Lessons from US Resilience initiatives

OASIS Conference

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U.S. Insurance Market under Historic Pressure

- Both personal and commercial insurance are heavily impacted by inflation, rising reconstruction costs, climate-related claims, and complex regulatory environments.
- Many insurers are limiting their presence or withdrawing from high-risk areas (e.g., California wildfires).
- Significant homeowners' insurance premiums increase over the 2022-2025 period, making access to coverage more difficult.
- These challenges are intensified by the growing frequency and severity of climate events—hail, storms, wildfires—which heighten the need for resilience programs and innovative approaches.

The three pillars to ensure insurability are under pressure

The American insurance market is experiencing unprecedented strain on the three pillars of insurability: availability, affordability, and sustainability.

Availability

Reduced in high-risk zones (fires, storms, floods); withdrawal of major insurers; increased reliance on state-backed insurers

Affordability

Sharp premium increases (inflation, catastrophes); some homeowners unable to pay, left uninsured

Reliability

Pressure on solvency; sector invests in risk science and resilience programs, but long-term viability depends on climate adaptation

A range of actions is being taken to address these challenges

Initiatives to Strengthen Property Resilience

Risk science is notably advancing through dedicated institutes

Modeling property vulnerability to natural disasters

- These insights guide policymakers to adapt building codes, prioritize public investments, and foster innovation in loss prevention.

- Insurers may require resilience action plans (hail protection, roof upgrades, fire/storm adaptations) for coverage, offering discounts to participating homeowners.

Spotlight on IBHS and the FORTIFIED Program

- IBHS (Insurance Institute for Business & Home Safety) is funded primarily by member dues from leading U.S. insurers and reinsurers, investing in scientific research on property resilience.

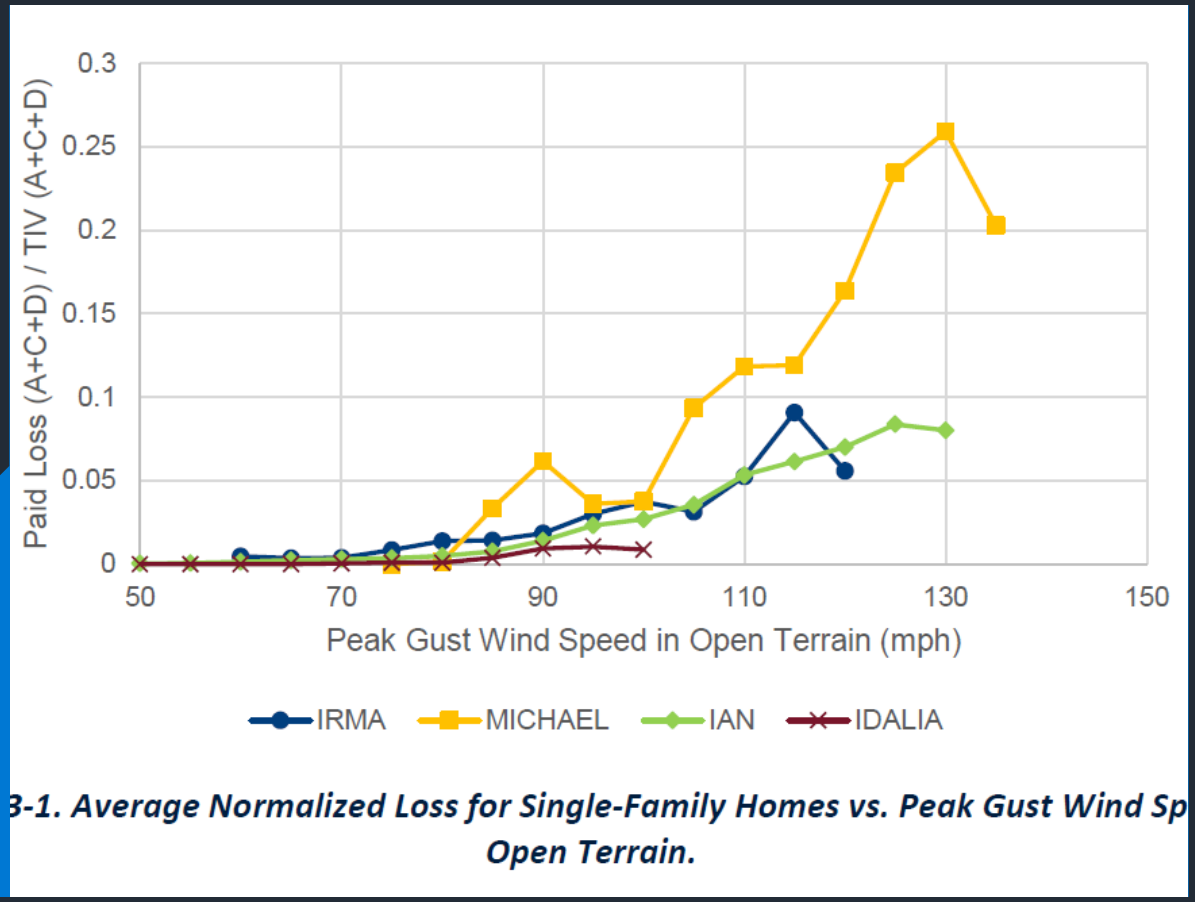
- The IBHS FORTIFIED program establishes technical standards for resistance to hail, storms, and fires. Adoption in high-risk areas halves the frequency and average cost of claims.

