



From Research to Resilience

Using IBHS Science

Rachael Penton Gauthier

***Meteorologist & Science Content
Producer***

Insurance Institute for Business & Home Safety



WHY IBHS?

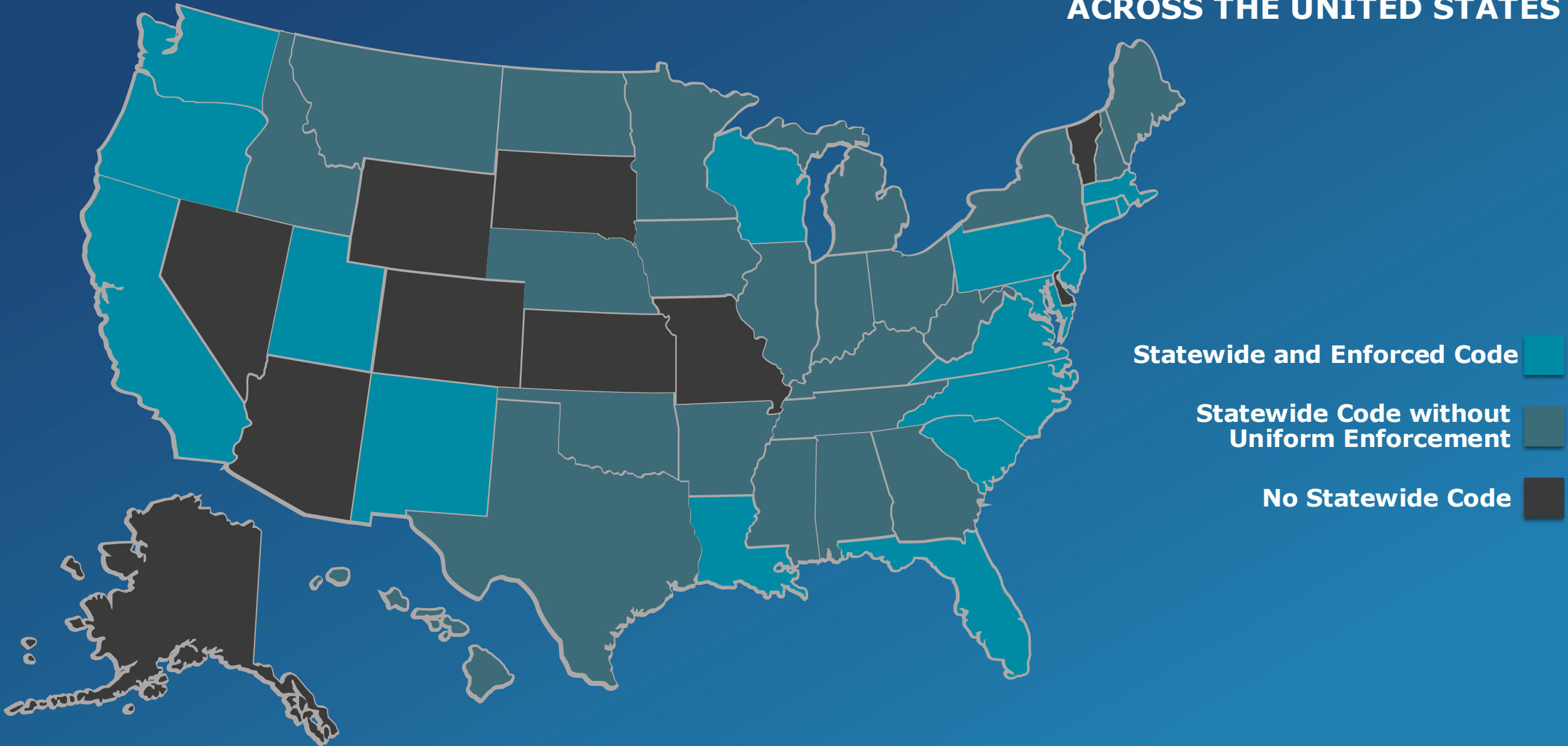
Severe weather disrupts lives, displaces families, and drives financial loss. IBHS delivers top-tier science and translates it into action so we can prevent avoidable suffering, strengthen our homes and businesses, inform the insurance industry, and support thriving communities.



BUILDING CODES specify basic standards for the design and construction of buildings to protect life safety, and have made significant improvements in loss reduction in the last two code cycles.

Statewide Building Codes

ACROSS THE UNITED STATES



Which house would you rather
Own? Build? Sell? Insure?







Keep the roof on and water out.
Enhanced by a sealed roof deck.
High wind rated roof cover.

