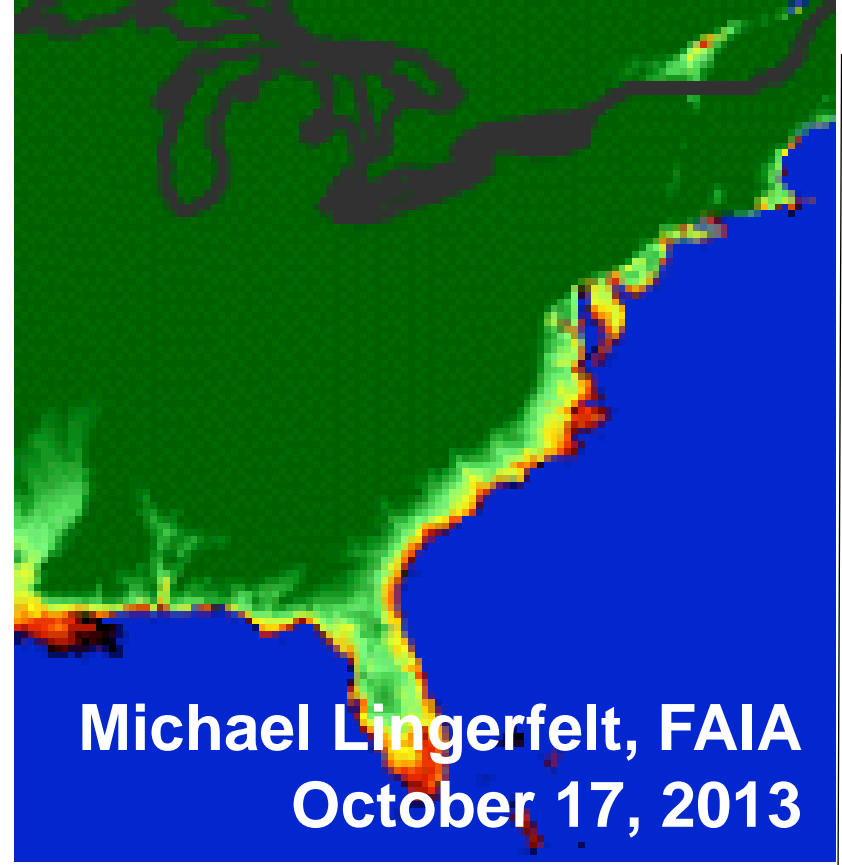


Impacts on Built Environments: Envisioning a New Paradigm

Contingencies of design of the human habitat

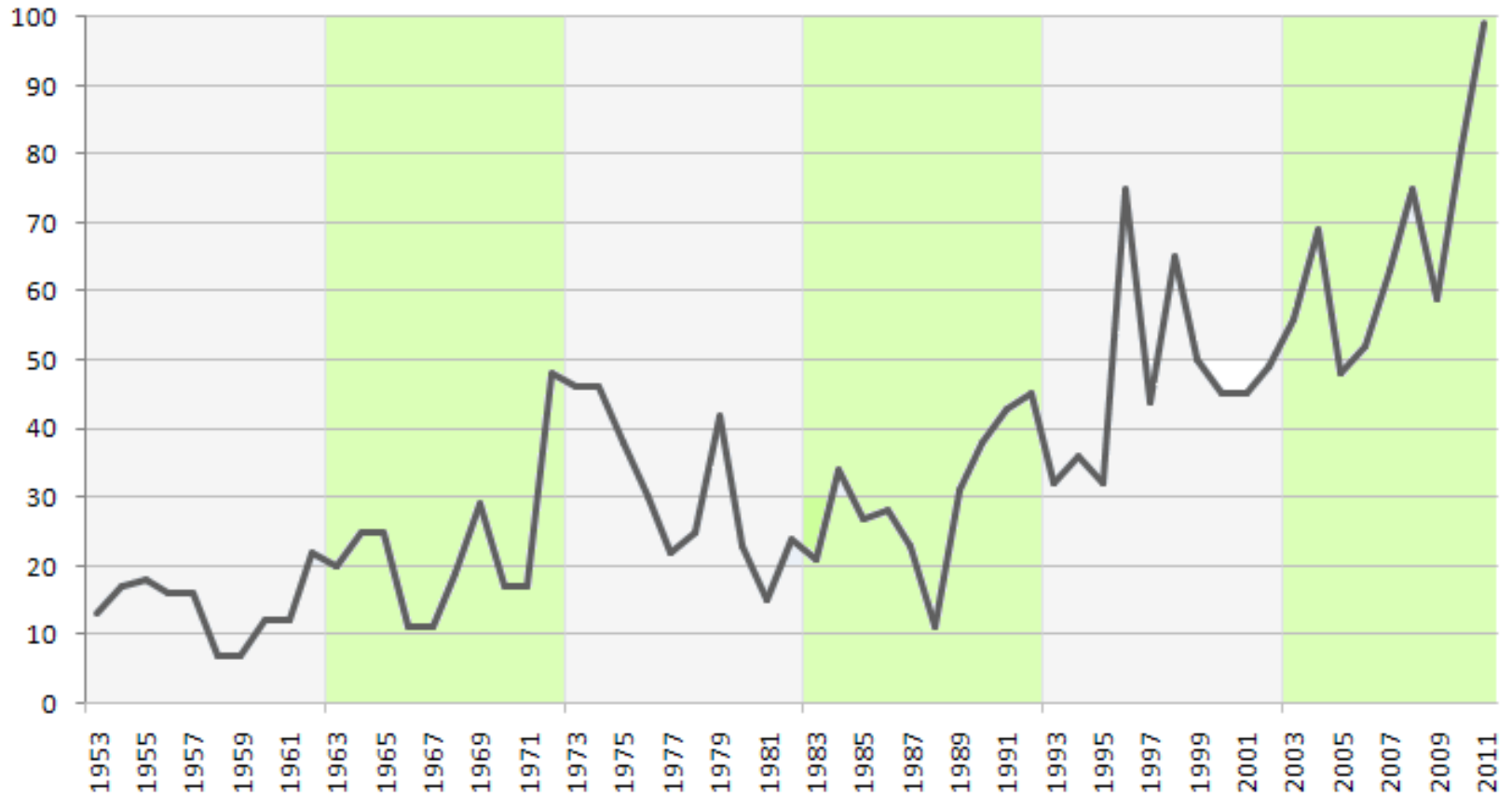


