



ICC

INTERNATIONAL  
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Alliance  
for National & Community  
Resilience

◀ DUPONT ▶

# Building Resilience

DOE Energy Code Conference  
May 30, 2019

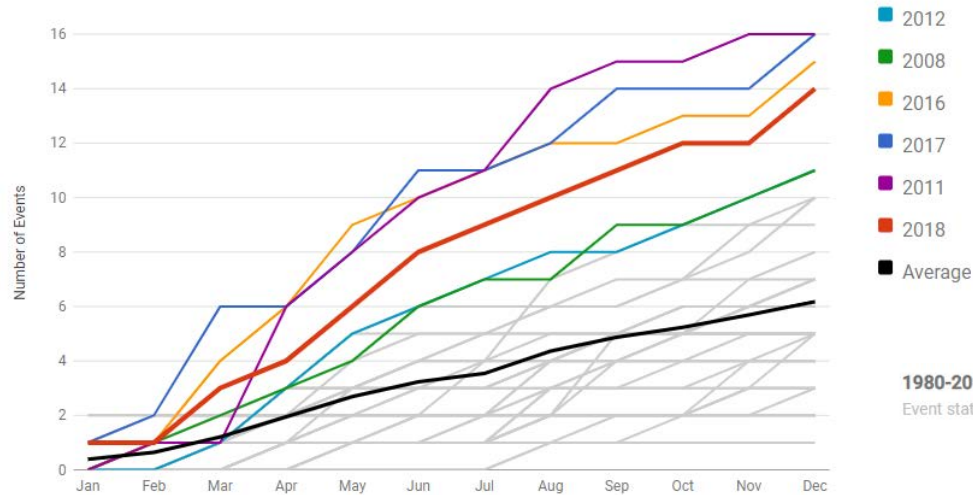
Amy Schmidt  
Construction Policy Manager,  
DuPont Safety & Construction  
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National & Community Resilience

# Why Resilience?



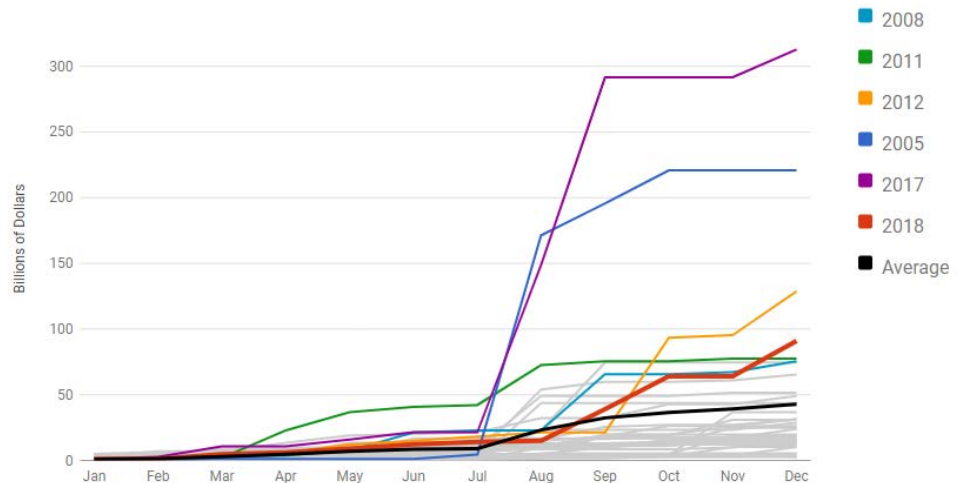
**1980-2018 Year-to-Date United States Billion-Dollar Disaster Event Frequency (CPI-Adjusted)**

Event statistics are added according to the date on which they ended.





**1980-2018 Year-to-Date United States Billion-Dollar Disaster Event Cost (CPI-Adjusted)**

Event statistics are added according to the date on which they ended.