Wind vulnerability: What do we learn from claims data? (1/2)

The difference between the sensitivity to wind speed is a result of different vulnerability.

Different vulnerability, such as:

- Year Built (different building codes)
- Number of stories
- Roof cover
- Roof Age
- Roof Shape
- Opening protection
- Roof maintenance



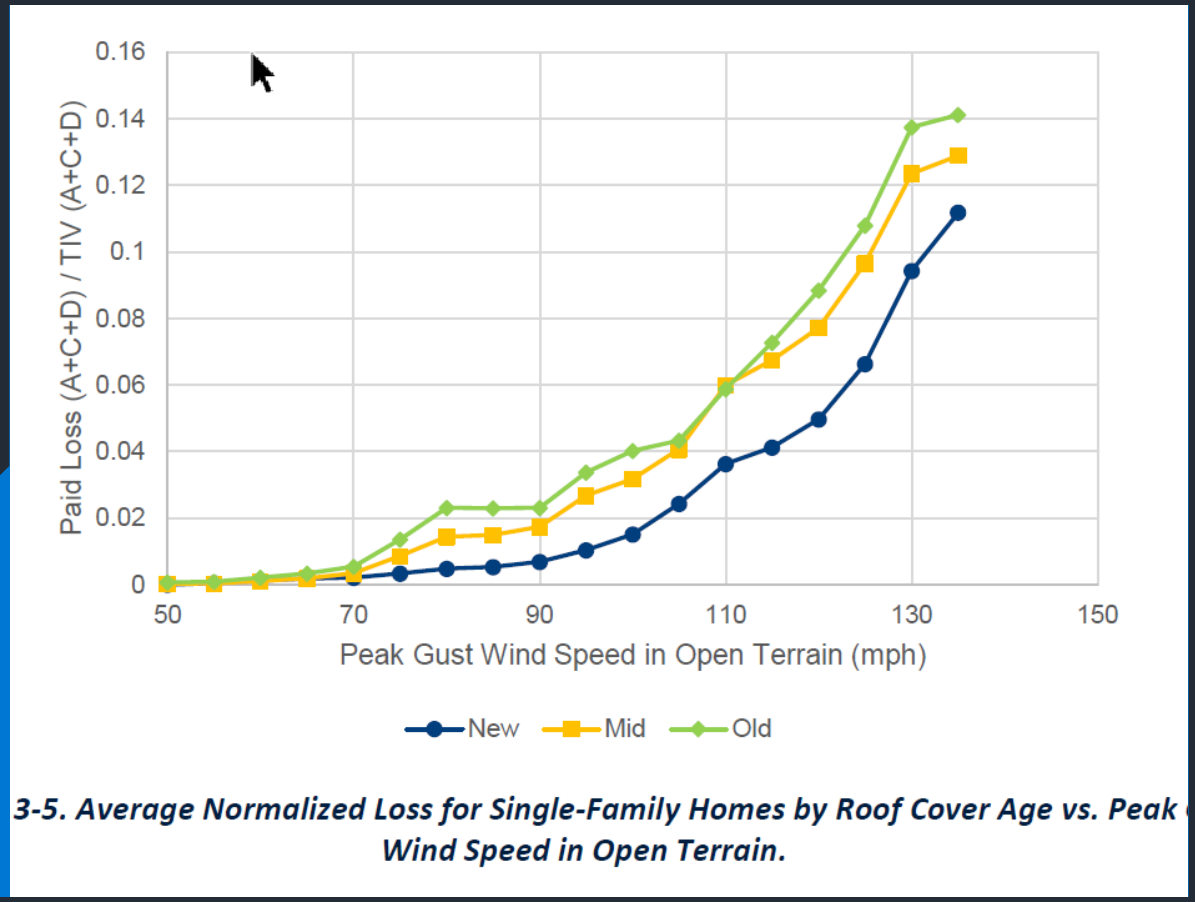
3-1. Average Normalized Loss for Single-Family Homes vs. Peak Gust Wind Sp
Open Terrain.