Architects roles in building resilience and post-disaster response

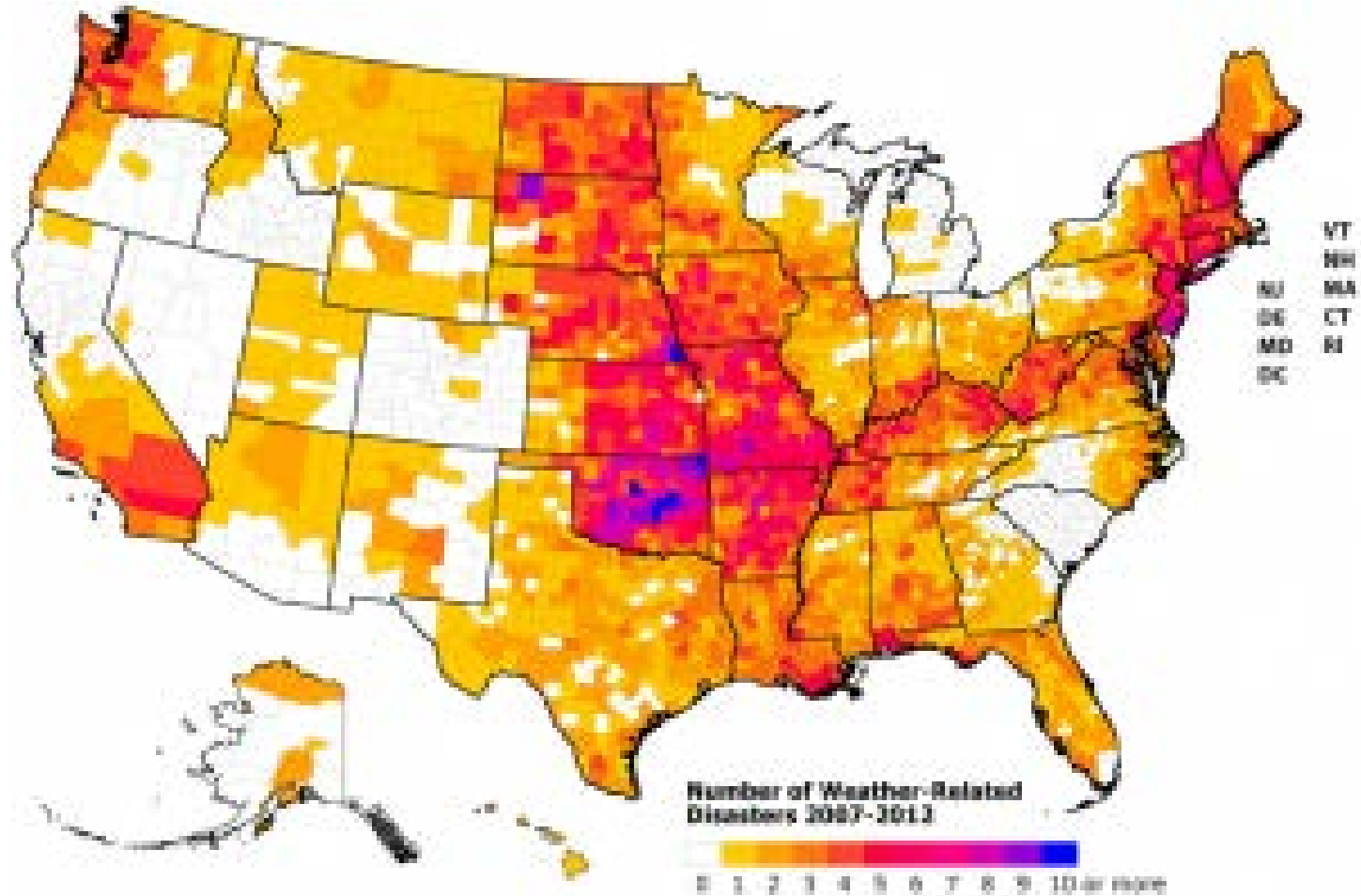
- **Train Architects to serve as Second Responders**
 - Safety Assessment Program (SAP)
 - Inspect elements of the built environment for habitability
- **Enhance Community Resilience**
 - Utilize assessment experience to improve land use and building design