Keep the roof on, water out.
Reduce damage amplifiers:
Strengthen gable walls & porches.
Strengthen garage door openings.
Protect openings against debris impact.**

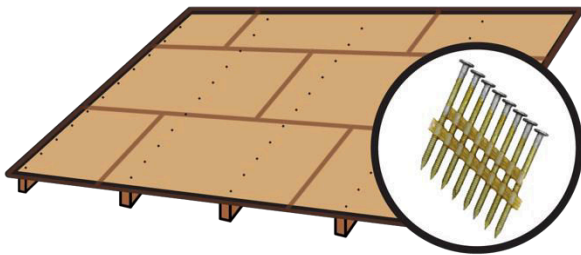


Keep the roof on, water out.
Reduce damage amplifiers.
Keep the entire building intact with a
continuous load path (CLP).
Protect openings against high
pressures.**

FORTIFIED Home

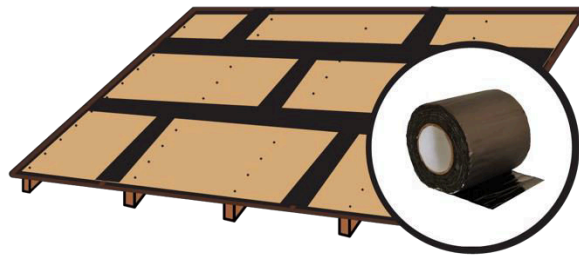


