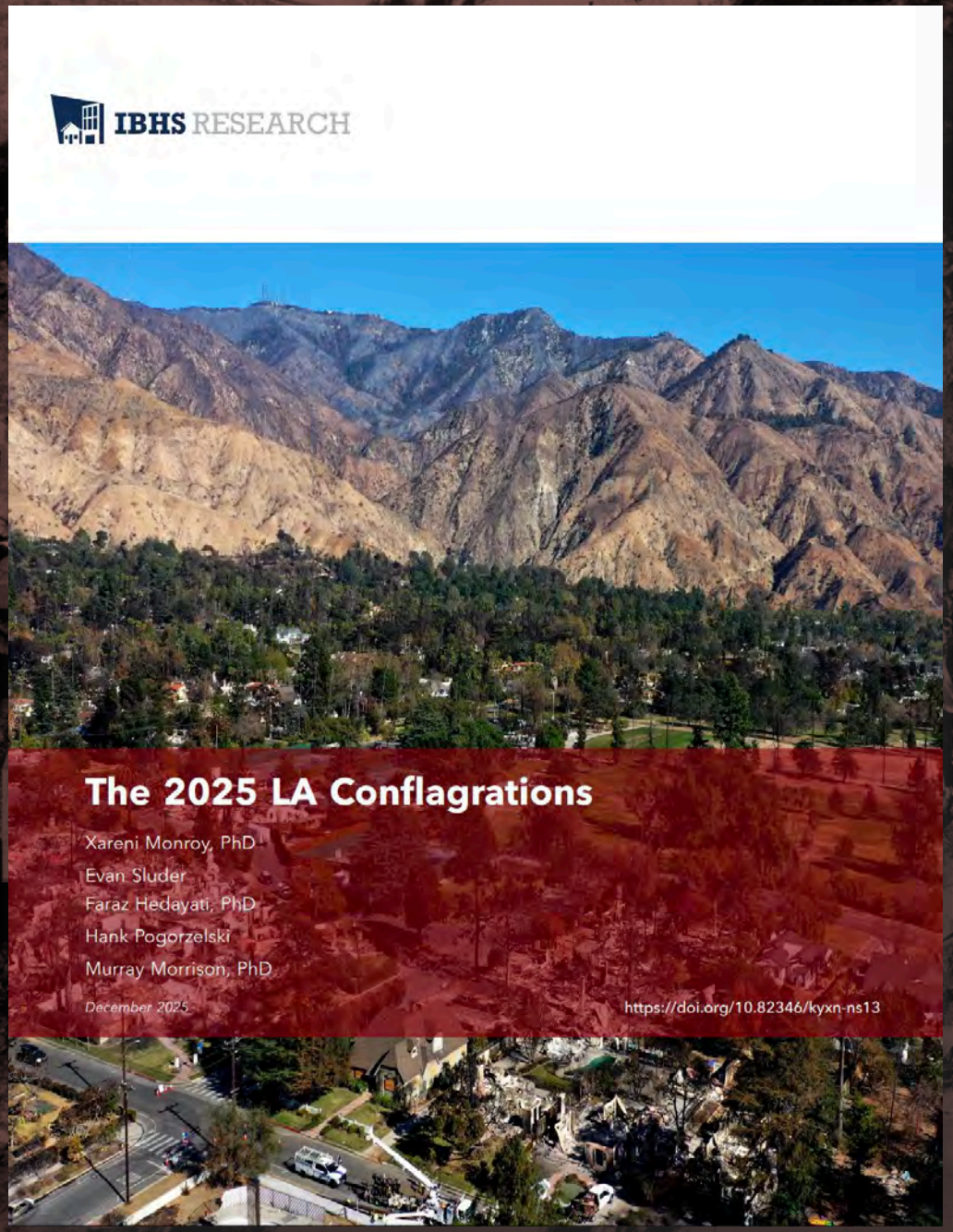
Structure Density

Connective Fuels

Building Materials

KEY DATA COLLECTED

EXPOSURE	STRUCTURE DENSITY	CONNECTIVE FUELS	Structure spacing	
			Urban fuels	
			Fuel coverage in Z0 and Z1	
RESILIENCE	BUILDING MATERIALS		Roof	Siding
			Gutters	Vents
			Windows	Eaves

