

# FORTIFIED Roofs, Quality Homes



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# Severe Convective Storm Hazards and Loss

Loss by SCS Hazard from Risk Management Solutions



## Hail

Hail accounts for **70%** of annual average loss. In any given year hail is **60-80%** of the damage produced by severe convective storms



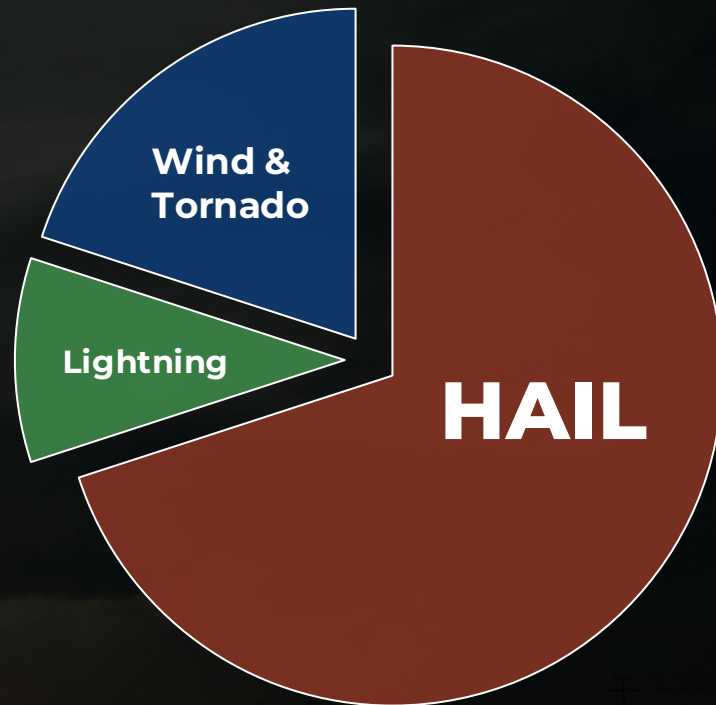
## Wind & Tornadoes

Severe winds both from straight-line wind events and tornadoes account for about **20%** of average annual loss.

