

Resilient Design

American Institute of Architects

Cooper Martin

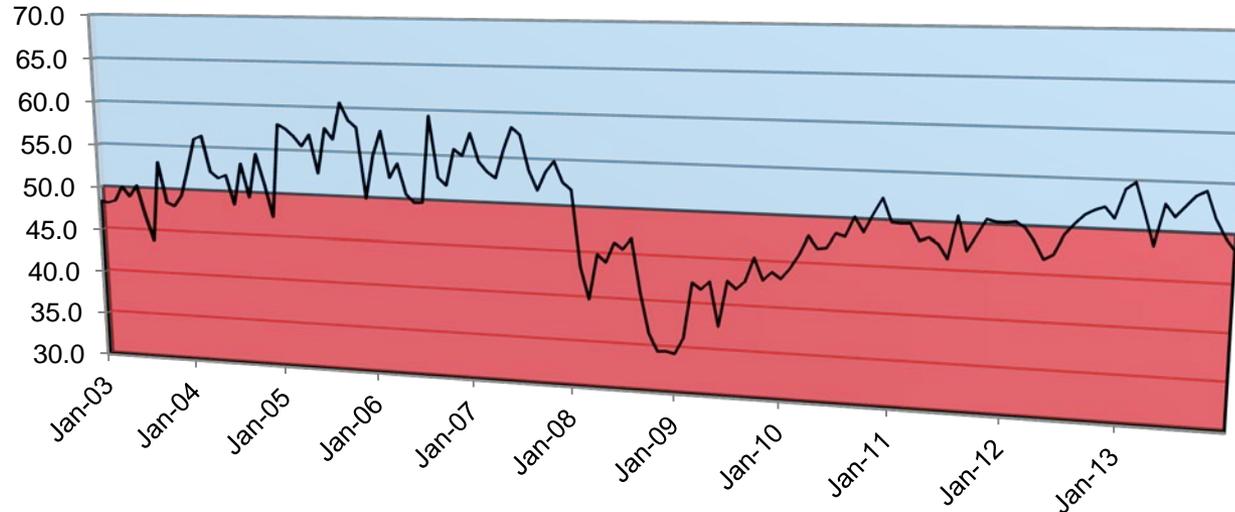
Director, Resilient Communities