# Benefit Cost Ratios by Hazard and Mitigation Measure



National Benefit-Cost Ratio Per Peril <small>*BCR numbers in this study have been rounded</small>		Exceed common code requirements	Meet common code requirements	Utilities and transportation	Federally funded
<b>Overall Hazard Benefit-Cost Ratio</b>		<b>4:1</b>	<b>11:1</b>	<b>4:1</b>	<b>6:1</b>
 <b>Riverine Flood</b>		<b>5:1</b>	<b>6:1</b>	<b>8:1</b>	<b>7:1</b>
 <b>Hurricane Surge</b>		<b>7:1</b>	Not applicable	Not applicable	Too few grants
 <b>Wind</b>		<b>5:1</b>	<b>10:1</b>	<b>7:1</b>	<b>5:1</b>
 <b>Earthquake</b>		<b>4:1</b>	<b>12:1</b>	<b>3:1</b>	<b>3:1</b>
 <b>Wildland-Urban Interface Fire</b>		<b>4:1</b>	Not applicable	Not applicable	<b>3:1</b>



# The Importance of Community-Level Resilience



Galveston Texas, Post-Ike



Manhattan, Post-Sandy

*Among the Ruins of Mexico Beach  
Stands One House, Built 'for the Big One'*



The elevated house that the owners call the Sand Palace, on 25th Street in Mexico Beach, Fla., came through Hurricane Michael almost unscathed. Johnny Milano for The New York Times

Mexico Beach, Post-Michael

# A Holistic Approach to Resilience



## FOUNDING MEMBERS



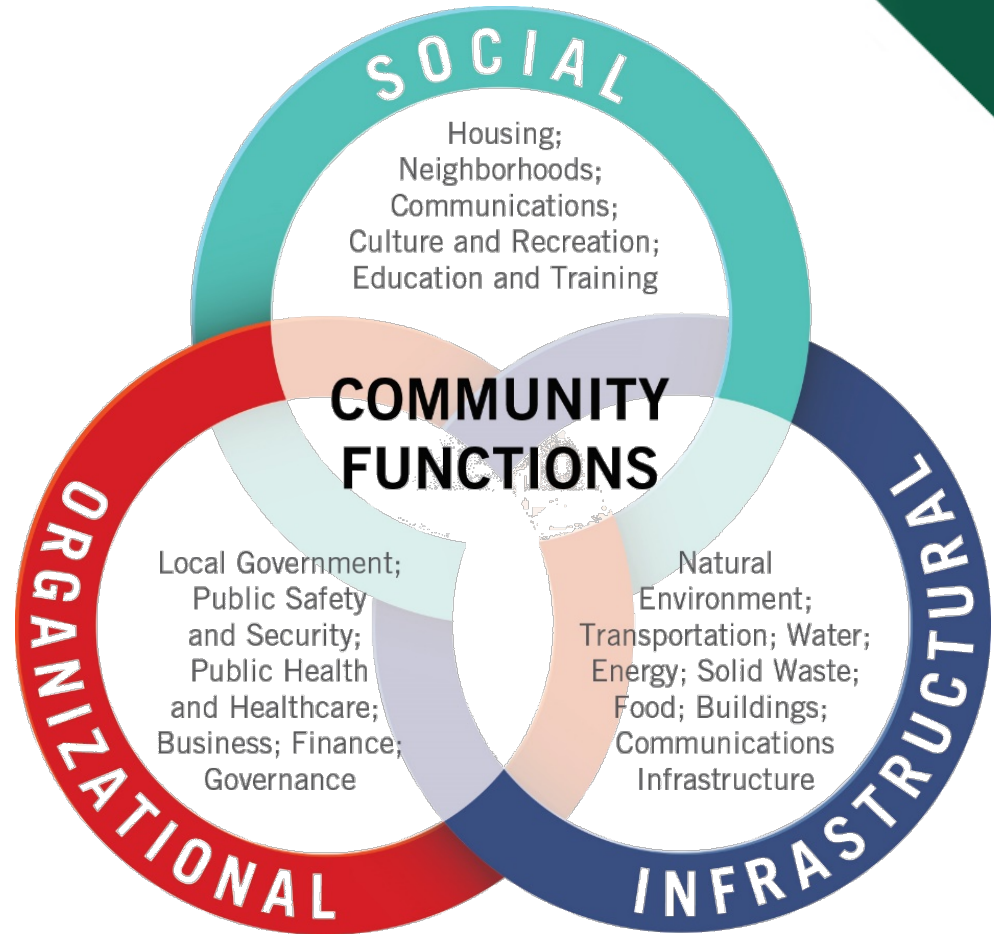
## PARTNERS



# A Holistic Approach to Resilience



[www.resilientalliance.org](http://www.resilientalliance.org)