1. KEEP THE ROOF ON.



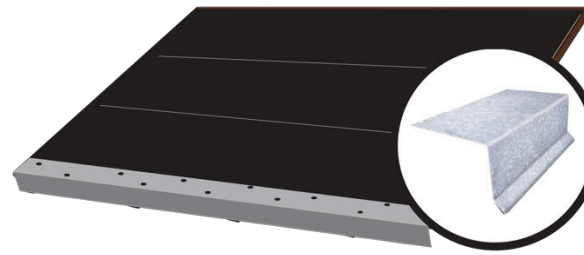
Stronger Connections

2. KEEP THE WATER OUT.



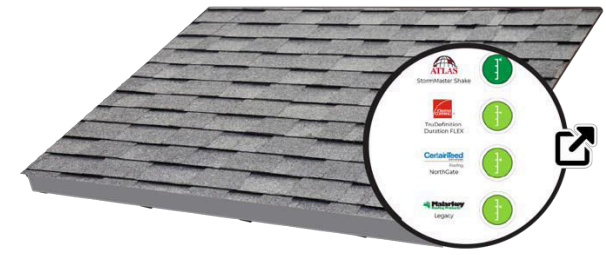
Sealed Seams

3. KEEP THE WIND OUT.



Lock the Edges Down

4. DEFEND THE SHINGLES.



Choose an Impact-Rated Shingle**





**WHEN SHINGLES
FAIL, THE SEALED
ROOF DECK KEEPS
THE RAIN OUT.**



UNSEALED ROOF DECK: **COST OF CLAIM**

3X LOSS ESTIMATE