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.”*

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

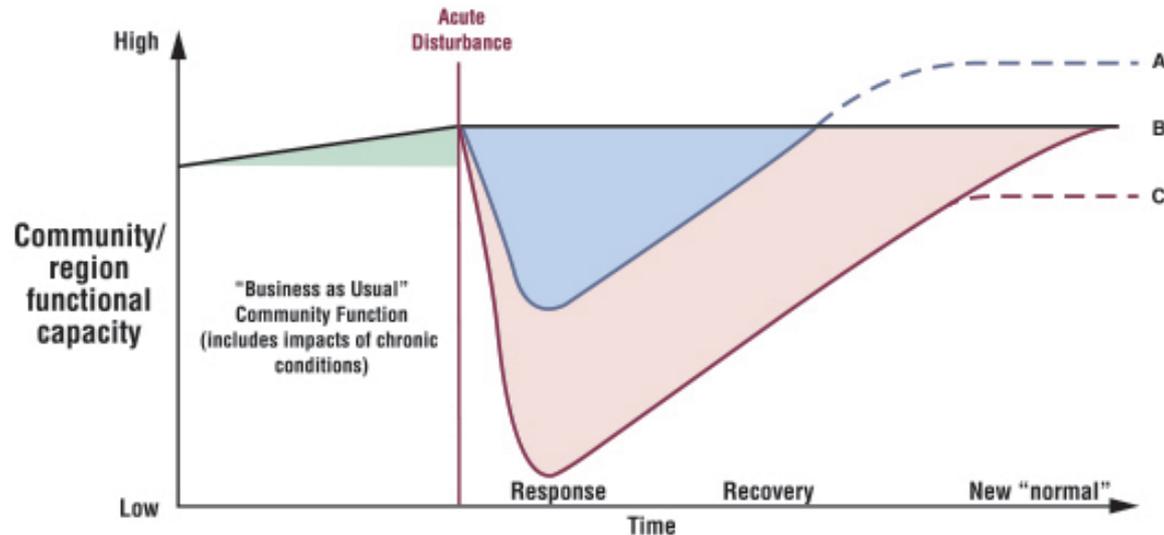
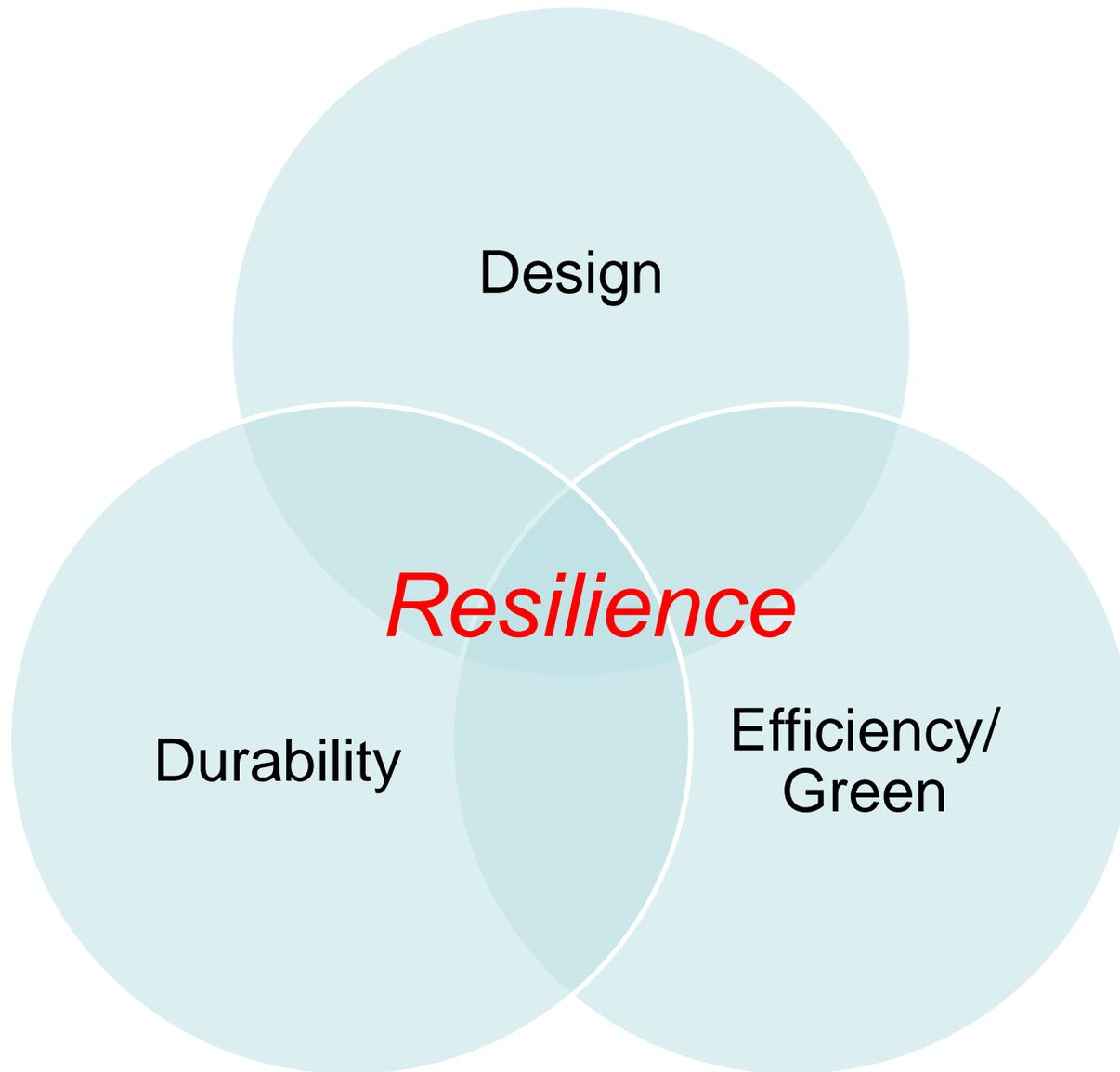
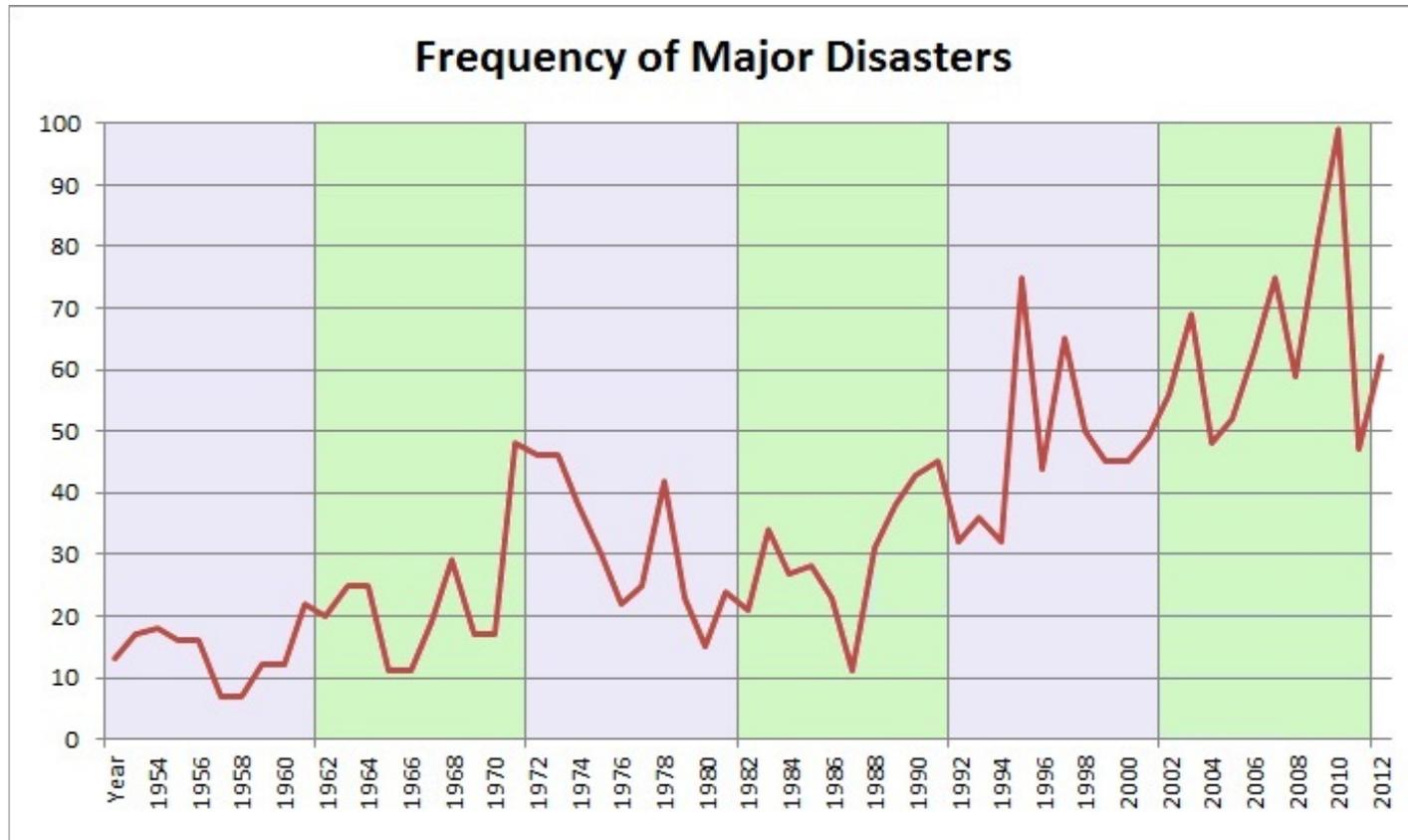