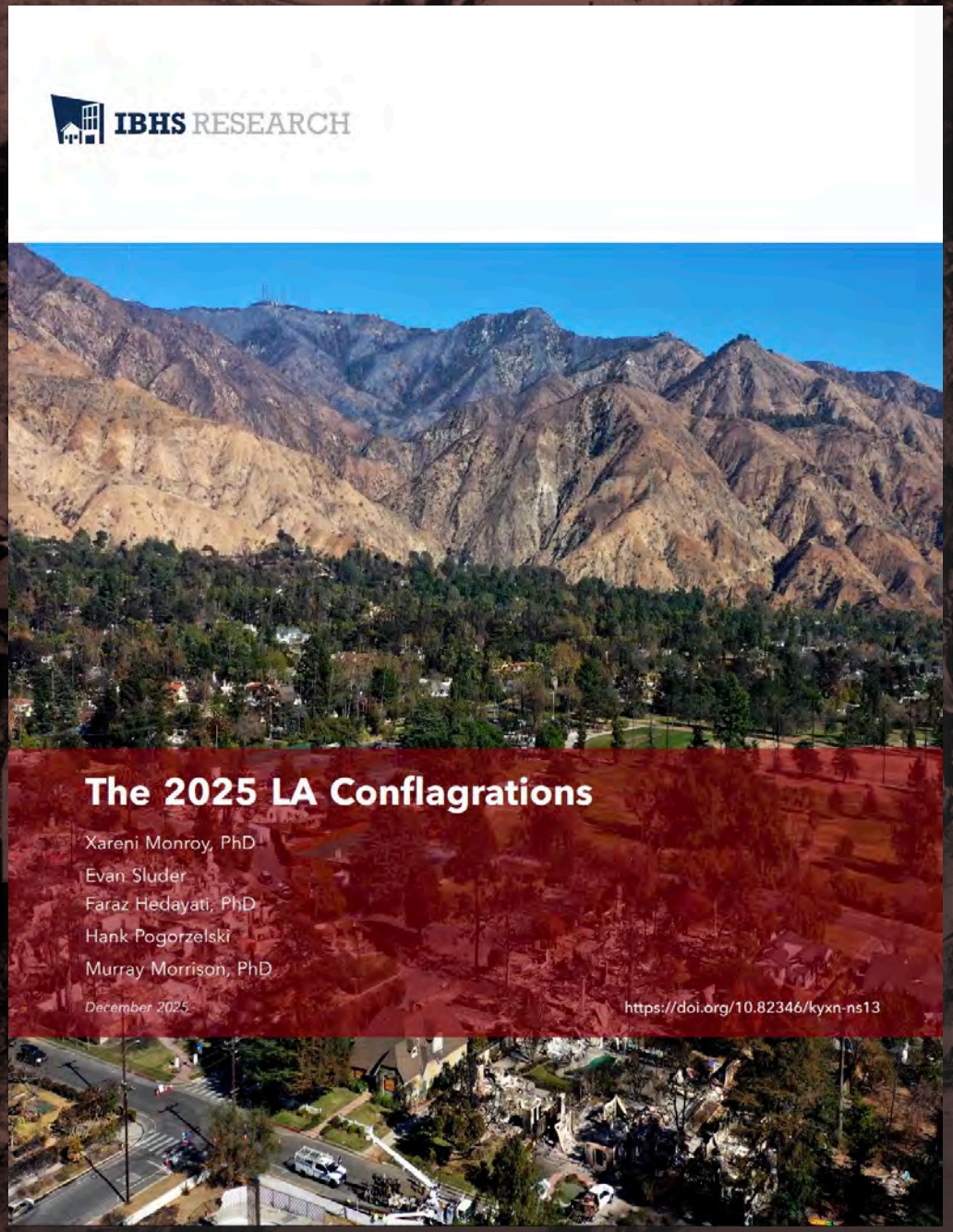


CONFLAGRATION *FACTORS*

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.