Increasing Risk

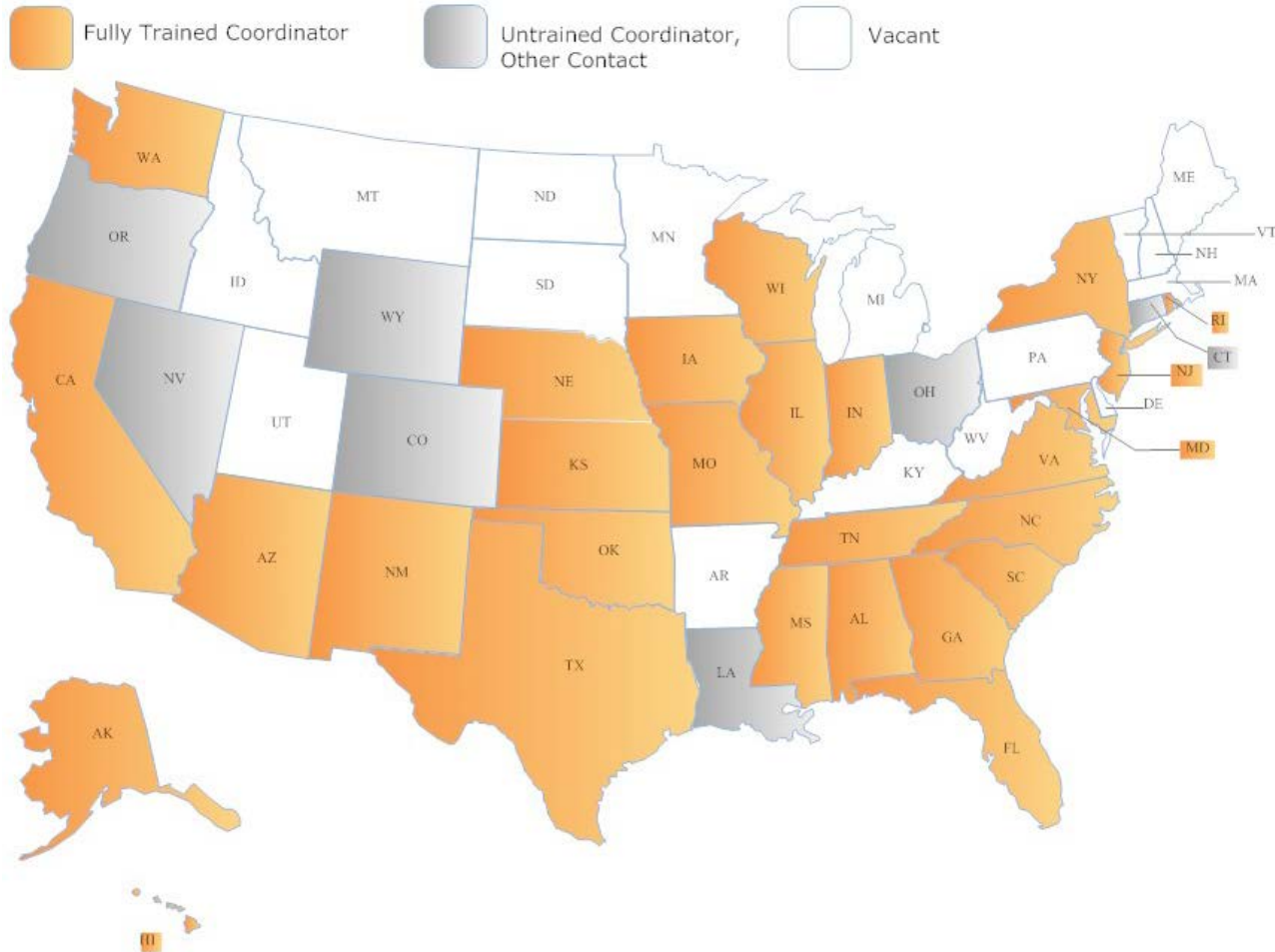
Frequency of Major Disasters



80% of Americans hit by Extreme Weather Disaster since 2007



Disaster Assistance Coordinator Network



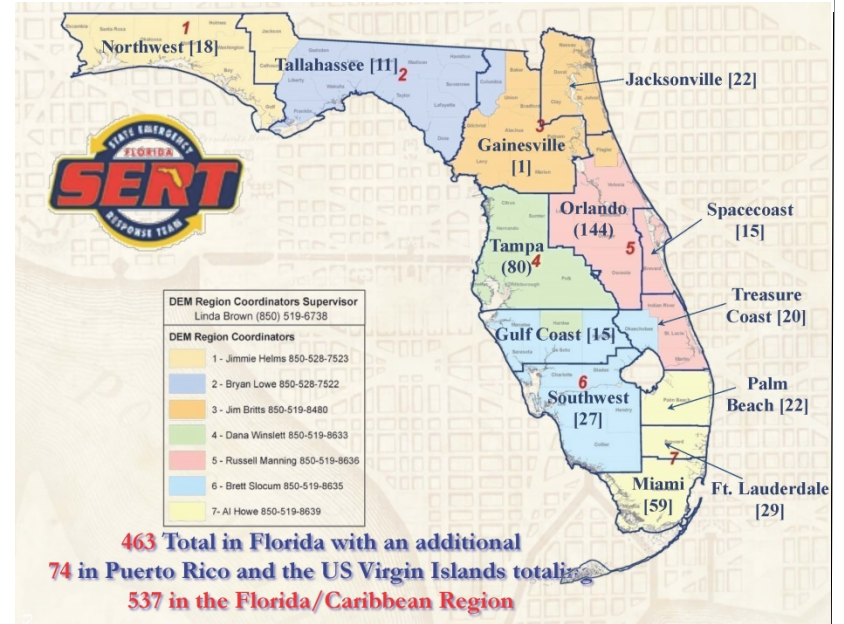
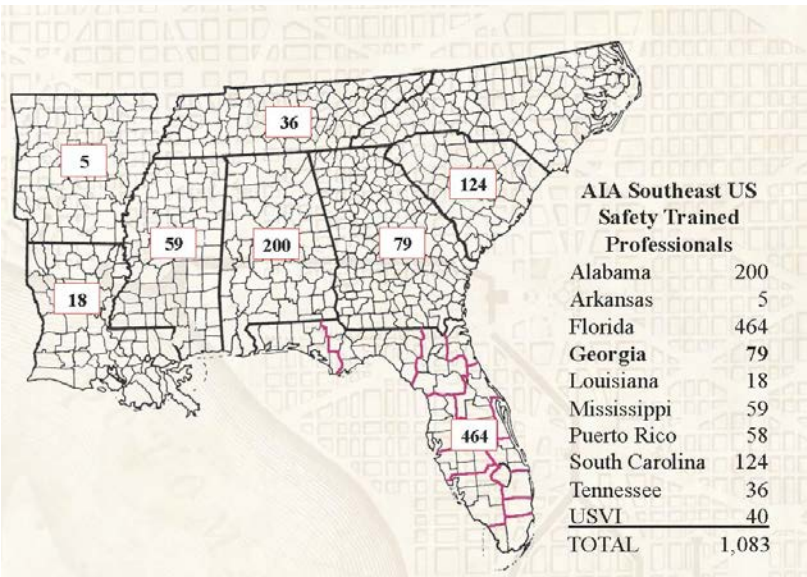
Challenges to Our Work

- **Liability** - Nationwide, architects face potential liability for the voluntary services they provide
- **Emergency Management Community** - After 9/11 and Katrina, the disaster assistance community has changed dramatically. Don't assume your relevance
- **Building Relationships** - Without connecting with emergency managers ahead of time, architects may be shut out of response.

Where are the Architects?...Training



Safety Assessment Program



What can the Architects Do?...

“Words cannot express my deepest gratitude for the assistance you sent the City of Tuscaloosa in the wake of the April 2011 tornado disaster. Thank you for your willingness to aid our city in its rebuilding process”

Walter Maddox, Mayor of Tuscaloosa, July 2011

- ☑ 2 training sessions by AIA DA Task Force Members