Source: Applied Research Associates, Inc. (2024). 2024 residential wind-loss mitigation study. Florida Office of Insurance Regulation.

Wind vulnerability: What do we learn from claims data? (2/2)

Roof age is associated with damage ratio for all wind speeds.

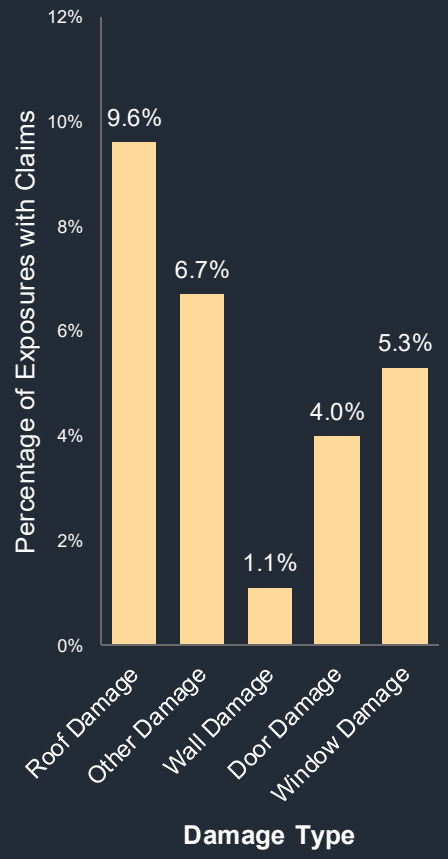
- There is essentially no loss below 70 mph (113 km/h)
- Above that roof age is associated with damage ratio for all wind speeds
  - *New is less than 6 years old*
  - *Old is more than 13 years for Asphalt Shingle or more than 20 years for other kinds of roof cover.*
- The dominant roof cover is asphalt shingle. Other roof covers also show the impact of age, but more slowly.

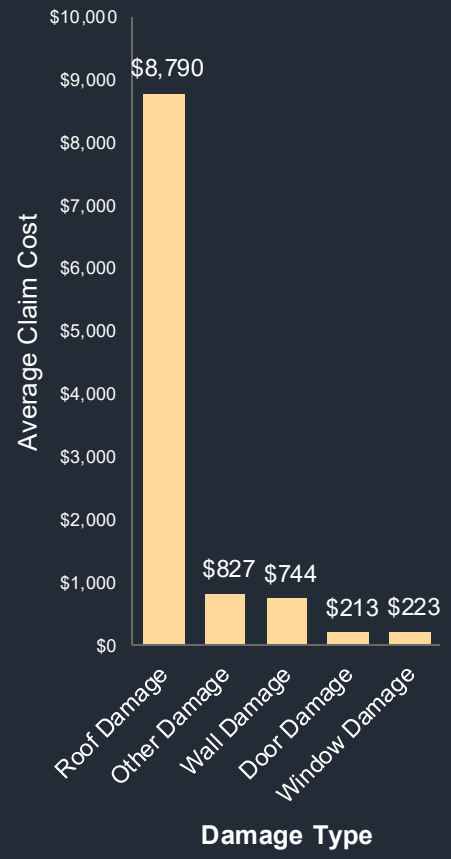


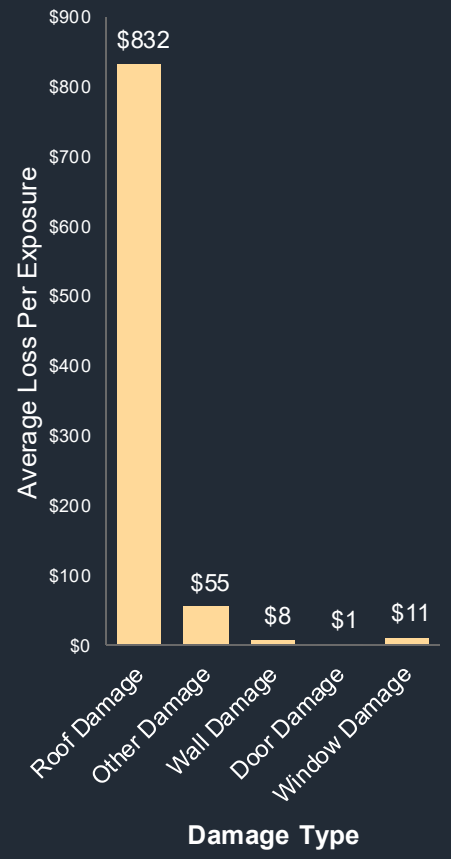
3-5. Average Normalized Loss for Single-Family Homes by Roof Cover Age vs. Peak Wind Speed in Open Terrain.