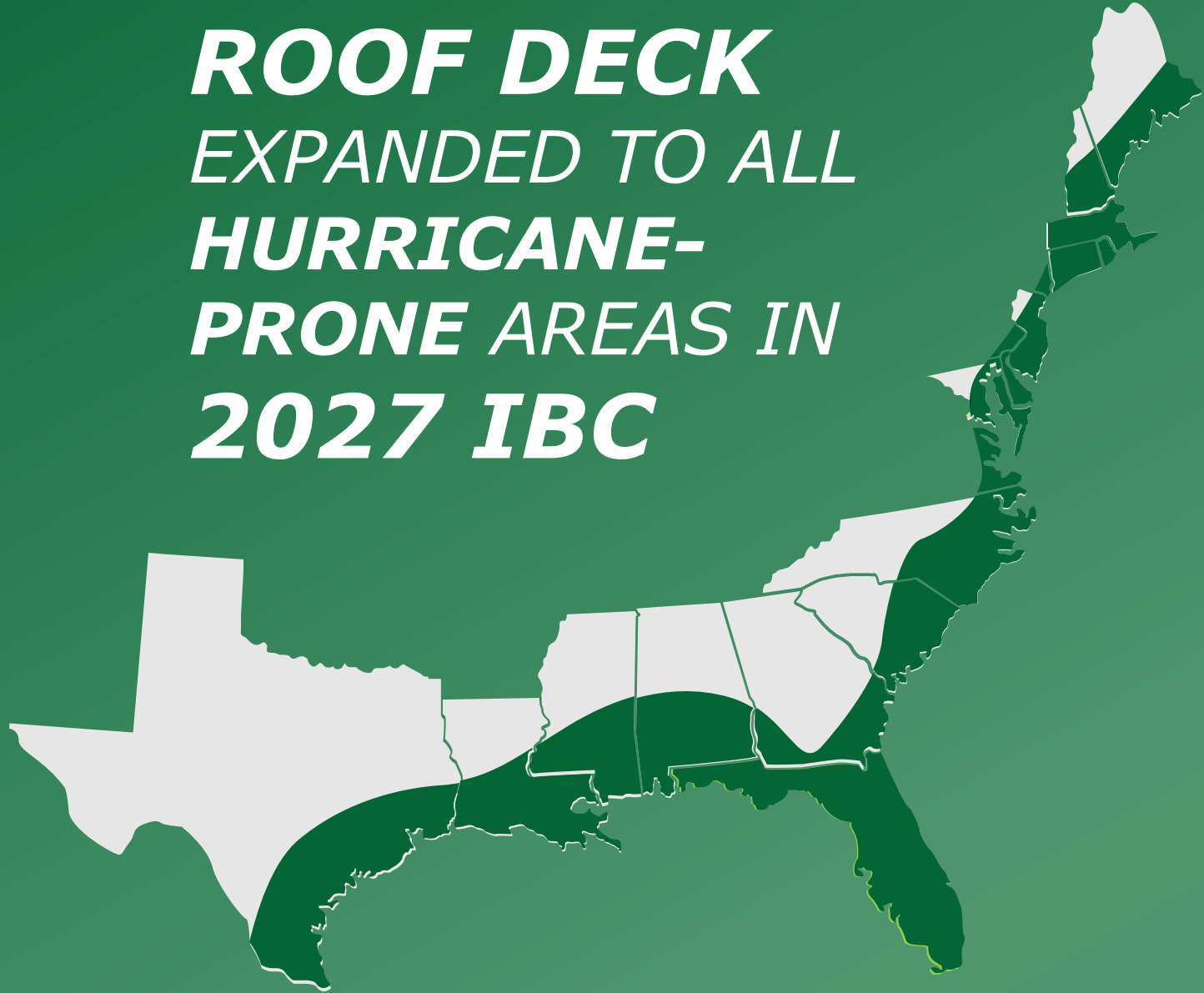
SEALED

UNSEALED



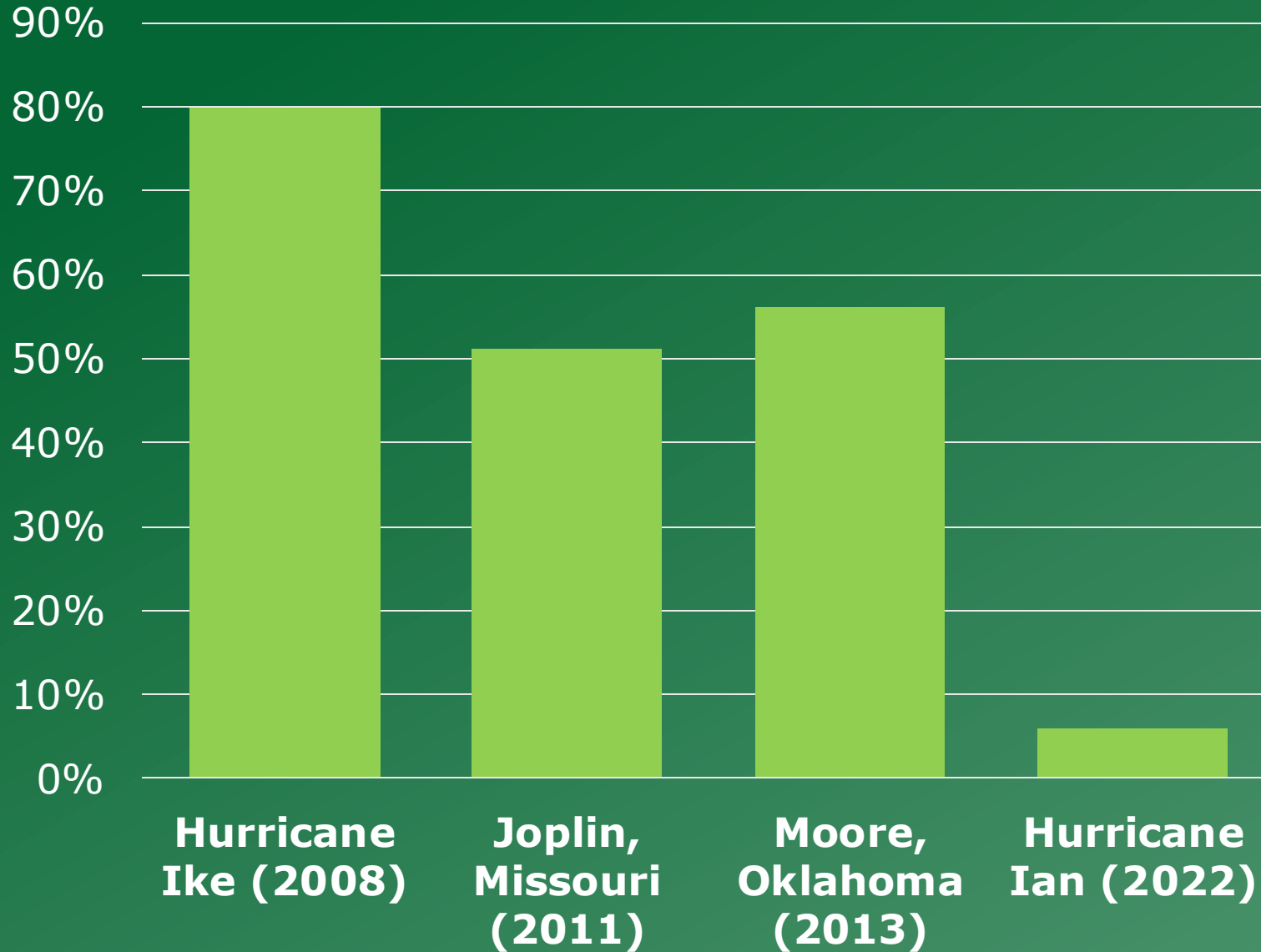


***SEALED
ROOF DECK
EXPANDED TO ALL
HURRICANE-
PRONE AREAS IN
2027 IBC***



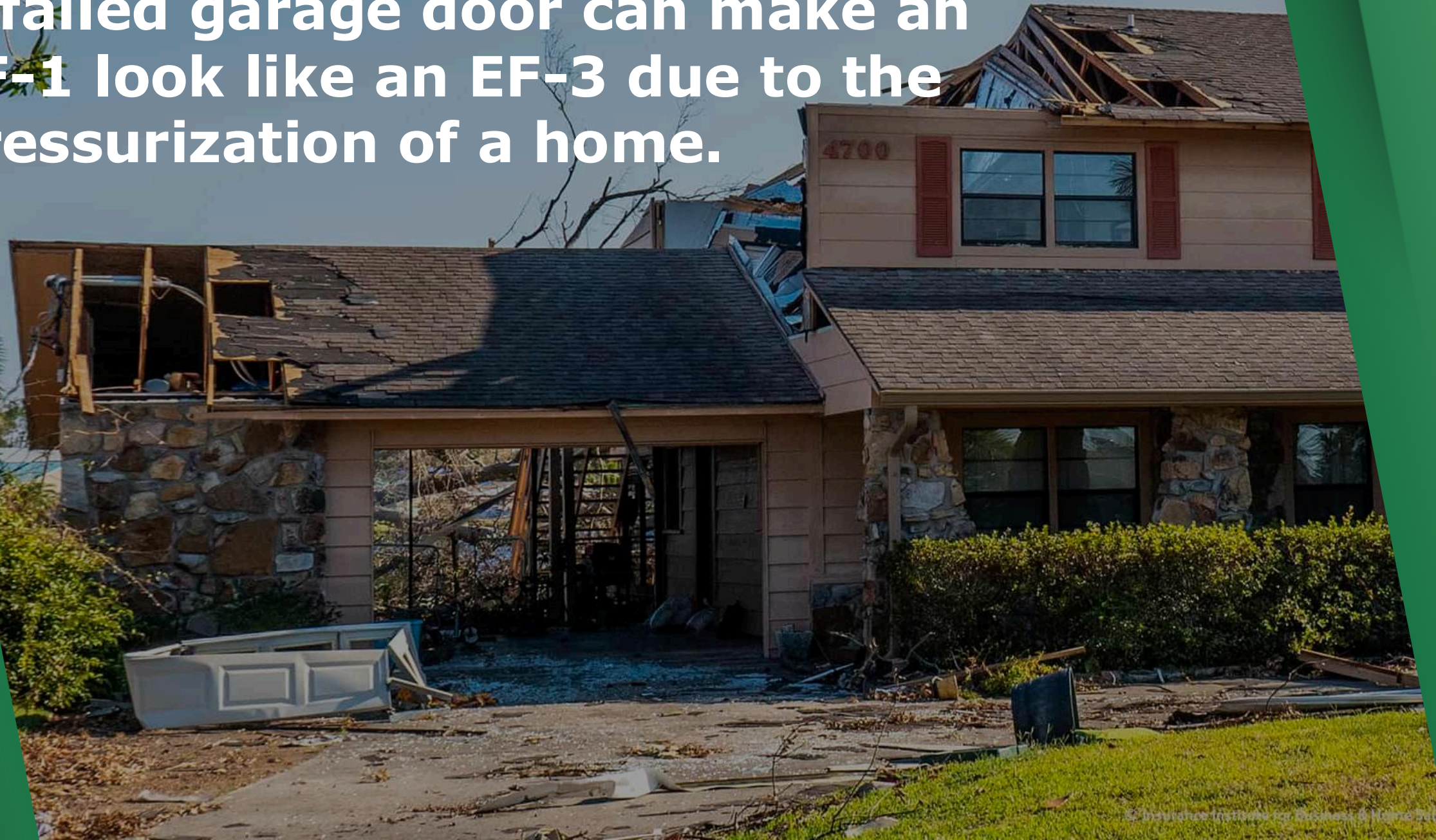


Garage Door Damage Rate



Garage
Doors act as
***DAMAGE
AMPLIFIERS***

A failed garage door can make an EF-1 look like an EF-3 due to the pressurization of a home.





WIND-RATED
garage doors
can make a
difference.