# A Buildings Benchmark for Community Resilience



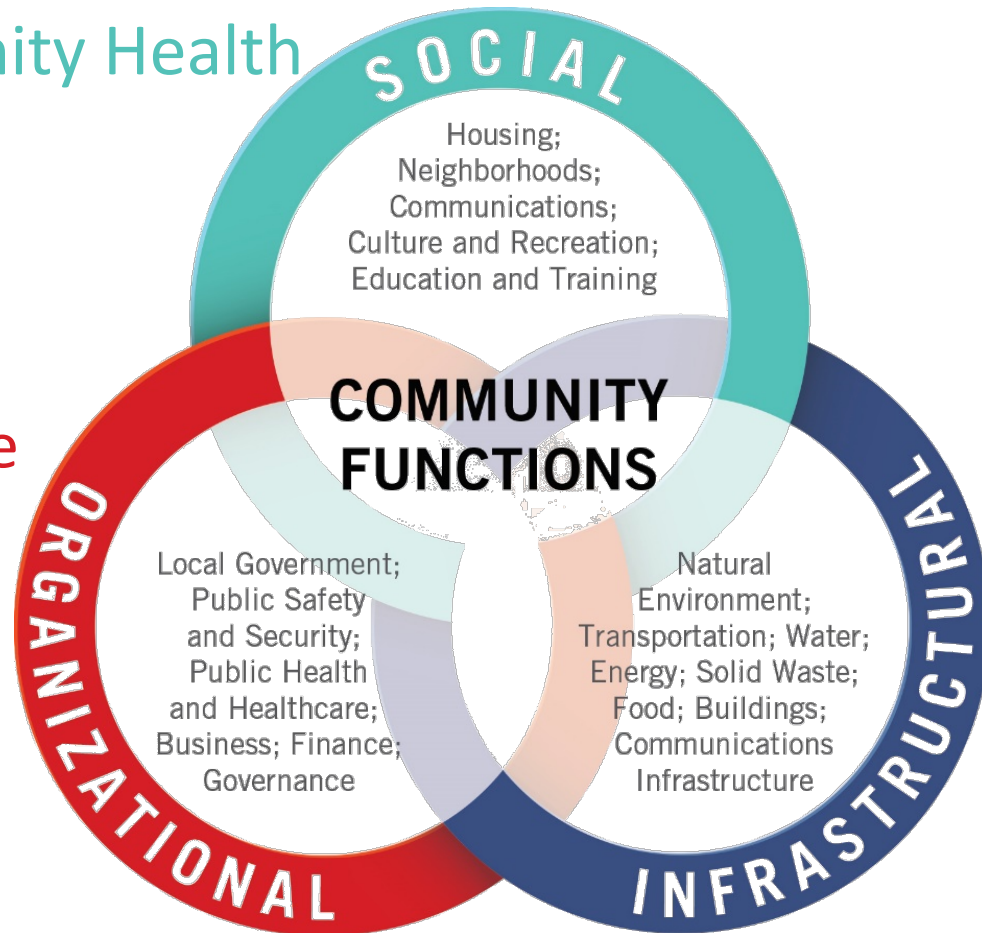
1. Adoption of Building Codes
2. Administration and Enforcement of Building Codes
3. Licensure & Continuing Education or Testing of Contractors
4. Mitigation of Highly Vulnerable Buildings
5. Mitigation and Design of Critical Facilities
6. Resilient Design
7. Disaster Response/Continuity of Operations Plans (COOPs)
8. Standards for Emergency Shelters
9. Financial Resources for Post-Disaster Recovery



# The Energy/Resilience Nexus

- Energy Burdens
- Community Health

- Money in the Community
- Reduced Shelters



- Urban Heat Island
- Cascading Effects
- Passive Survivability
- Rot, Mold and Mildew



# Energy Code Contributions to Resilience

Works in Tandem with  
Other Model Codes

## Durability

Durability ensures  
home is livable  
for decades



## Extreme Weather Protection

Better envelopes  
Habitability –  
more lives saved

## Moisture Management

Rot, mold,  
mildew

## Energy Efficiency

Grid Stability  
Microgrids  
Energy Storage.

