

# Bending Down Wildfire Risk



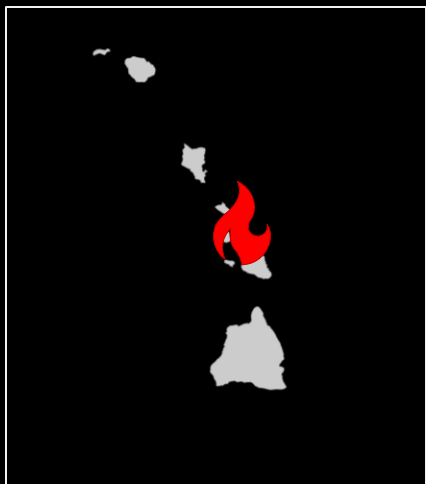
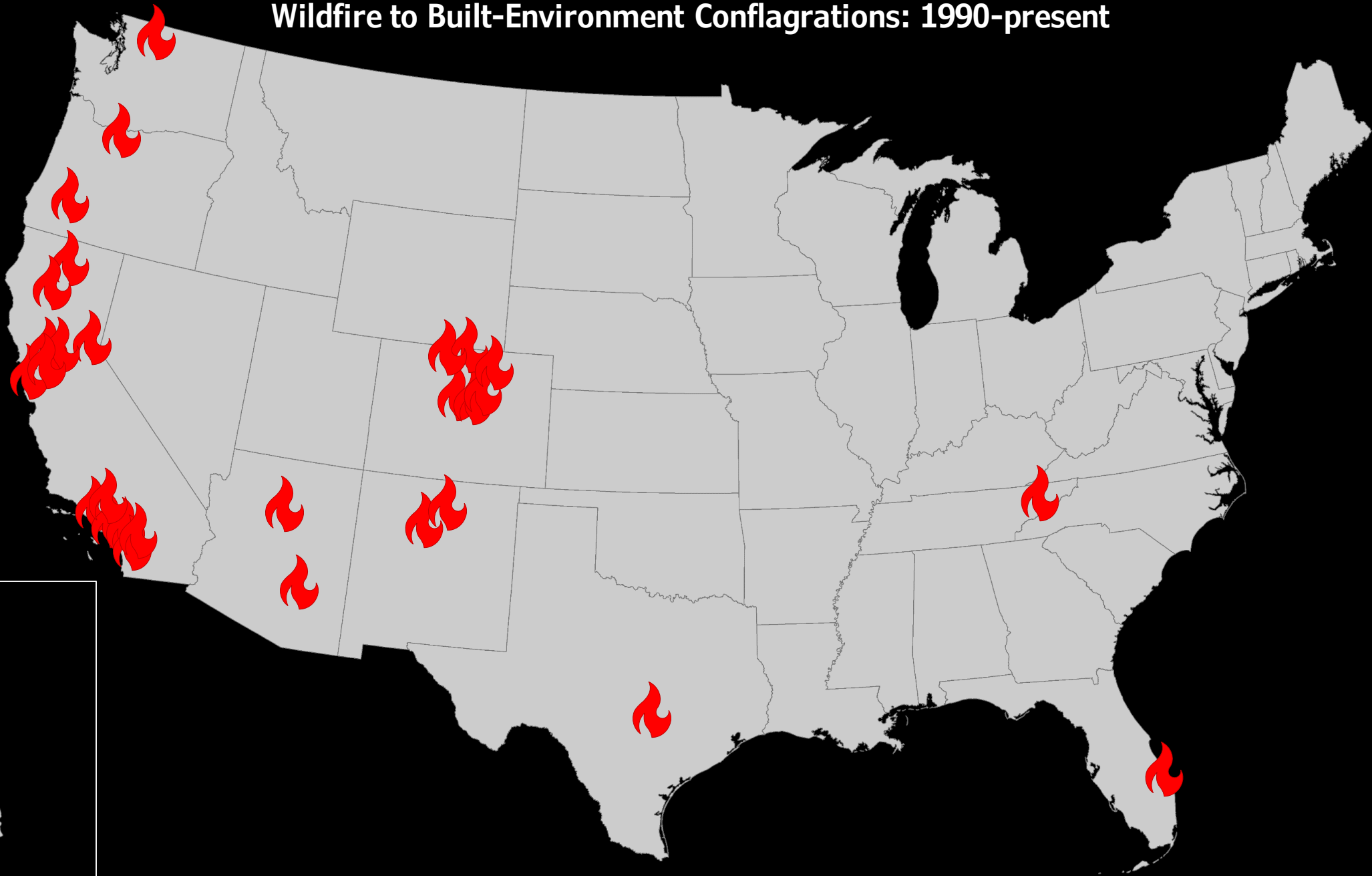