FIELD



IBHS

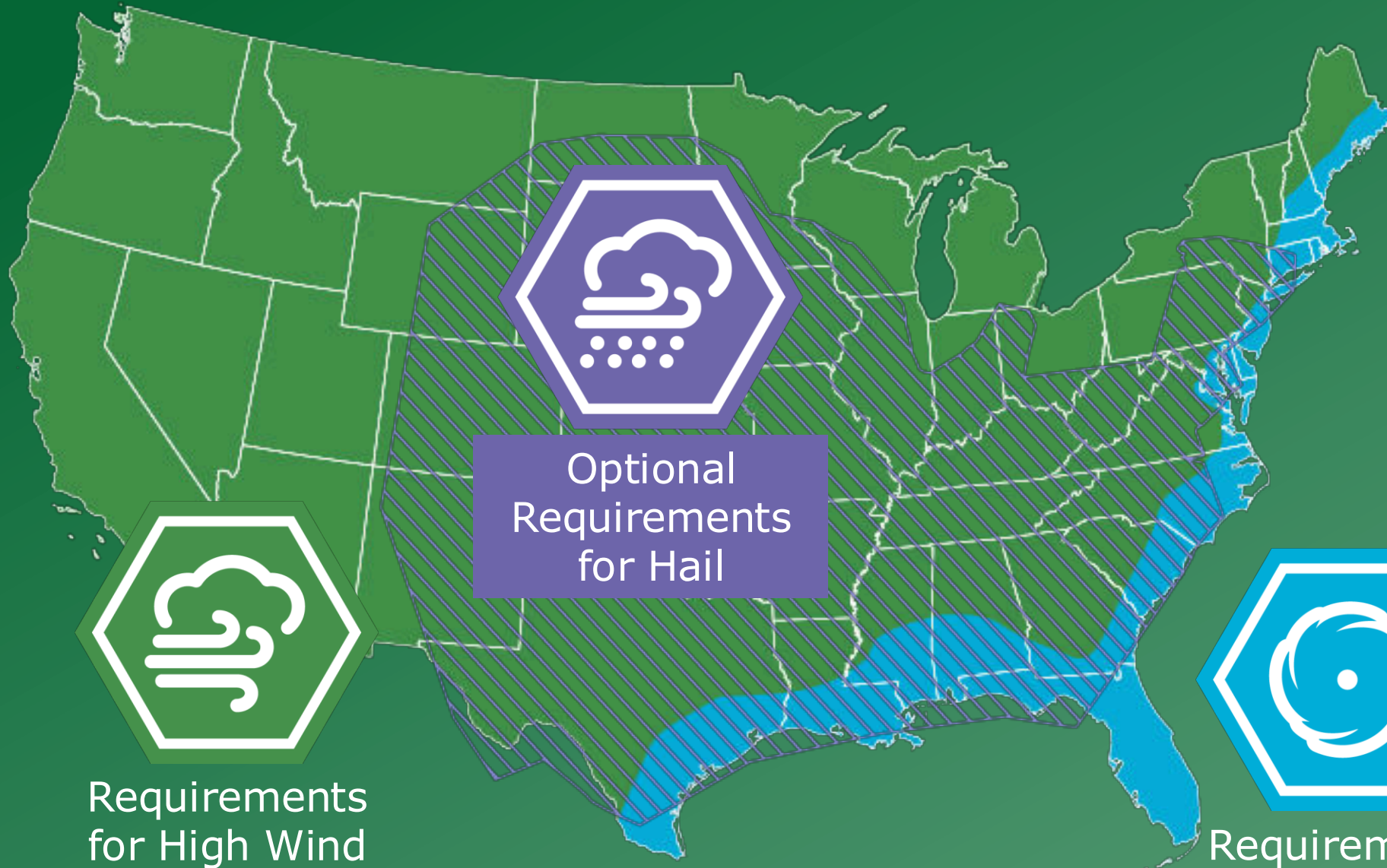
Post-event damage investigations showed **90%** of homes whose garage door survived the storm had no structural damage to the roof.