## Fire Safety

# A New Age for Resilience Policy



2018 2022



## Strategic Plan

Helping People. Together.

FEMA Mission: **Helping people before, during, and after disasters.**

STRATEGIC GOALS

### I. BUILD A CULTURE OF PREPAREDNESS



OBJECTIVES

- 1.1 Incentivize investments that reduce risk, including pre-disaster mitigation, and reduce disaster costs at all levels
- 1.2 Close the insurance gap
- 1.3 Help people prepare for disasters
- 1.4 Better learn from past disasters, improve continuously, and innovate

### II. READY THE NATION FOR CATASTROPHIC DISASTERS



- 2.1 Organize the "BEST" (Build, Empower, Sustain, and Train) scalable and capable incident workforce
- 2.2 Enhance intergovernmental coordination through FEMA Integration Teams
- 2.3 Posture FEMA and the whole community to provide life-saving and life-sustaining commodities, equipment, and personnel from all available sources
- 2.4 Improve continuity and resilient communications capabilities

### III. REDUCE THE COMPLEXITY OF FEMA



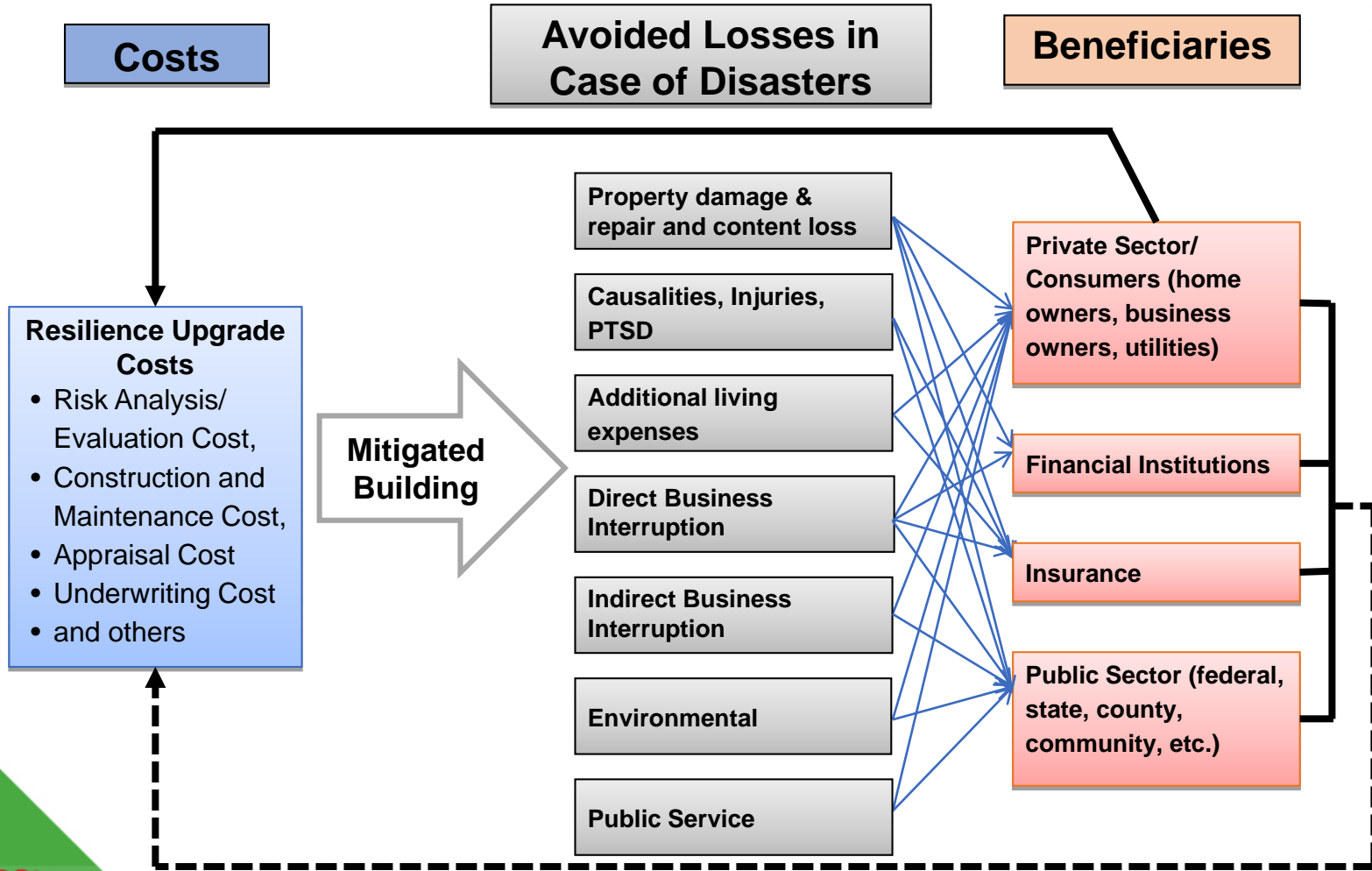
- 3.1 Streamline the disaster survivor and grantee experience
- 3.2 Mature the National Disaster Recovery Framework
- 3.3 Develop innovative systems and business processes that enable FEMA's employees to rapidly and effectively deliver the agency's mission
- 3.4 Strengthen grants management, increase transparency, and improve data analytics