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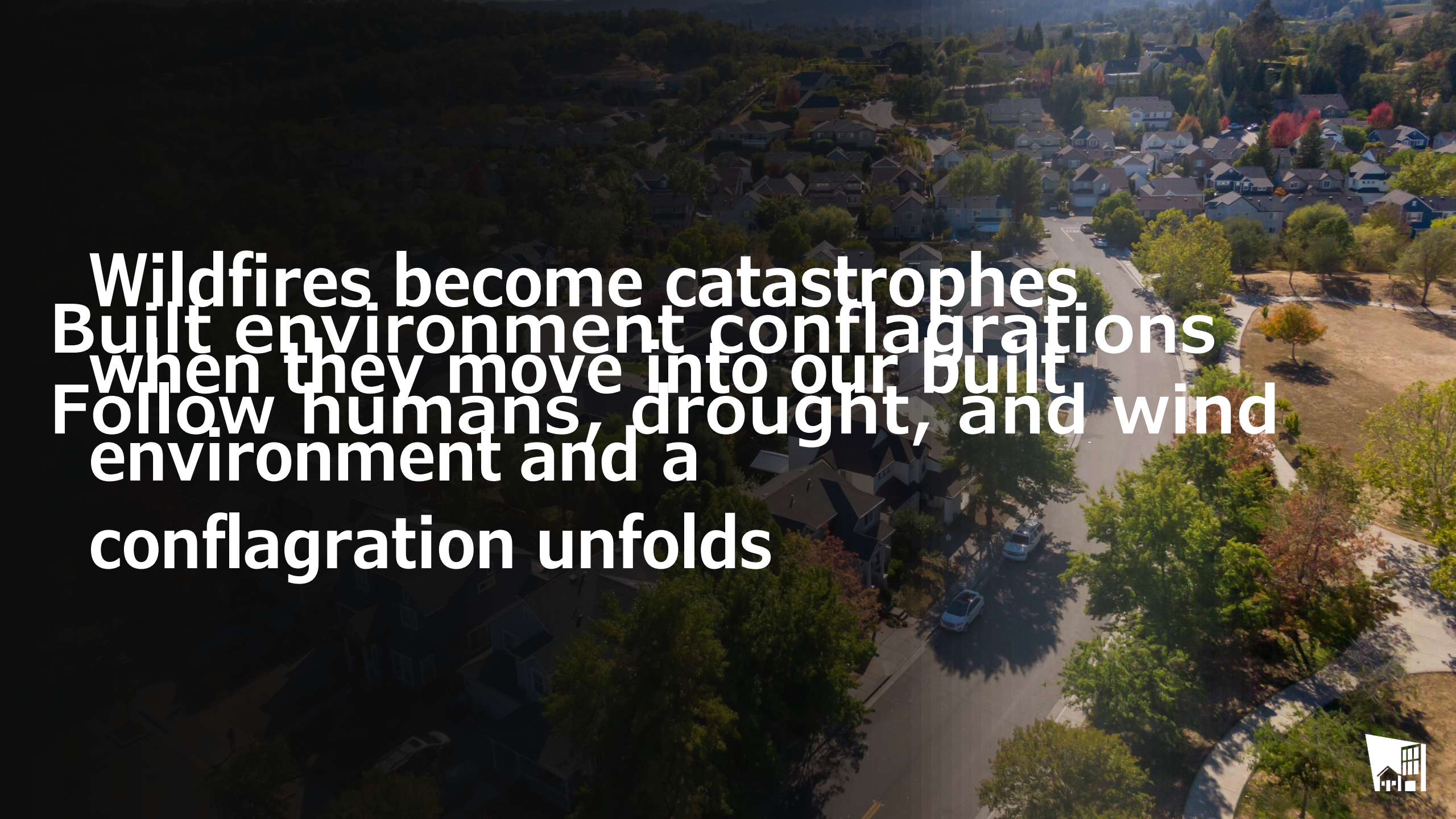
Insurance Institute for  
Business & Home Safety