CONTINUOUS LOAD PATH TO RESIST WIND FORCES

THE *SCIENCE* HOUSE





Optional
Requirements
for Hail



Requirements
for High Wind



Requirements
for Hurricane

Applicable Weather Hazards

FORTIFIED GROWTH Across the Country

Over 86,000
DESIGNATIONS
NATIONWIDE

GROWING BY
MORE THAN
1,500
PER MONTH

**DESIGNATIONS
ISSUED TO HOMES
IN 32 STATES**

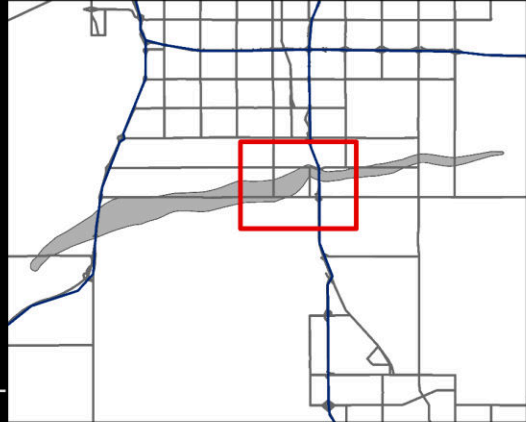
As of Sept 2025



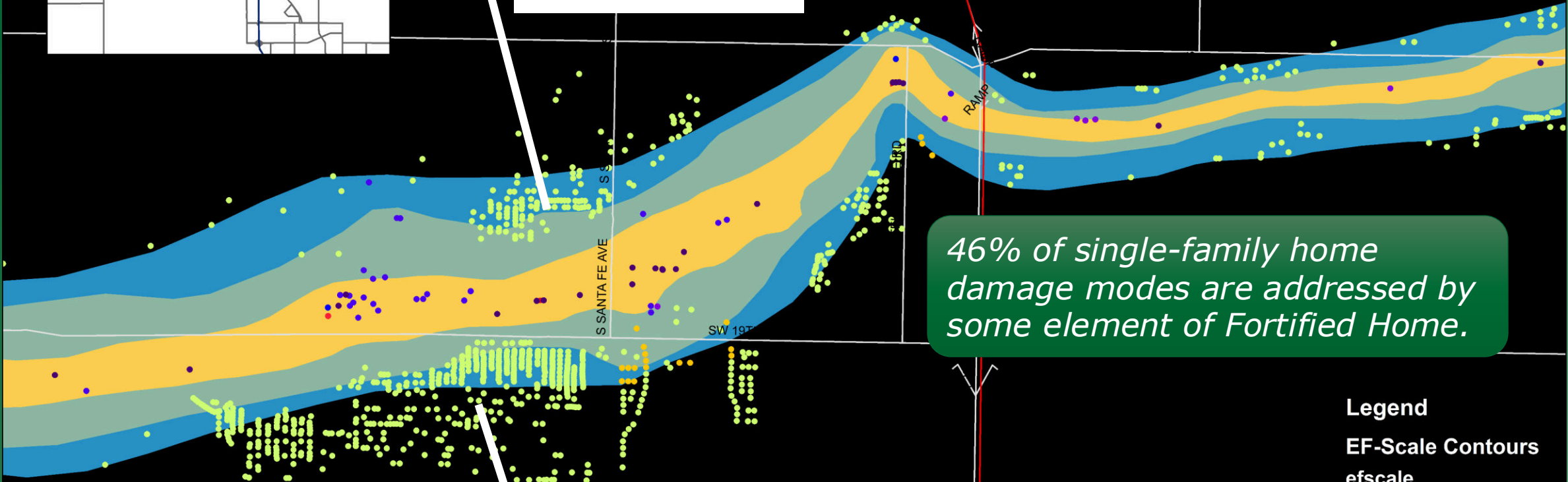
**BUT WE CAN
PREVENT THIS.
ALL DAMAGE.**



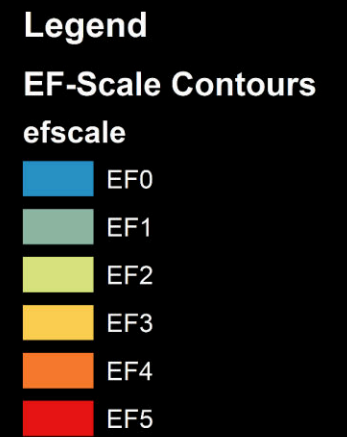
2013 Moore, OK EF-5 Tornado



**Primarily
shingle loss**



**Primarily
shingle loss**





We don't live with buckets inside our home anymore. Every time it used to rain – morning, noon, or middle of the night – I'd run to get the buckets all placed to collect the rain that leaked everywhere in the house. Now the buckets are for outside.



**New asphalt
shingles should
be able to
handle 1.5-2
inch hail.**

But...



including 5-5/8" (143 mm) exposure to weather.

NorthGate shingles conform to:

