

Realizing Resilience through Incentives

Results from the Institute's 2016 Symposia

By Leanne Tobias; Neil Blais; and Philip J. Schneider, AIA

Incentivizing pre-disaster resilience for buildings and communities, in response to declining federal and state funding for disaster mitigation, has emerged as a critical focus area for the National Institute of Building Sciences and its Multihazard Mitigation Council (MMC) and Council on Finance, Insurance and Real Estate (CFIRE). Building on MMC's and CFIRE's joint 2015 *White Paper for Developing Pre-Disaster Resilience based on Public and Private Incentivization*, the Institute used the topic of incentivization as the basis of a track during two symposia held in January during **Building Innovation 2016: The National Institute of Building Sciences Fourth Annual Conference and Expo**. Experts from residential and commercial real estate, the business community, finance, insurance, the utility sector, government and infrastructure planning convened to discuss the development and use of resilience incentives at the Facility Performance & Sustainability Symposium, "Realizing Resilience: Incentives for Owners and Operators," and the Security & Disaster Preparedness Symposium, "Realizing Resilience: Incentives for Local Leaders and Lifelines."

Opportunities and Challenges

Results of the two symposia will inform future Institute research in developing a national resilience incentivization model for buildings and communities, as well as in conducting a pilot study to test the model's effectiveness. Key takeaways from the symposia included the following:

- **Resilience can be affordable.** An increase of one percent in construction cost could increase earthquake resilience by 50 percent in the San Francisco area, reducing potential damage by up to 75 percent, according to Keith Porter of the University of Colorado at Boulder. Similarly, flood resiliency can be achieved for small sums: Elevating a structure typically adds less than five to 10 percent to building cost, while flood-proofing adds one to two percent, according to the American Institutes for Research.
- **Resilience is cost-effective.** In 2015, the Federal Emergency Management Agency (FEMA) estimated that resilience expenditures delivered 4-1 paybacks (i.e., a payback of \$4 for

each \$1 spent^[1]). Other research has indicated paybacks may be as high as 10-1.

- **The benefits of resilience extend well beyond bricks and mortar.** The post-disaster cost to rebuild facilities represents only the "tip of the iceberg," said Aris Papadopoulos, the retired CEO of Titan America and founder of the Resilience Action Fund. Costs associated with business interruption are typically two- to four-times the cost of rebuilding. The broader social costs of a disaster are approximately four- to eight-times of building cost, according to Papadopoulos.
- **Shared resiliency standards are necessary.** Resiliency standards, such as the recent FORTIFIED Home™ standards^[2] to render homes resistant to hurricanes and high winds, must be developed across the hazard spectrum, adapted for local conditions and implemented throughout the United States. While building codes provide minimum protection, voluntary standards would offer heightened levels of resilience, explained Debra Ballen of the Institute for Business and Home Safety. Jerry Brashear of Brashear Advisors further advocated the development of common logic, terms and basic processes to shape resiliency requirements and protocols at the community level.
- **Standardized risk metrics and valuation models are needed.** Appraiser James Finlay, CEO of SoundView Risk Advisors, noted that the commercial real estate industry could accelerate the use of resilience strategies through the development of a standard-format resilience report to quantify the resilience risks associated with a proposed investment. Standardized valuation models, which detail the impact of resiliency costs and benefits on building value, also must be developed in order to quantify the costs and benefits of resilience investments and incentives, according to Finlay and Fannie Mae's Karyn Sper.
- **Resilience measures are best adopted through a bottom-up process.** Speakers from the business, insurance, utilities and critical infrastructure sectors stressed that, while common standards, metrics and valuation models are crucial, resilience planning is best undertaken by individual homeowners, businesses, utilities or

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communities. Customized planning allows individuals, organizations or governments to tailor strategies to specific needs. "A top-down approach hasn't worked," concluded Brashear.

- **Including the insurance industry is crucial to the adoption of resilience strategies.** Catastrophe modeling can help businesses assess risks and exposure, identify vulnerabilities and minimize uncertainty, per Susan Lange Smith of Marsh Insurance. In addition to property insurance, Smith recommended that business owners consider business interruption, contingent business interruption, supply chain and denial of access coverages to ensure business resilience.