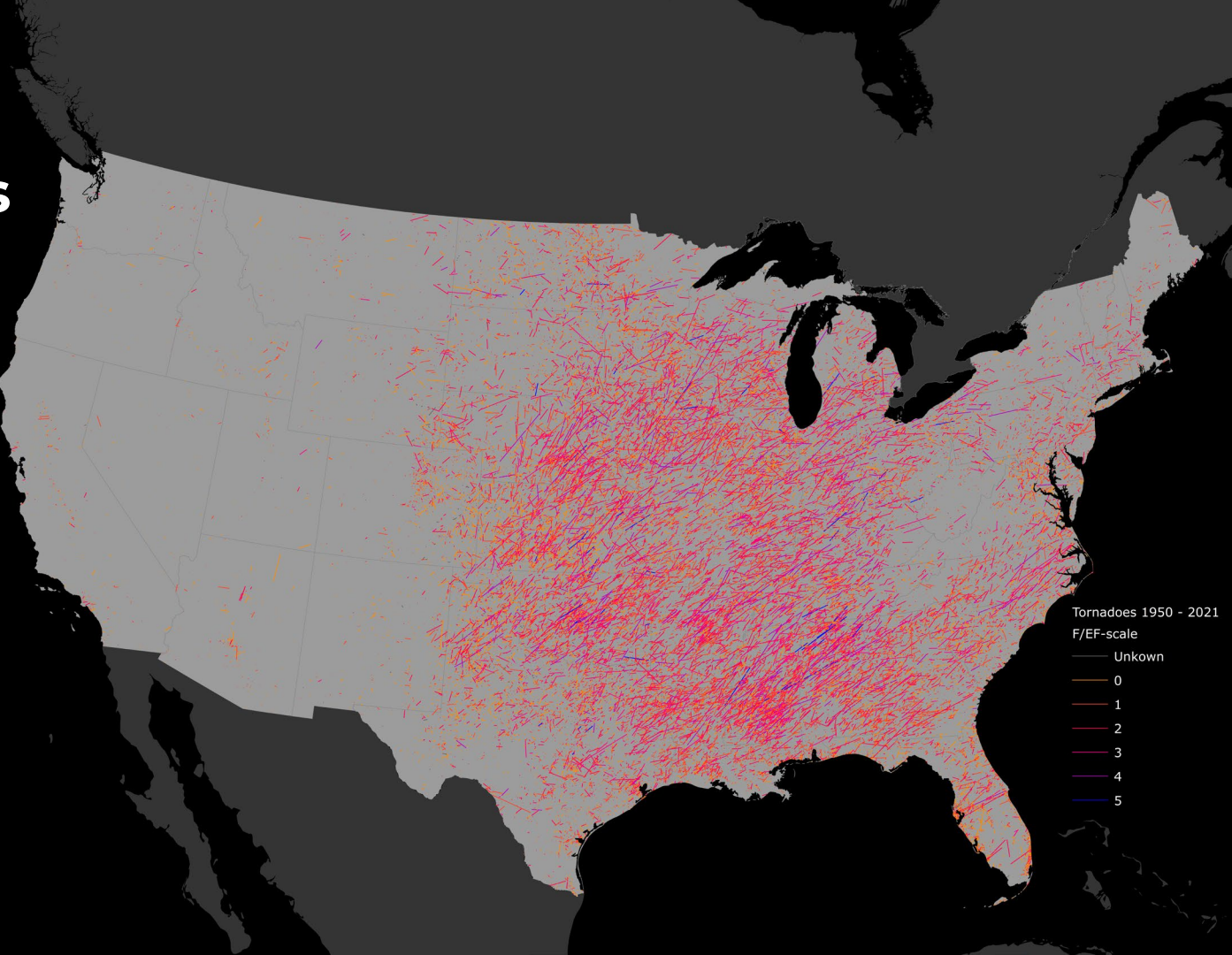


## Lightning

Lightning, including fires started by lightning accounts for about **10%**



# United States Tornadoes 1950-2021



Tornadoes 1950 - 2021

F/EF-scale

Unknown

0

1

2

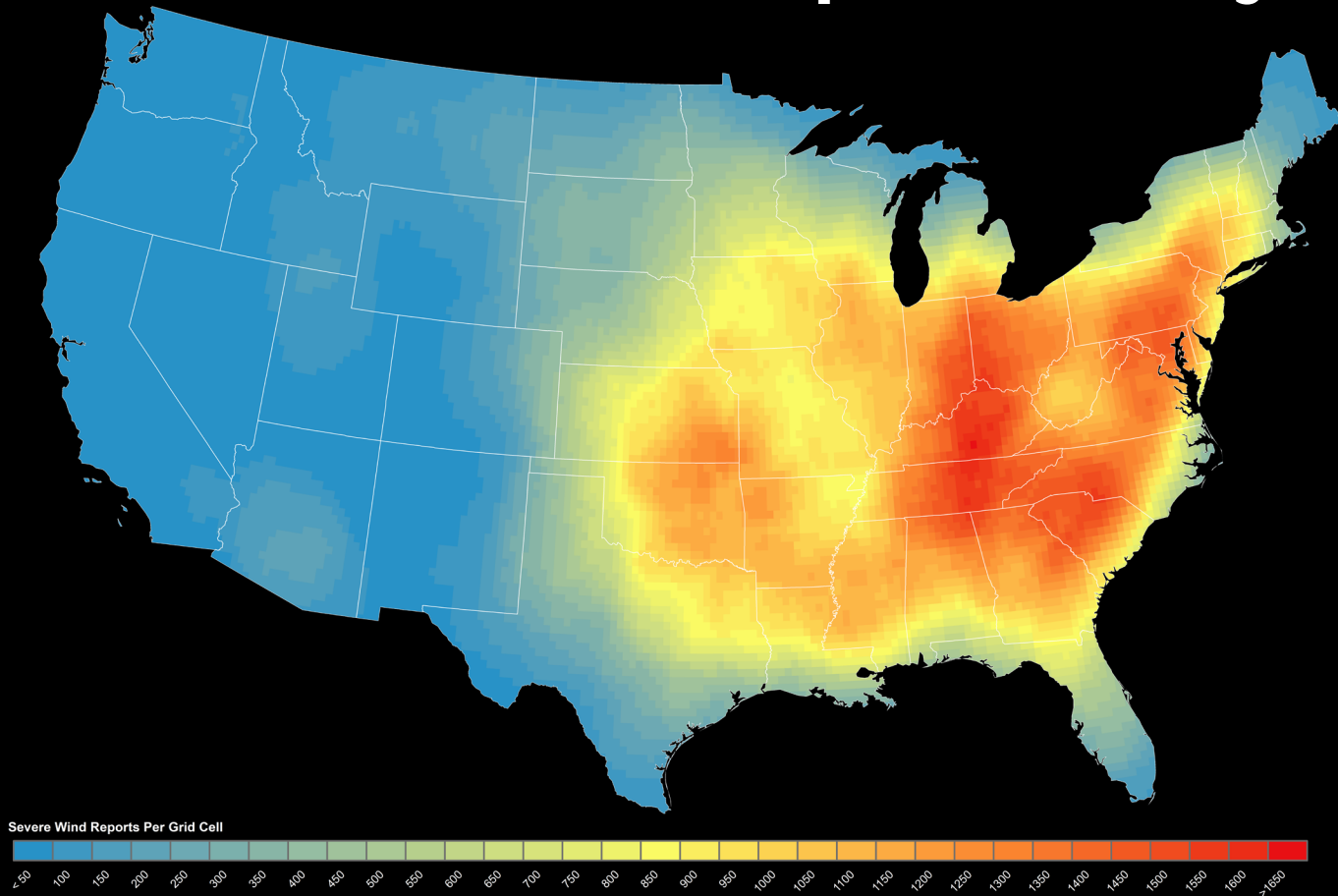
3

4

5



# Severe wind report density



10-Year Return Interval Expected Maximum Hail Size  
10% Annual Exceedance Probability

East Grand Forks,  
MN – 3.0 in.

Minneapolis, MN –  
2.8 in.

# Hail Annual exceedance probabilities

Hail Size  
Inches





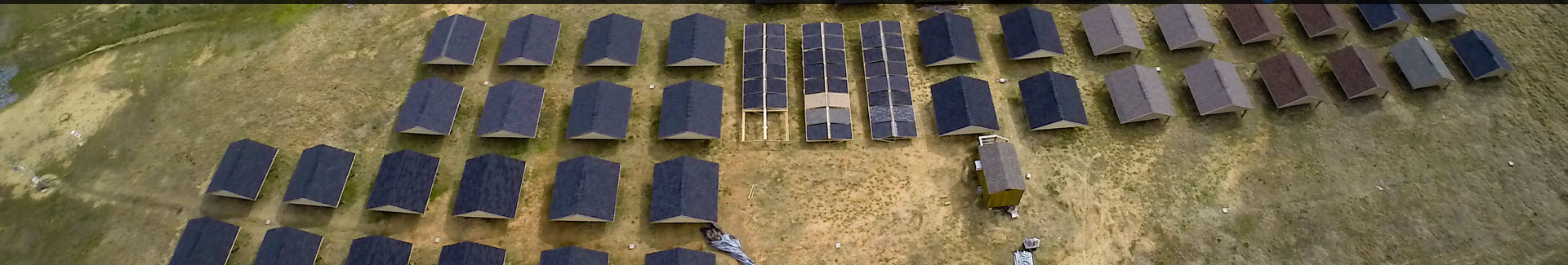
Photo: Andrew Link / Post Bulletin

An aerial photograph of a residential property featuring two large houses with dark grey shingled roofs. A central concrete driveway runs between the houses. The house on the right has a large blue tarp covering a portion of its roof. Various vehicles, including a white SUV, a dark car, a boat, and a white van, are parked in the driveway and on the lawn. A white hexagonal logo with the word 'FORTIFIED' in green is overlaid on the roof of the house on the left. A white outline of a house is visible on the lawn between the two houses.

**FORTIFIED**



In our one-of-a-kind research center, IBHS tests construction materials and methods to find solutions that make homes and businesses more resilient.







