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Mitigation and Adaptation Through Sustainable Resilience: Opportunities for the Insurance Industry

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Key Takeaways: Sustainable resilience is a critical component of modern building practices, and the insurance industry can be a key player in embracing emerging building technologies and solutions.

The Insurance Institute for Business & Home Safety (IBHS) is a nonprofit, scientific research and communications entity dedicated to advancing building safety solutions for home and business owners. Representatives from insurers, reinsurers, and other related organizations—including Guy Carpenter colleagues—recently attended IBHS’s Disaster Dynamics Academy (DDA) Intersections of Resilience and Sustainability: Examining our Built Environment in a Changing Climate.

This 2-day workshop explored the relationships of sustainability and resilience on risk, building design, and emerging materials and construction practices. Following several years of record-breaking losses and uncertainty associated with a changing climate, IBHS experts stressed the alignment of sustainable and resilient building practices to support green communities that are better prepared for extreme weather, and highlighted opportunities for the insurance industry to integrate and encourage resilient solutions.

Sustainability

Construction materials that optimize total carbon (total carbon = embodied carbon + operational carbon + end-of-life) are key to achieving sustainability in the building sector.

Operational carbon, or emissions resulting from a building’s energy consumption, has been the focus of decarbonization efforts to date through advances in energy-efficient appliances and building retrofits. While these efforts are vital components in achieving sustainability, mitigation of embodied carbon—emissions related to manufacturing, transportation, and installation of building materials—is equally important. For example, asphalt shingles are produced using crude oil, making them high in embodied carbon and not the most sustainable design choice. Similar problems exist with the production of concrete, as its production is also a significant source of carbon.

Other roofing alternatives are similarly high in embodied carbon. Throughout the DDA, IBHS experts highlighted emerging low-carbon construction materials such as wood fiber and sheathing, cross laminated timber, molded cork interior cladding, and mycelium. Although adoption of more sustainable materials is critical for building green communities, potential changes in fire resistance properties and durability compared to traditional alternatives is under research. Durability of materials is an additional consideration for sustainability, as improving service life means less repairs or replacements, ultimately mitigating total carbon.

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Resiliency

Offsetting structural failure and resulting losses is a critical component in the ability to adapt and quickly recover from disaster. IBHS and many industry partners have adopted initiatives to "build back better," or retrofit structures that have been impacted by disasters to higher building standards outlined in the IBHS FORTIFIED™ programs. FORTIFIED™ standards, comprehensive construction programs dedicated to reinforcing residential and commercial properties to withstand natural disasters, often exceed the building codes in place and have performed notably well in recent high-wind events such as Hurricane Harvey (2017), Hurricane Michael (2018), and Hurricane Ian (2022), relative to non-designated structures.

Building codes are designed to prevent structural failure and subsequent danger to lives, but room remains to further optimize financial security in the structure. Emerging technology in the construction space can reduce losses to different elements of the building, such as the roof, which is the leading source of building failure and subsequent loss in severe convective storms. Challenges in the current landscape of resiliency include increased upfront costs, enforcing building code standards, and sustainability of resilient building materials. Concrete and plastic-based shingles hold up well in disaster but have high levels of embodied carbon and few options in place for end-of-life treatment.

Building code adaptation and enforcement varies widely from state to state. Florida and Virginia have some of the strongest building codes in the country with strength of code adaptation, enforcement and contractor awareness. Many states have yet to adapt modern code standards, which have been demonstrated to reduce claims frequency and severity, as demonstrated in recent hurricane and severe weather events. The IBHS recently released an [update](#) to its Rating the States report, which is available on its website. Virginia and Florida have been consistent high scorers (mid-90s) among affected states, while Mississippi has improved from 4 in 2012 to 44 in 2024. Maine has been heading in the opposite direction, going from a 64 in 2012 to 46 in 2024.

Our Role to Play

As highlighted in the 2-day workshop, sustainability and resiliency go hand in hand. IBHS researchers stressed the need for both in future building stock, given the consumer appetite for more sustainable buildings and rising losses due to extreme storm damage. Current grants and other monetary support for most "green" initiatives incentivize either sustainability or resiliency. Shifting toward a sustainable resiliency framework requires incentives to build toward both standards, as sustainability and resiliency targets often can be achieved at the same time.

Given the vital role insurance plays in risk management, IBHS and its partners invite the insurance industry to take an increasing role to lead sustainable resiliency discussions. Current conversations on emerging building technologies are being spearheaded by manufacturers and builders, as well as officials within the public sector. The insurance sector has the opportunity to be at the forefront of these conversations, participating in setting standards for these new and emerging products and helping to make buildings safer, more sustainable, and more resilient to destruction.

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On the Horizon

IBHS offers multiple Disaster Dynamics Academies throughout the year for member companies, each focused on different research initiatives and their intersections with the insurance industry. These member events can be found on the IBHS events page. The next virtual event is slated to happen in early May, focusing on the science behind IBHS's FORTIFIED™ roof standard and how the program helps to protect houses from high wind, rain, and hail.

How Guy Carpenter Can Help

Participating member companies can leverage IBHS's bulk of research, studies, and educational materials to better understand the science behind building to a better standard. Non-members can access IBHS's public domain materials available on the IBHS website.

Guy Carpenter's catastrophe analytics and broking teams are experienced in helping our clients find the best clarity, physical insights, and view of risk for their portfolios under evolving climates.

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