Image Credit:
Community and Regional
Resilience Institute



Why Resilience?



A blue-tinted photograph of a city street. In the foreground, there is a flooded area with water reflecting the sky. A brick building with many windows is on the right side. In the background, there is a tall, curved glass skyscraper. The overall scene suggests a disaster or flood.

Why Resilience?

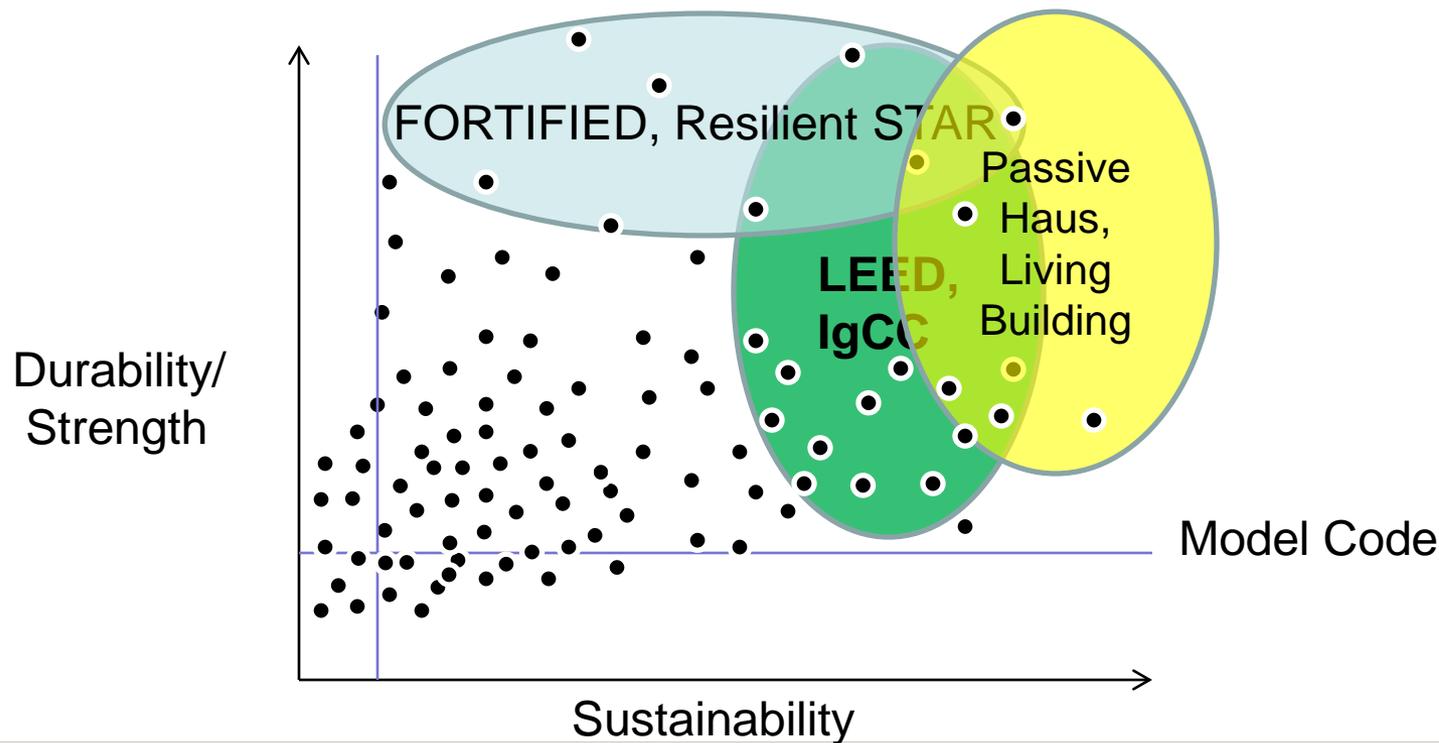
- “Disaster-related losses are increasing across all regions, threatening the economies of low- and middle-income countries as well as outpacing wealth gains across many of the world’s more affluent nations.”
-UN Report on Disaster Risk Reduction

