Resilient Design
American Institute of Architects

Cooper Martin
Director, Resilient Communities
The AIA

- 80,000+ members
- Licensed Architects, aspiring architects and allied professions

“The AIA serves as the voice of the architecture profession and the resource for our members in service to society.”

Photo: Kevin Matthews/Artifice Images
Architects, Design, and Construction

• AIA issues the Architecture Billings Index
  – Leading economic indicator for commercial construction
  – Architectural activity typically precedes construction activity by approximately 9-12 months
The AIA and Emergency Management

- Decades of response work
- Advocates for Safety and Security of the Built Environment
Resilience

• “The ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events”
• “Resilience is the Immune System of our Nation.”
  - Admiral Thad Allen

Image Credit: Community and Regional Resilience Institute
Design

Efficiency/Green

Durability

Efficiency/Green

Resilience

The American Institute of Architects
Driving positive change through the power of design
Why Resilience?

Frequency of Major Disasters

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Why Resilience?

“Disaster-related losses are increasing across all regions, threatening the economies of low- and middle-income countries as well as outpacing wealth gains across many of the world’s more affluent nations.”

-UN Report on Disaster Risk Reduction
Resilient to What?

• Risk = Hazard * Vulnerability * Exposure

• R = H * (V/ Resilience) * E

• Risk can be quantified, but it’s “fuzzy.” It has uncertainty and the results are within a given range.
Construction Practices Today

- "Modern building codes are not what we would call inadequate, but they are kind of a bare minimum."
  - Rakesh Gupta; Oregon State Wood Engineering & Mechanics
The Fundamental Challenge

- Resilient Systems are diverse and redundant
- Efficient Systems are focused and eliminate redundancy
The role of government is to ensure that a given system does not skew too far toward efficiency in the short term, increasing the risk of collapse in the medium to long term.

Recommendations
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• Reform Infrastructure Planning & Finance
  – Encourage Comprehensive, Scenario Planning. (Sec 134 and 135 of MAP-21)
  – Infrastructure Bank
Recommendations

• Safe Building Codes Incentive Act (HR 1878; S 924)
  – Stafford Act provision would provide an incentive for states to adopt and enforce model building codes
  – Only 15 states currently meet the requirements
Recommendations

• Home Stewardship > Home Ownership
  – PACE, Green Mortgages, other programs that utilize on-bill payback to encourage holistic design
Recommendations

- FEMA Pre-Disaster Mitigation Grant Program, Hazard Mitigation Program
Learn from the last disaster

www.postsandyinitiative.org
• Cooper Martin
• Director, Resilient Communities
• coopermartin@aia.org
• 202-626-7442
• @AIA_Resilience