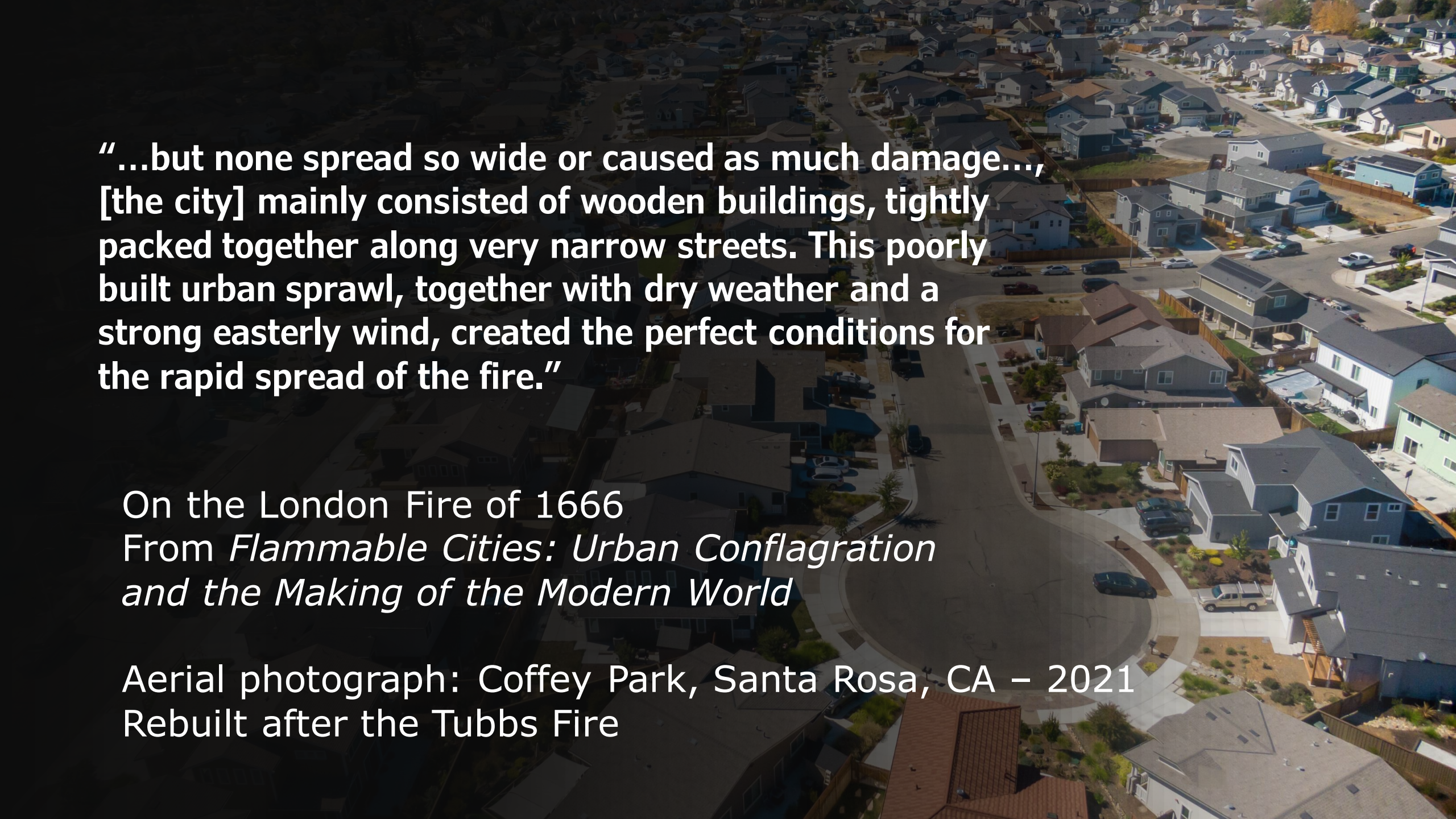
# Wildfire to Built-Environment Conflagrations: 1990-present



An aerial photograph of a suburban neighborhood. The houses are mostly two-story structures with dark roofs, interspersed with green trees. A paved road with a few cars is visible on the right side. The overall scene is bright and clear.