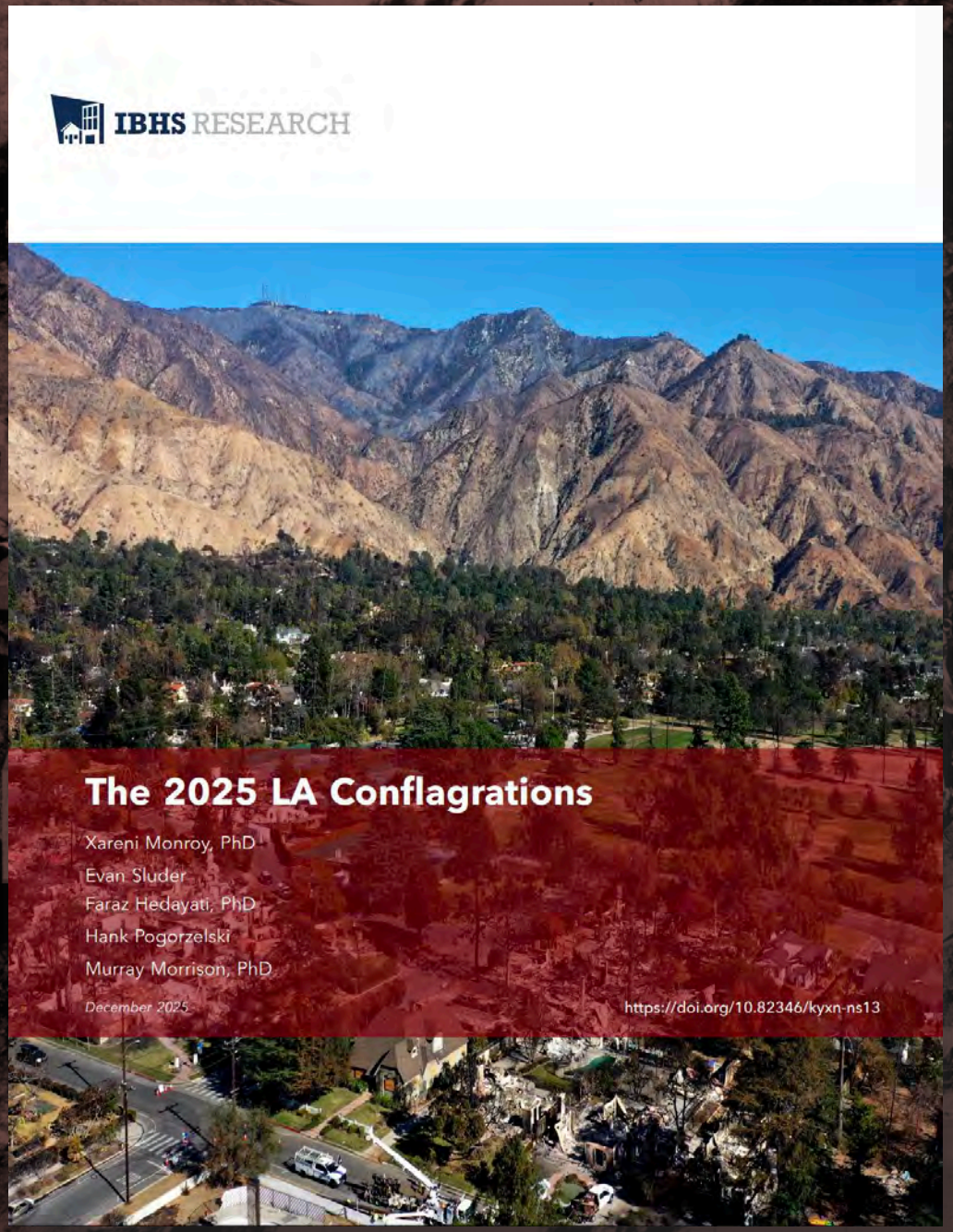


CONFLAGRATION *FACTORS*

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.



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.

WILDFIRE PREPARED

A PROGRAM OF IBHS

ADDITIONAL MITIGATIONS AGAINST FLAMES

- ✓ Cover gutters.
- ✓ Enclose eaves.
- ✓ Install noncombustible siding.
- ✓ Upgrade windows & doors.
- ✓ Upgrade to a noncombustible deck.
- ✓ Move accessory structures at least 30 feet away.
- ✓ Remove back-to-back fencing.

MITIGATIONS AGAINST EMBERS

ROOF

- ✓ Ensure the roof covering is Class A fire-rated & maintained clear of debris.
- ✓ Choose noncombustible gutters & downspouts.