Shawn Lawson of FM Global, which insures businesses, utilities and voice and data providers, noted that resilience improves risk quality. Risks associated with fire, flood, wind and equipment damage can be reduced through careful design, construction and maintenance. Lawson also said that enhanced risk quality may lead to lowered insurance premiums and deductibles. In another approach,

FM Global has rewarded long-term customers with credits to their premiums, as a result of improved risk quality throughout its portfolio. Carl Hedde of Munich Reinsurance America agreed that insurance deductible and premium incentives can be crafted to reward resilience. He expects resilience initiatives will lead to new insurance coverage options and pricing.

- **While resilience remains a "niche business," investments in resilience are beginning to increase.** Some examples follow:
 - South Carolina has awarded \$1.1 million in tax credits for retrofit supplies to 963 homeowners, and has allocated more than 4,800 grants totaling \$20.8 million to hurricane-damage mitigation (with more than 41 percent to low-income households). The state also initiated a Catastrophic Savings Account program to encourage consumers to save for potential storm damage.
 - The Small Business Administration's 504 loan program provides fixed-asset financing for equipment, land and building purchases, as well as

for construction and renovation costs. Loan proceeds can be used by small businesses for resilience improvements.

- The Center for Neighborhood Technology developed pilot resilience retrofit programs tailored to communities, commercial property owners and lower-income homeowners in the Chicago area. The programs target flood resilience.
- Fannie Mae provides a 10 basis-point reduction in interest rates for green-certified multifamily housing, as well as additional loan proceeds for properties that reduce energy or water consumption by 20 percent.
- The American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) Housing Investment Trust, which invests in mortgage loans for multifamily projects, has lent \$89 million to repair Hurricane Sandy damage at the Amalgamated Warbasse Houses in Brooklyn. The fund has pledged to invest \$1 billion in New York City over the next seven years for disaster relief.

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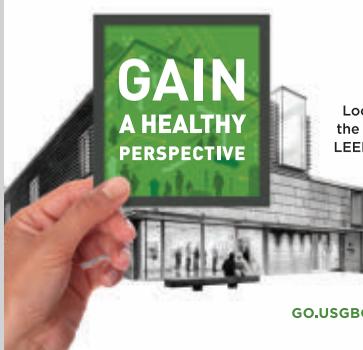
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- The Onondaga County, New York Water Authority adopted a comprehensive resilience program that includes vulnerability assessment, succession planning, sustainability initiatives, cyber-security, asset management and emergency-response initiatives. This resilience effort is linked to the development of operating and capital budgets and has improved the Authority's bond ratings, reduced its insurance premium costs and helped retain its energy-use level.
- **Publicity, outreach and education are crucial to expand resilience initiatives.** Numerous resilience strategies have been developed, but standardization and implementation are lagging due to a lack of knowledge and understanding by homeowners, businesses and government. The development of compelling branding, education and outreach strategies is needed to make resilience understandable and to create demand for incentive programs in the consumer, business and policy-making marketplaces.

Looking Ahead

At the outset of the symposia, the speakers emphasized that, regardless of how resilience is defined, all identified incentives can be applied within a local community. In fact, the unique nature of communities throughout America makes it highly unlikely that a singular national definition of resilience will be sufficient to kick-start progress in improving the nation's overall resilience. Identifying ways that all stakeholders—including property owners, renters, and government—can work collaboratively toward implementing mitigation strategies will encourage local investment in resilience for all jurisdictions.

The United States has been actively working on hazard mitigation and reducing disaster losses for more than three decades. Some progress has been made, but with limitations. A holistic set of incentives, cutting across the entire spectrum of socio-economic factors, can make the difference between investing in resilience versus burdening the government with absorbing local losses

while restoring a community following a disaster. [JNIBS](#)

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References:

^[1]The Institute's MMC developed the *Mitigation Saves* report for FEMA.

^[2]FORTIFIED Home™ is a program of the Insurance Institute for Business & Home Safety, www.DisasterSafety.org/fortified/home.

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