**Wildfires become catastrophes  
Built environment conflagrations  
when they move into our built  
Follow humans, drought, and wind  
environment and a  
conflagration unfolds**



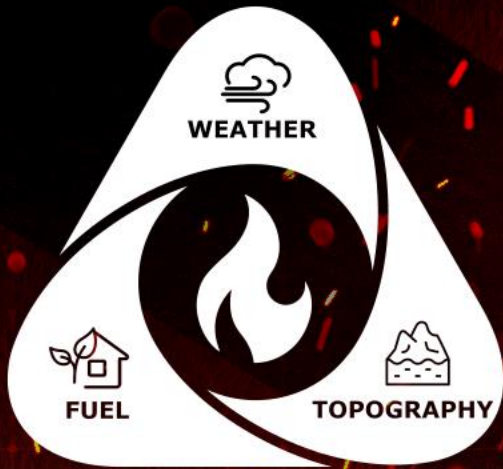


**“...but none spread so wide or caused as much damage..., [the city] mainly consisted of wooden buildings, tightly packed together along very narrow streets. This poorly built urban sprawl, together with dry weather and a strong easterly wind, created the perfect conditions for the rapid spread of the fire.”**

On the London Fire of 1666  
From *Flammable Cities: Urban Conflagration  
and the Making of the Modern World*

Aerial photograph: Coffey Park, Santa Rosa, CA – 2021  
Rebuilt after the Tubbs Fire

## Severe Wildfire Conditions



**1.** Ignition Source

**2.** Extreme fire behavior  
High intensity, fast growth

**3.** Residential fires  
Ignitable structures, proximity,  
many ignitions

**4.** Fire protection resources  
Number of ignitions +  
environment overwhelms resources

**5.** Fire protection effectiveness  
Reduced or nonexistent

**6.** Suburban  
Conflagration  
Catastrophe



And this





Science is  
catching up.

Research advances our codes &  
standards, improve test methods,  
and informs stakeholders.



# The race is on

Witch Creek Fire Investigation



2007

Ember attack & radiant heat



2012

Ember characterization



2014

Fire spread



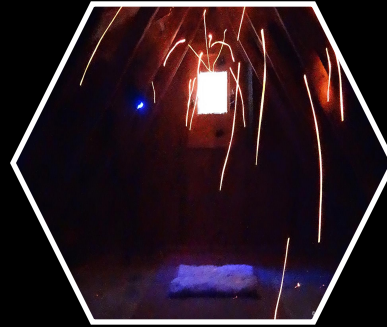
2016



Waldo Canyon Fire Investigation

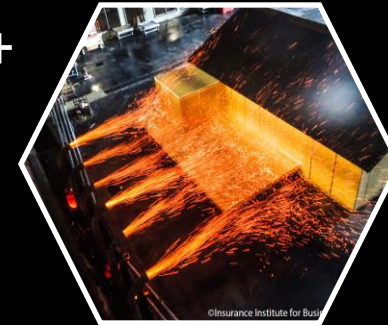


2013



Vents

2015



Vulnerability of decks



# Science is catching up

Coatings & Gels



Home Hardening



Roof cover performance



Structure separation & wind-driven fire



2019

2021

2022

2023

2017



2018



2020

Home Ignition Zone



Fuel breaks

Marshall Fire Investigation



Wine Country Fires & Camp Fire Investigation





# CRITICAL ACTIONS

## ROOF

- ✓ Class A fire-rated roof

## DEFENSIBLE SPACE

- ✓ Maintain trimmed trees and removal of branches overhanging home ignition zone and roof

## BUILDING FEATURES

- ✓ Ember resistant vents

## DEFENSIBLE SPACE

- ✓ Replace combustible fencing

## BUILDING FEATURES

- ✓ 6-inch vertical noncombustible clearance at base of wall

## DEFENSIBLE SPACE

- ✓ Maintain underdeck

## DEFENSIBLE SPACE

- ✓ Maintain home ignition zone (0-5 ft)