BUILDING FEATURES

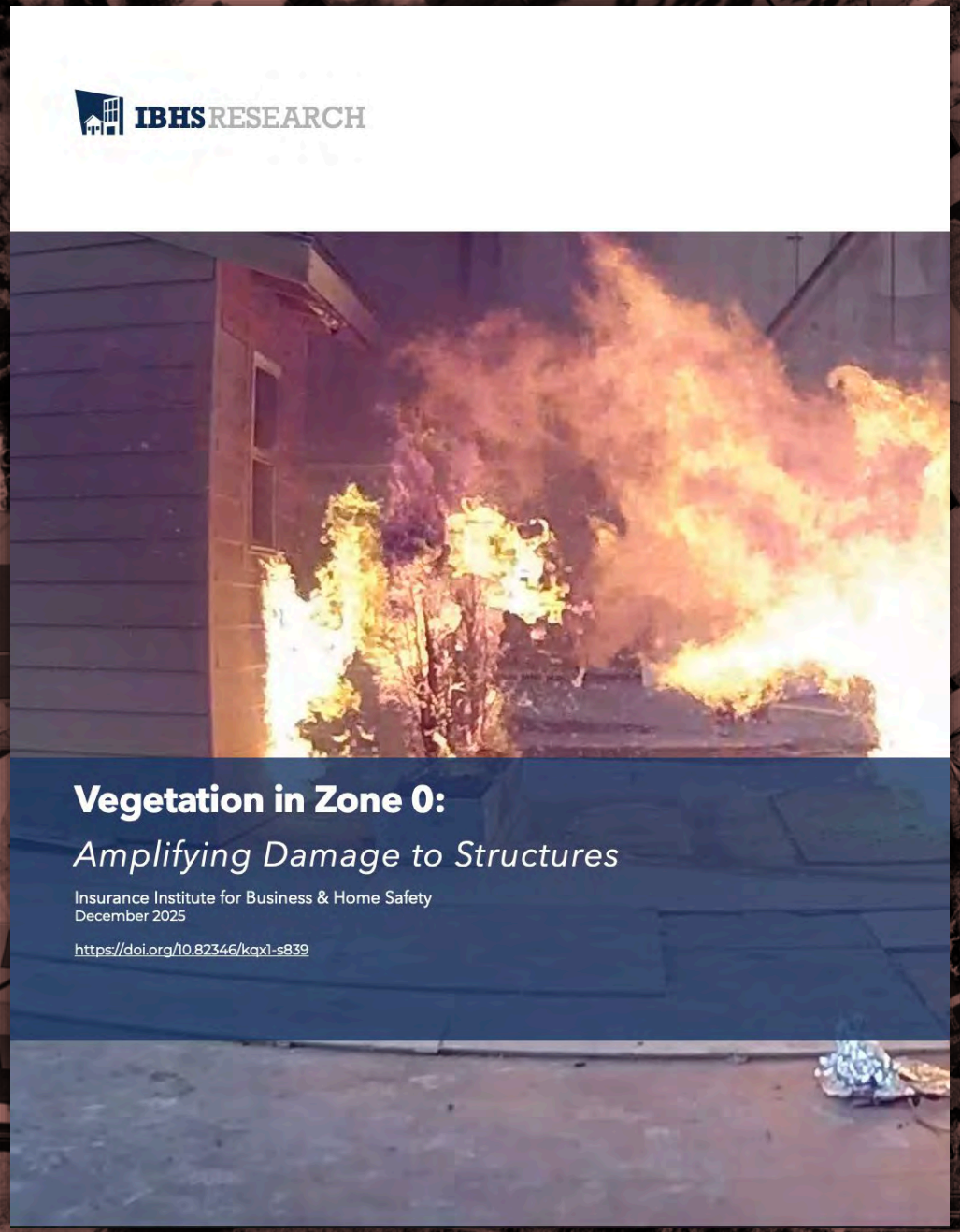
- ✓ Install flame- and ember-resistant vents or 1/8-inch metal mesh vents.
- ✓ Ensure 6-inch vertical noncombustible clearance at base of exterior walls and decks.
- ✓ Clear & maintain the underdeck area; enclose low-elevation decks.

0–5 FOOT NONCOMBUSTIBLE ZONE

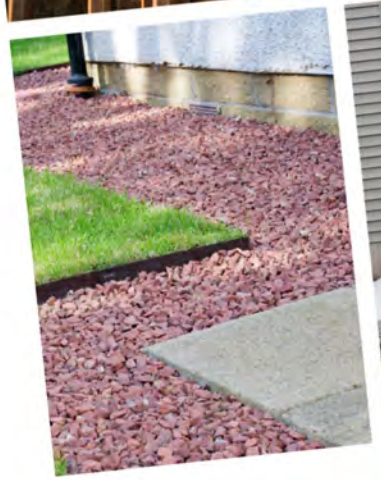
- ✓ Establish a **0–5 Foot Noncombustible Zone** around the home and decks; remove overhanging branches; replace combustible fences within 5 feet.

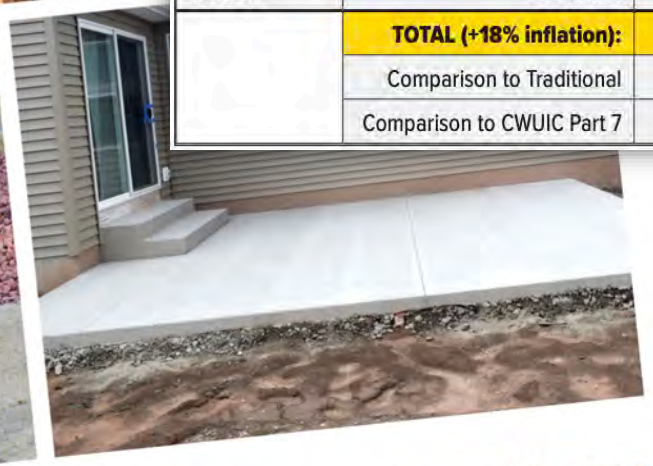
5–30 FOOT DEFENSIBLE SPACE ZONE

- ✓ Maintain yard with spaced vegetation, structures, & other connective fuels; clear debris; remove firewood.
- ✓ Move structures at least 10 feet away & maintain a 0-5 Foot Noncombustible Zone around them.



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





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

Insurance Institute for Business & Home Safety

HEADWATERS ECONOMICS

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

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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