Source: Applied Research Associates, Inc. (2024). 2024 residential wind-loss mitigation study. Florida Office of Insurance Regulation.

Evaluating US hail damage using property insurance claims







- In this study, roof appears to be the main component impacted by hail
- This percentage are much higher than the ones observed in other European studies (France, Swiss) due to difference in hazard and vulnerability

Asphalt shingle roofs are very common in the US. Although there are hail resistant asphalt shingle roofs (as studied by IBHS) not everyone uses them. Asphalt shingle is not common in France

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Source: : Brown, T. M., Pogorzelski, W. H., & Giammanco, I. M. (2015). Evaluating hail damage using property insurance claims data. Weather, Climate, and Society, 7(3), 206-207

Adaptation funding and insurance affordability: Example of Alabama program

As of 2025, there are more than 53,000 Fortified houses in Alabama.

- Most are in the two coastal counties (Mobile and Baldwin) where they comprise nearly 20% of all single-family homes
- There is a set of benchmark insurance discounts that admitted insurers are required to apply to the wind portion of home insurance premiums. The discounts range from 50% for new Fortified Gold houses to 20% for Fortified Roof designations earned more than five years earlier.
- Alabama Code Section 27-31D- 2.1 requires insurers to offer (at market prices) an endorsement to coastal homeowners insurance policies that rebuilds damaged houses to the Fortified Roof standard.

Source: Alabama Department of Insurance and the Center for Risk and Insurance Research (CRIR) at the University of Alabama. (2025). Performance of IBHS FORTIFIED Home™ Construction in Hurricane Sally. Alabama Department of Insurance. https://www.aldoi.gov/PDF/News/PerformanceIBHSFortifiedHomeConstructionHurricaneSally.pdf ,

- The Strengthen Alabama Homes grant program issues grants to homeowners that pays up to $10,000 of the cost of reroofing their houses to the Fortified Roof standard.
- The average cost to retrofit a house is about $13,000.
- Supporting revenue is sourced from a percentage of insurance industry regulatory and licensing fees. It has paid nearly $86 million to retrofit 8,700 houses to the Fortified Roof standard.
- It created crucial demand for Fortified construction, which incentivized a critical mass of contractors, evaluators, and inspectors to learn the Fortified system. It is likely that the SAH program accelerated construction of the other 44,000 Fortified houses in Alabama.

Table 1: Fortified Mitigation Levels and Benchmark Discounts

Mitigation category	Existing Home Roof>5 years old	New and Existing Home Roof ≤ 5 years old
FORTIFIED Gold™	40%	50%
FORTIFIED Silver™	35%	45%
FORTIFIED Roof™	20%	35%

Source: Alabama Department of Insurance Bulletin Number 2016-7

Wildfire: Pathways to Lasting Resilience and insurability

- Individual mitigation has limited effect unless neighbors also act—creating a collective action problem (<> for hail or flood)
- Most critical mitigation: Remove all flammable materialsin “zone 0” within 5 feet (2 meters) of the house (e.g., vegetation, wooden decks…).

Reducing Risk at Its Source

- Retrofitting and building fire-resistant homes
- Vegetation management and infrastructure upgrades (e.g., power lines)
- Land-use planning: creating fire-adapted communities

Collaboration Across Stakeholders

- Coordination between local governments, insurers, fire services, and public agencies
- Incentives and grants for mitigation measures

Improved Data and Transparency

- Public-private platform designed to collect, standardize, and share parcel- and community-level mitigation data
- Developing community-level risk assessment tools

And how CAT modeling can participate to insurability?

- Integration of more detailed data on property resilience, mitigation measures and vulnerability in CAT modeling
- This improves the granularity of risk assessment, but also allows for fairer pricing, and encourages the widespread dissemination of resilience best practices
- CAT models thus become dynamic tools, integrating changes in construction standards and mitigation behaviors