ASTM D3462

ASTM D3018 Type I

ASTM E108 Class A Fire Resistance

ASTM D3161 Class F Wind Resistance

CAN/ULC S107

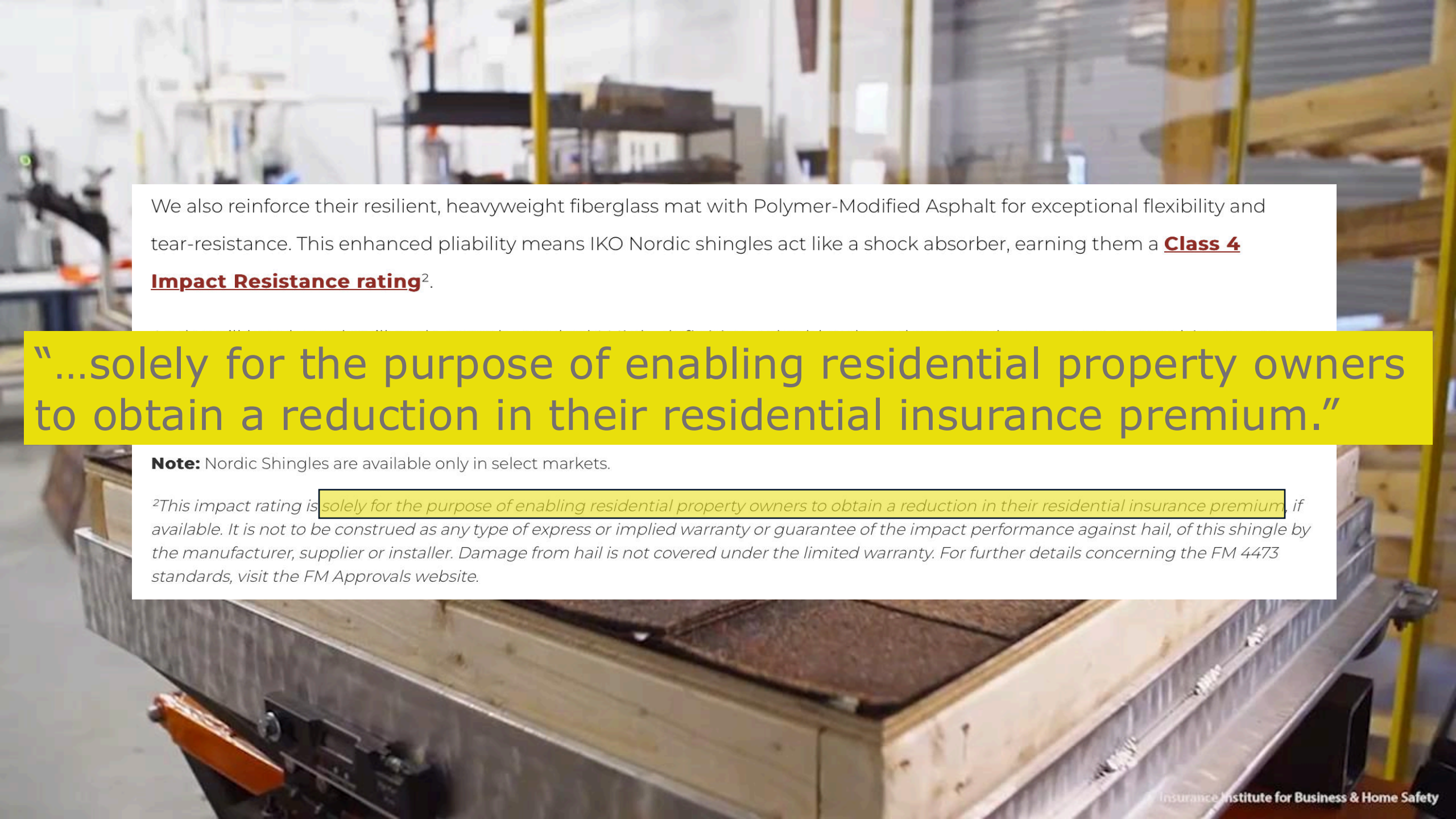
ASTM D7158 Class H Wind Resistance

CSA Standard A123.5

Florida Approval FL5444

UL 2218 Class 4 Impact Resistance (at time of manufacture)

**TEST
STANDARDS
FAIL TO
PREDICT
PERFORMANCE.**



We also reinforce their resilient, heavyweight fiberglass mat with Polymer-Modified Asphalt for exceptional flexibility and tear-resistance. This enhanced pliability means IKO Nordic shingles act like a shock absorber, earning them a **Class 4 Impact Resistance rating**².

“...solely for the purpose of enabling residential property owners to obtain a reduction in their residential insurance premium.”

Note: Nordic Shingles are available only in select markets.

²This impact rating is solely for the purpose of enabling residential property owners to obtain a reduction in their residential insurance premium, if available. It is not to be construed as any type of express or implied warranty or guarantee of the impact performance against hail, of this shingle by the manufacturer, supplier or installer. Damage from hail is not covered under the limited warranty. For further details concerning the FM 4473 standards, visit the FM Approvals website.



80% *of hail losses are caused by hailstones 2 inches or less.*

ROOF PANEL DEPLOYMENTS

FAILURE MODES MATTER



DENTS



TEARS



***GRANULE
LOSS***



JUNE
2019

OCT
2019

JUNE
2021



Since 2019,

THERE IS A BETTER
TEST STANDARD.

ROOF SHINGLE HAIL IMPACT RATINGS

Manufacturer/ Brand	Overall Rating	Dents/ Ridges	Tears	Granule Loss
 StormMaster® Shake				
 Roofing NorthGate®				
 Roofing Products Legacy®				
 Roofing Products Vista®				
 Timberline® ArmorShield™ II				
 TruDefinition® WeatherGuard® HP				
 Roofing Landmark® IR				
 Cambridge™ IR				
Key  Excellent  Good  Marginal  Poor				

JUNE 2023

**NEW IMPACT-RATED
products perform**

10-35%

BETTER than new
conventional shingles

in IBHS lab testing with 2-inch hail.





For 5-year-old shingles,
IMPACT-RATED
products perform
up to **50%**
BETTER than
conventional shingles
in IBHS lab testing with 2-inch hail.