- ☑ 6 volunteer days
- ☑ 5,000 structures
- ☑ \$300,000 value in volunteer hours
- ☑ Residents return to their homes, reducing spending and resources

AIA Responds to Colorado Flooding (updated 9/24)

Although many AIA members are dealing flooded basements and other effects of the flash flooding in Colorado, we are thankful that all are safe. AIA Colorado, in collaboration with several local components, have begun organizing architects, engineers, and building inspectors to offer safety assessments for the 18,000+ buildings that are estimated to be damaged or destroyed. For more information, visit the [AIA Colorado Linked In page](#)

AIA Responds to Oklahoma Tornadoes

AIA Central Oklahoma and AIA Eastern Oklahoma collaborated to match architects with homeowners, helping the public understand where safety hazards may still exist following the tornado. AIA partners at Architecture for Humanity are still collecting donations through a [Rebuilding Moore campaign](#).



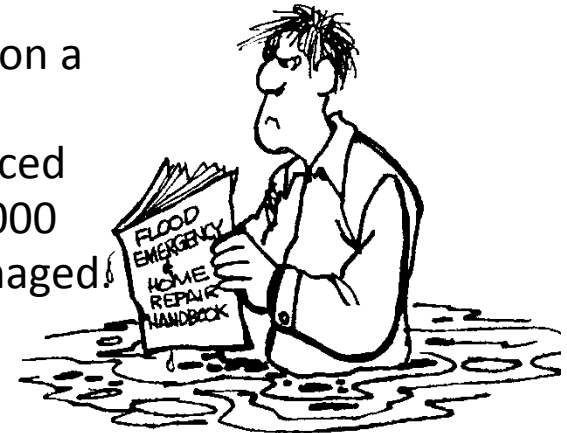
Resilience built into our Facilities ...

