

Resilient Buildings



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The Necessity of Resilience

Since 1980, hurricanes have inflicted nearly \$1 trillion in damages in the U.S. During this same time-period, they have also increased in severity and frequency. Between 1980 and 1989, hurricanes killed 20 per year: Between 2010 and 2019, that figure grew to 357. While meeting this challenge demands greater resilience, America isn't constructing nearly enough resilient buildings.

Investments in Resilience Yield Large Returns

One barrier to resilient construction is its perceived cost. In reality, though, it's relatively affordable: According to the Urban Land Institute, retrofitting a building for resilience costs around 18 to 24 cents per square foot. The long-term costs of inadequate construction, however, are far greater. In a hazard-prone area like New Orleans, hazard repair costs for a conventional home can exceed those of its construction. Not only would investments in resilient construction mitigate those costs, CSHub research has found that they could also pay off in as soon as two years.

Context: The Key to Resilience

The resilience of a building depends heavily on its context: The layout, or city texture, of a community can dramatically magnify wind loads. Current building codes, though, don't consider this contextual effect, leaving many communities at risk. When CSHub examined Mexico Beach, Florida, they found that city texture caused wind loads to exceed those specified in codes. This may explain why the community, whose codes should have protected it from Hurricane Michael in 2018, lost around three-quarters of its buildings.

City Texture Captures the Value of Hazard Mitigation

When city texture informs mitigation, the already substantial incentives for resilience increase dramatically. In Florida, the state-wide estimated benefits of hazard mitigation quadruple from \$5 billion to up to \$20 billion annually. For many coastal households in South Florida, that would mean thousands of dollars in benefits every year. The enormity of these savings makes clear: America can't afford to not invest in resilience.



JOHNNY MILANO/The New York Times/Redux

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