FEMA Vision:  
**A prepared and resilient Nation.**

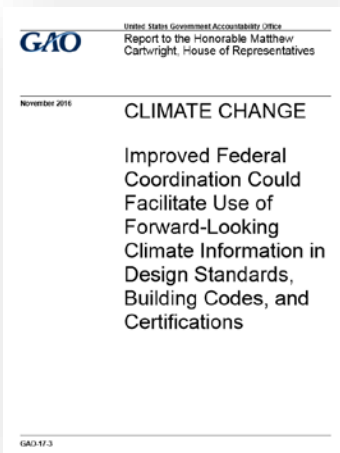
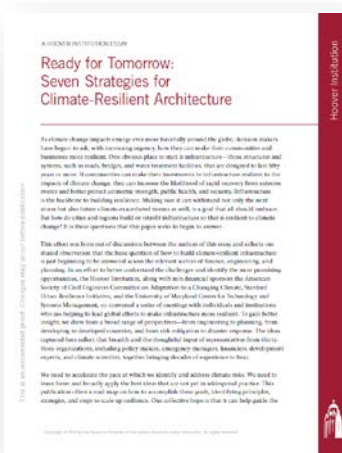
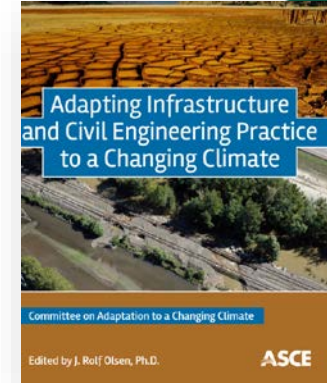
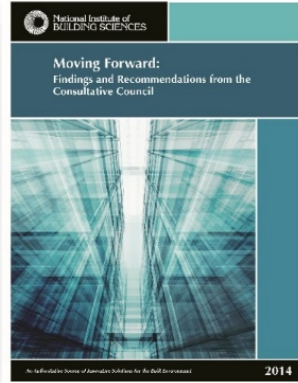
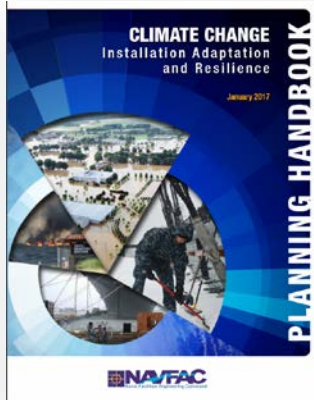


FEMA

# Incentivization Strategies (NIBS)



# An Emerging Resilience Issue: Designing for Future Risk





# Resilience Opportunities For Energy Entities



- Continued advances in energy storage, renewables
- Support for microgrids and islanding
- Facilitate distributed generation
- Preparing buildings & industrial facilities to be good grid-citizens
- Advance zero energy [buildings, communities, campuses, portfolios]
- Examine evolution to DC-power
- Conduct interdependencies analysis
- Talk about the energy/resilience nexus
- Participate in code development and adoptions
- Encourage policymakers to think holistically (infrastructure, DRRR, etc.)

# Questions?



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