Developing Better Building Codes

New Construction

Model Building Codes such as the International Code Council's Family of Codes Issues:

- ☑ Adopted voluntarily at local level
- ☑ Life safety, not property loss or functional loss
- ☑ Louisiana State University (LSU) Hurricane Center estimated that stronger building codes would have reduced wind damage from Hurricane Katrina by 80% saving \$8 billion.
- ☑ LSU also studied the impact of strong building codes on a Katrina-level Category Three storm in the state of Mississippi. Strong building codes would have reduced storm damage by \$3.1 billion and saved nearly 40,000 buildings from being destroyed or significantly damaged



Resilience built into our Facilities ...

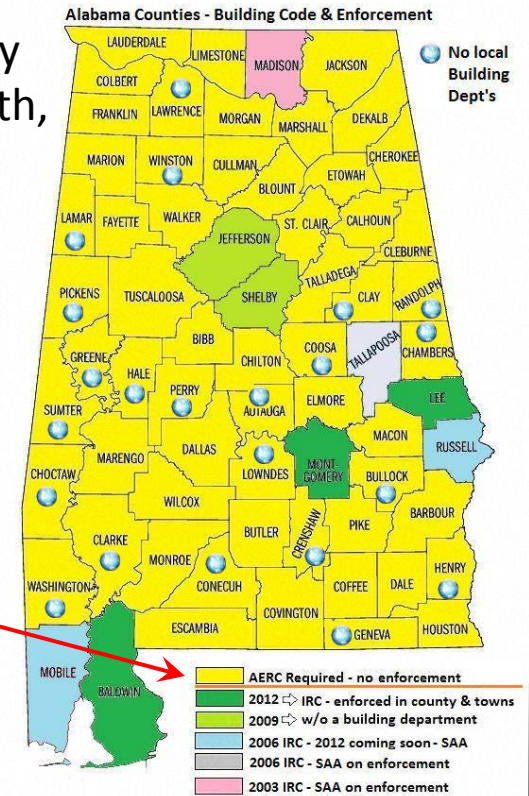
Developing Better Building Codes

Existing Buildings

- ✓ Unregulated, voluntary upgrades
- ✓ 90% of residential construction is designed and build by people who do not carry a license to protect the health, safety and welfare of the public.
- ✓ Additions and Renovations sometimes require retrofit

Retrofit Policies

- ✓ For public safety, not private property
- ✓ Not always enforced



Resilience built into our Facilities ... Research

HURRICANE READY

Residential Disaster Prevention Design Strategies



- Upgrade to impact glazing on windows and increase weather stripping around doors.
- Protect roofs against winds up to 150 mph with spray foam adhesives. Roofs also should never be constructed with smooth nails.
- Make sure there is continuous reinforcement of strapping from the roof down to the foundation.
- Install boxed frames to reinforce garage doors, which are one of the most common points of failure in a home.
- Build on high ground or elevate buildings above your city's flood zone requirement.
- Use heavy washers with anchor bolts when tying walls to foundations. Cheap washers fold, stripping out bolts and making connection points fail.

To find an architect who specializes in design in disaster prone areas, visit <http://architectfinder.aia.org/>