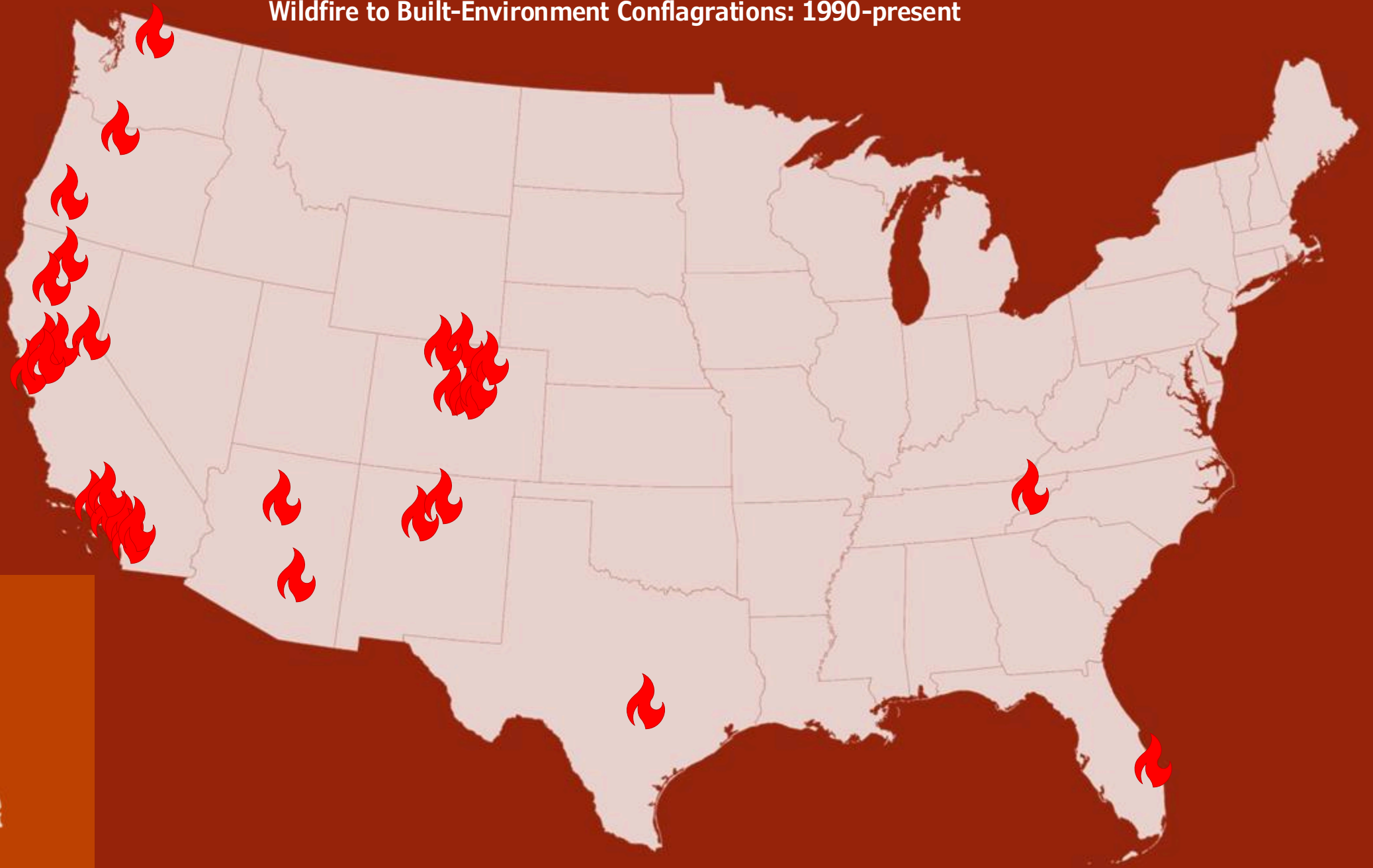
Wildfires become
CATASTROPHES
when they move into our
BUILT ENVIRONMENT
and a **CONFLAGRATION**
UNFOLDS.

An aerial photograph showing a residential neighborhood in a state of complete devastation. The ground is covered in a thick layer of rubble, including twisted metal, broken concrete, and charred wood. The outlines of houses and streets are barely visible through the debris. The image is framed by a dark red border at the top and bottom.

CONFLAGRATION:

**Uncontrollable
Structure-to-Structure
Fire Spread**

Wildfire to Built-Environment Conflagrations: 1990-present



A photograph of a single-story house with a brick chimney and a mailbox labeled '1111'. The house is completely engulfed in intense orange and yellow flames. A black pickup truck is parked in the driveway in front of the burning house. The background is dark, suggesting night or a very smoky environment.

Before and after aerial imagery reveals scope of deadly Oklahoma wildfires

Residents told to 'leave now' as wildfires threaten Oklahoma towns

4 dead and 142 injured in Oklahoma wildfires; more than 400 homes damaged statewide

An aerial photograph of a city street, likely in Los Angeles, showing a residential area with houses and trees. A red overlay covers the top left portion of the image, containing the word 'CONFLAGRATION' in yellow. Another red overlay covers the bottom left portion, containing the word 'LIKELIHOOD' in white. A third red overlay covers the right side of the image, containing the word 'SEVERITY' in white. The background image shows a street with houses, trees, and a distant city skyline.

CONFLAGRATION

LIKELIHOOD

*Humans
Drought
Wind*

SEVERITY

*Structure Density
Connective Fuels
Building Materials*

WILDFIRE PREPARED

— A PROGRAM OF IBHS —

(WFPH+) 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.

(WFPH BASE) MITIGATIONS AGAINST EMBERS

ROOF

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

BUILDING FEATURES

- ✓ Install ember-resistant vents or 1/8-inch metal mesh over vents.
- ✓ Ensure 6-inch vertical noncombustible clearance at base of exterior walls.
- ✓ 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.



- Disaster Discussions Podcast
- Disaster Preparedness Ready Guides Residential & Business
- Our Latest Research Reports
- Roofing Roadmaps Online Learning
- Impact Rated Shingle Scorecard
- Fortified Program
- Wildfire Prepared Home Program
- Wildfire Online Learning

And much more.

 **IBHS.org**





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