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

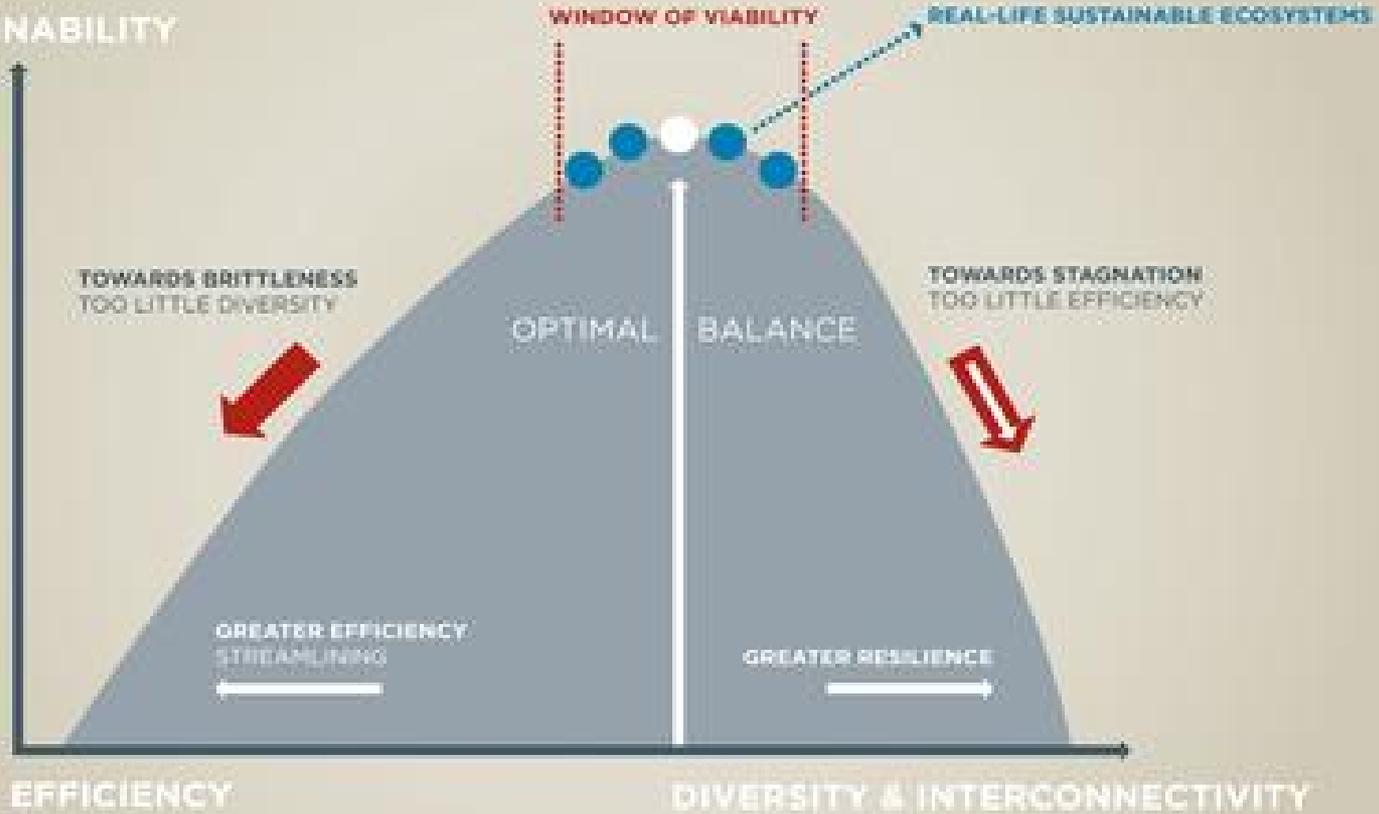


The Fundamental Challenge

- Resilient Systems are diverse and redundant
- Efficient Systems are focused and eliminate redundancy