 THE AMERICAN INSTITUTE OF ARCHITECTS



Resilience built into our Facilities ... Training

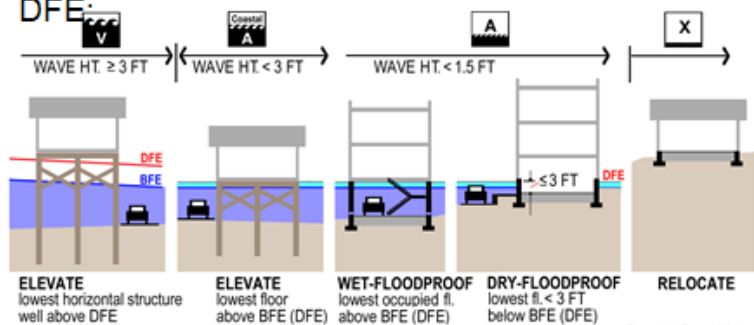


HURRIPLAN: Resilient Building Design
for Coastal Communities



Mitigating Against Flood Elevations

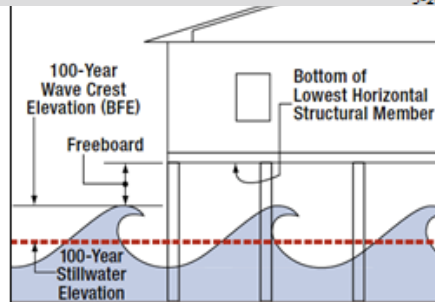
Often, different strategies will be used in different flood zones for elevating buildings above the DFE.



Copyright Donald Wilson

5-26

Pile construction addresses the flood velocity hazard by allowing water to flow around piles instead of absorbing the full hydrodynamic force as a flat wall would.



FEMA 7-762

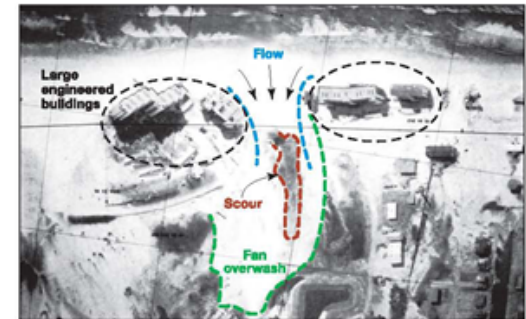


HURRIPLAN: Resilient Building Design
for Coastal Communities



Mitigating Against Scour

Localized erosion can occur along floodways that have less resistance to water movement. By spacing coastal buildings further apart, these floodways will be less likely to develop between buildings.



Florida DEP (cited in FEMA P55)

5-36



Resilience built into our Facilities ...



Enhance Community Resilience through Partnerships



Does your city have a Disaster Response Plan? Do you know what it is? How will your city's architects respond in a disaster event?

Architecture for Humanity and the **American Institute of Architects (AIA)**'s Disaster Resiliency and Recovery Program will coordinate advocacy, education, and training to help architects make effective contributions to communities preparing for, responding to, and rebuilding after disaster. The AIA and Architecture for Humanity are focused on providing the necessary resources to improve existing disaster plans for architects that can better utilize their skills in disaster response environments and allow architects to serve as leaders in their community.

The “**Designing Recovery**” competition will take place in three distinct settings – New Orleans, LA; Joplin, MO; and New York, N.Y... The partner organizations will assemble a portfolio, or pattern book, of entries of single-family housing designs with the objective of improving the quality, diversity and resiliency of the housing in each community.



Enhance Community Resilience through Partnerships



At the Clinton Global Initiative (l to r) Robert Ivy, FAIA; New Orleans Mayor Mitch Landrieu; Cameron Sinclair, co-founder Architecture for Humanity; Former U.S. President Bill Clinton; Martyn Parker, Chairman Global Partnerships at Swiss Re; Alex Karp, co-founder Palantir; Judith Rodin, Ph.D, President of The Rockefeller Foundation.



Decade of Design

Growing urbanization worldwide presents critical needs and opportunities for creative solutions – and this is where architects can make important contributions through design thinking. This AIA initiative seeks to effect meaningful change through research, community participation, design frameworks, and active implementation of innovative solutions.

This ten-year AIA pledge will document, envision, and implement solutions related to the design of the urban built environment in the interest of public health and effective use of natural, economic, and human resources....to leverage design thinking in order to effect meaningful change in urban environments through research, community participation, design frameworks, and active implementation of innovative solutions.





Contact Information

AIA Disaster Assistance Committee Chair

➤ **Michael Lingerfelt, FAIA**

(407) 701-5115 mlingerfelt@Lingerfelt-Int.com

•AIA Staff

➤ **Cooper Martin**

(202) 626-7442, coopermartin@aia.org