## DEFENSIBLE SPACE

- ✓ No outbuildings near home

## DEFENSIBLE SPACE

- ✓ Enclose underdecks

## DEFENSIBLE SPACE

- ✓ Maintain yard clear of debris

Home ignition zone



5 feet

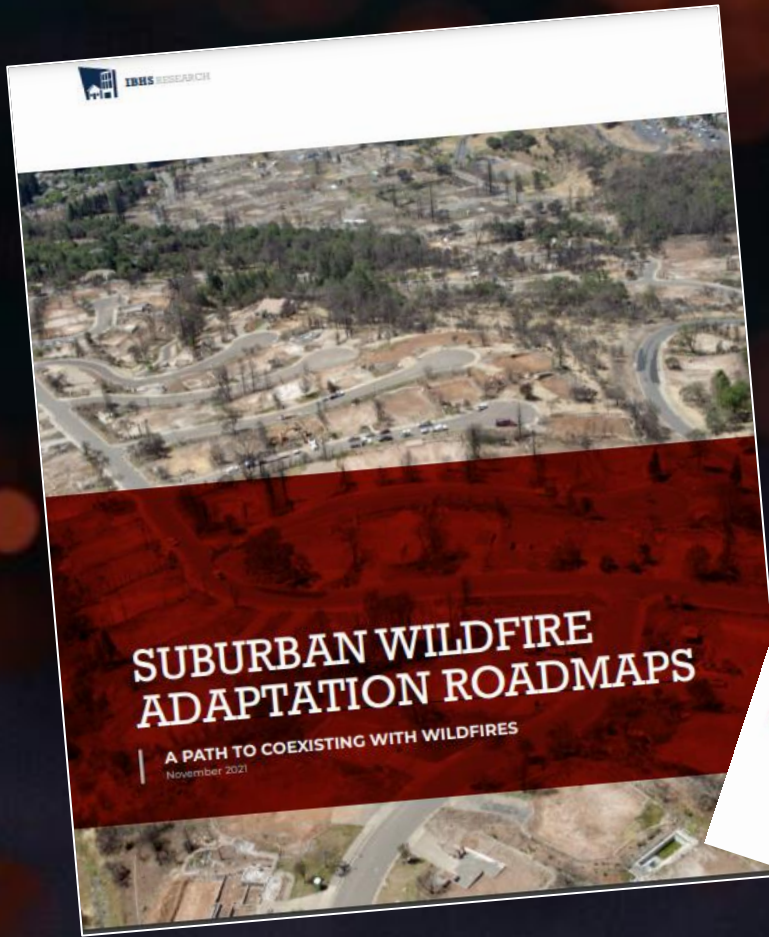






Vents





IBHS RESEARCH

# SUBURBAN WILDFIRE ADAPTATION ROADMAPS

A PATH TO COEXISTING WITH WILDFIRES  
November 2021



# WILDFIRE PREPARED

A PROGRAM OF IBHS

## HOMEOWNER GUIDE

WildfirePrepared.org

# WILDFIRE PREPARED

A PROGRAM OF IBHS

### ROOF

- ✓ Choose a Class A fire-rated roof maintained clear of debris
- ✓ Choose noncombustible gutters & downspouts

## WILDFIRE PREPARED HOME + PLUS

### ADDITIONAL MITIGATION

- ✓ Remove back-to-back fencing
- ✓ Eliminate combustible siding
- ✓ Enclose eaves
- ✓ Enclose under bay windows
- ✓ Upgrade to a wildfire-resistant deck
- ✓ Upgrade windows & doors
- ✓ Cover gutters
- ✓ Move outbuildings at least 30 feet away

### BUILDING FEATURES

- ✓ Install ember- & flame-resistant vents
- ✓ Ensure 6-inch vertical noncombustible clearance at base of wall

### DEFENSIBLE SPACE

- ✓ Create & maintain the home ignition zone (0-5 ft) including the removal of branches that overhang this area
- ✓ Clear & maintain the underdeck area; enclose low-elevation decks
- ✓ Maintain yard clear of debris
- ✓ Replace combustible fencing within 5 ft of the home

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**WILDFIRE**  
**PREPARED**  
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# + Community

- We must find the nudges to get parcel-level measures put in at scale
- Communities can break the chain of conflagration & act as fuel breaks, not fuel sources
- We can apply lessons learned through the IBHS FORTIFIED Home program's success

IBHS is here to help