RESILIENCE V EFFICIENCY

SUSTAINABILITY

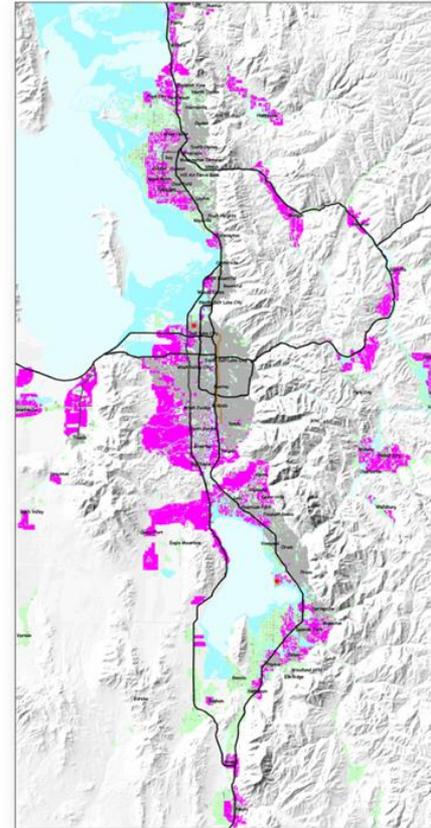


Recommendations

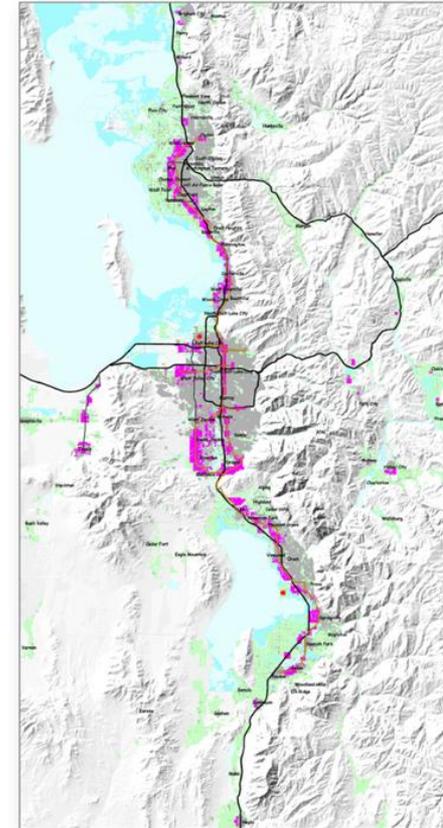
- The role of government is to ensure that a given system does not skew too far toward efficiency in the short term, increasing the risk of collapse in the medium to long term.

Recommendations

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



Scenario A
Auto-Oriented



Scenario D
Transit-Oriented

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



POST-SANDY

INITIATIVE

**Building Better,
Building Smarter:
Opportunities
for Design
and Development**
May 2013

16'7" Projected Year 2080 Flood Height with Sea Level Rise

14'5" Projected Year 2050 Flood Height with Sea Level Rise

14' Post-Sandy Advisory Base Flood Elevation with Residential Freeboard

13' 2012 Sandy Surge Level

12' Post-Sandy Advisory Base Flood Elevation

8'10.8" Pre-Sandy Base Flood Elevation

8' Nominal Ground Level

0' Sea level datum NAVD 88

Learn from the last disaster

www.postsandyinitiative.org

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