# PROGRESSION OF DAMAGE



Roof cover, soffits, fascia

Wall cover

Roof sheathing, roof structure


Total collapse

**IBHS**



**FIELD**

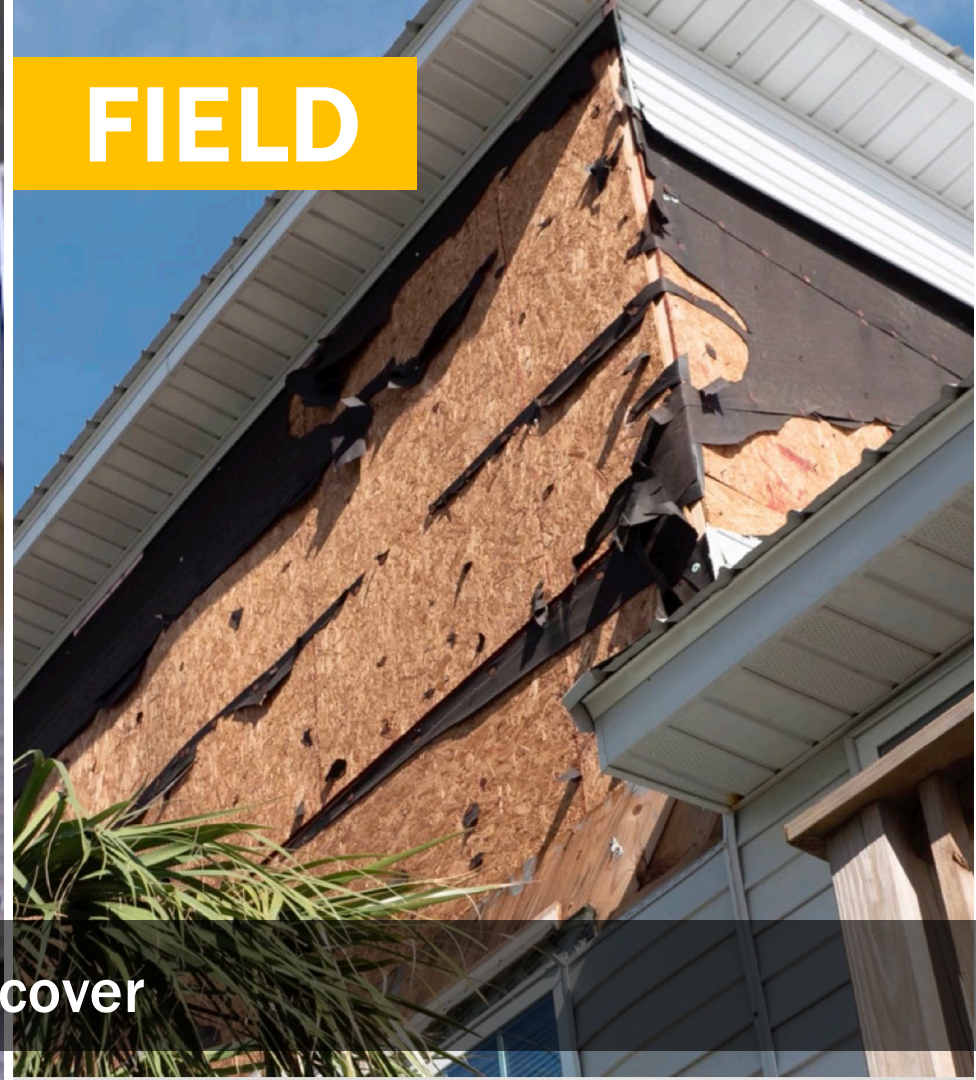


 Roof cover, soffits, fascia

**IBHS**



**FIELD**

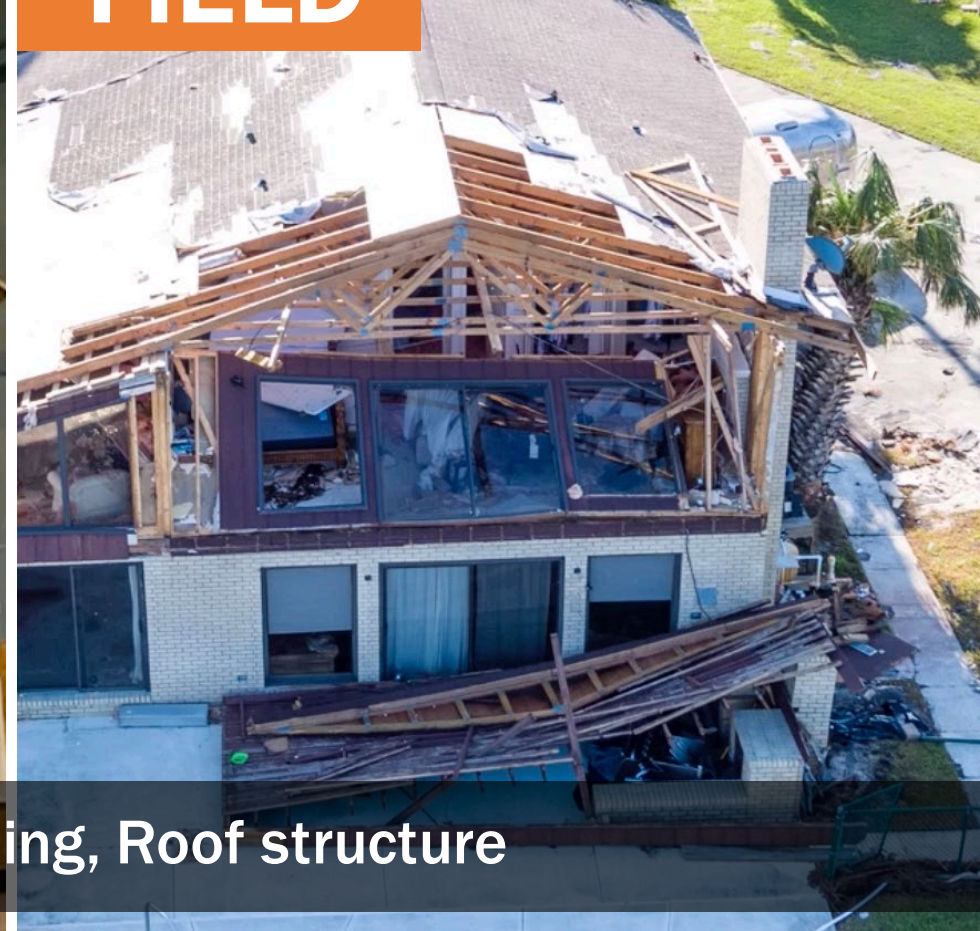


 **Wall cover**

**IBHS**



**FIELD**



 Roof sheathing, Roof structure

**IBHS**



**FIELD**



 Total collapse

IBHS



Water Intrusion Demo at the IBHS Research Center



**Sealed  
Roof Deck**

**Unsealed  
Roof Deck**



Damage Estimate:  
**\$6,143.53**

Damage Estimate:  
**\$19,236.46**

Comparison shows estimates in 2011 dollars adjusted for 2020 inflation





# What is FORTIFIED?





1

**Nail it Down**

*Keep the Roof On*



2

**Seal it Up**

*Keep the Water Out*



3

**Lock it In**

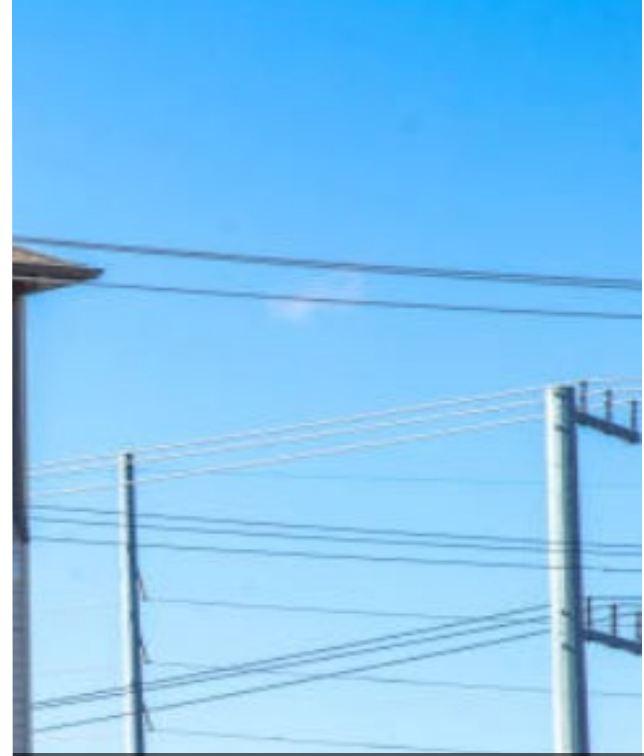
*Keep the Wind Out*



**Windows & Doors  
(Garage Doors)**



**Exterior Walls &  
Finishes**



**Gable End Bracing**  
*(where applicable)*



**Continuous Load Path**

# Designation Process Overview



1.  
Initiate the  
project

2. Build to designation requirements

3. Document requirements

4. Verify requirements

5.  
Review and  
designate

IBHS reviews documentation & issues a FORTIFIED designation

Certificate provides a simple way to understand what mitigation features are included



# THREE PRIMARY BENEFITS FOR PROPERTY OWNERS

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- Less disruption and financial loss from high wind (severe thunderstorm, low level severe convective storms, tropical storms and hurricanes) as well as hail events.
- Greater Property Insurance Availability = more choices<sup>1</sup>
- Greater Property Insurance Affordability = Opportunity to qualify for lower rates<sup>1</sup>

<sup>1</sup> Availability and incentives affecting rates decisions are made by individual insurers and vary by state. IBHS does not set rates or advise members on pricing.





# Case Study: Hurricane Sally



**FEWER THAN 1%** OF THOSE HOMES REPORTED  
LOSSES RELATED TO FORTIFIED MITIGATED SYSTEMS



**"We became a beacon for the community."**



**"It really works. It is like nothing happened to it."**

**"...not having any damage because I have a FORTIFIED Roof."**



**"Definitely get FORTIFIED."**

**"I just felt secure."**





# Public Programs Investing in Resilient Roofs

- Alabama DOI
- Louisiana DOI, OCD, and LHC
- South Carolina DOI
- Iowa EDA
- Federal Home Loan Bank – Dallas

