

Buildings & Facilities Report Out Slides

Presented To: Community Resilience Panel

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Gaps and Needs in Sector

1. What are the largest gaps and needs within your sector that need to be addressed in resilience planning and guidance products?

- a) **Methodology to determine criticality (functions determine criticality) to drive design criteria. Define “critical” – level of importance is highly personal**
- b) How are threats selected (i.e. 100 year event). Netherlands use 10,000 years.
- c) Training for post-disaster **building assessments**, code official (damage evaluations)
- d) Encourage states to adopt Good Samaritan Laws and utilize EMAC for resources
- e) Communication of all hazard risks and where
- f) Land use and transportation planning and policy, informed by risk and resilience
- g) Considering life cycle of building with regards to risks and climate change: communication of
- h) Imbalance in federal programs for resilience: expenditures in mitigation are less than response
- i) Emergency managers need to be trained of engaged in Mitigation not just Response.
- j) Code Adoption and Enforcement and Special inspections for quality assurance
- k) Code Plus – code is not resilience, more than life safety – general health and wellbeing of whole community; short and long-term performance
- l) Cost-benefit analysis of building resilience to also reflect community value (dependencies)
- m) More research on true resilience (unintended consequences vs public health)
- n) More personnel in sector (code officials, inspectors)
- o) Disconnect community development and emergency managers
- p) Actionable climate science for project level (design decisions); unintended consequences
- q) Asset inventories to understand interdependencies

Gaps and Needs in Sector

1. What are the largest gaps and needs within your sector that need to be addressed in resilience planning and guidance products?

- 1) Documents are disaster-centric, no way to address the "upside" of things. What advancements in technology can be leveraged?
- 2) Codes and standards are focused on the extreme event; don't address other aspects of resilience.
- 3) In managing the life cycle of a facility, its functionality deteriorates; deferred maintenance increase risk and the reduces overall resilience.
- 4) Need additional guidance beyond codes and standards to assist facility manager with understanding and applying resilience concepts.
- 5) What is the public's perception of the safety of a building or community? Need effective risk assessment tools to determine acceptable level of risk and the cost of implementing risk mitigation measures. The community has to agree to the balance.
- 6) Huge gap between the code requirements and the enforcement of the codes.
- 7) Need to be able to assess the long-term advantages of expenditures for resilience.
- 8) The public is not aware of the level of protection that is afforded to residential structures. Important to inform the decision maker as to what level of protection/resilience have been provided to them.
- 9) Need educational products in addition to informing the public; need a sales pitch.
- 10) How can we incentivize a community to take steps above and beyond the minimum code requirements?
- 11) Insurance incentives
- 12) Tax breaks
- 13) What are the tools that have been used for other issues that could be used for resilience (energy, etc.).
- 14) Gap in the decision making between the design of shelters (school district) and the emergency management official.
- 15) Need to split tables between the use/criticality of the structure and the populations at risk.
- 16) Codes and standards do not address the use/operation of the building after the event during recovery.

Gaps and Needs in Sector

2. Identify significant interdependencies and gaps with other sectors that impact resilience.

1. Asset inventory. Need unified performance goals and design criteria from source to use; can't guarantee performance of a building without it (and critical infrastructure standards)
2. Codes are developed in silos (see group's breakdown of sectors)
3. Codes are written as prescriptive standards, but resilience requires performance standards
4. Codes are based on historic data and are a minimum performance standard
5. Need for performance modeling based on hazards and other impacts
6. Individual choices cause social benefits and costs to others
7. Vulnerability assessment design tools; also consider surge capacity for emergency use
8. Addressing the [existing] built environment in regulations: codes are triggered to existing buildings based on voluntary upgrades; communicate risks
9. Adaptation strategies and Resilience strategies
10. Creation vs adoption of codes timeline (technology, lessons learned)
11. Awareness and education of risk to public and property managers
12. Commercial & government cost-share in recovery
13. Standards and education for shelter-in-place and continued operations for basic and critical needs facilities

How do we Solve the Problems?

3. How do we address the needs and gaps we identified?

- A. Include all community needs in planning (including equity)
- B. Optimize use of existing community rating systems (e.g. CRS Rating System)
- C. Risk analysis with “Resilience” Building Performance Score like credit score
- D. Resilience to drive Bond Rating or PACE (Property Assessed Clean Energy)
- E. Learn from sustainability “movement”- development certification?
- F. Promote and advocate for policies and practices that reduce climate impacts (e.g. green infrastructure)
- G. Need insurance incentives or other immediate rewards
- H. NIBS MMC Incentivizing resilience – review
- I. Be the voice of the built environment
- J. Education and coordinated communication
- K. Land use opportunities and promote community service redundancies: incentive development to meeting community vision and goals
- L. Invest more [federal, etc.] dollars ahead of the disaster

How do we Solve the Problems?

4. Are there others we need to engage to help us address these needs? Others may include SMEs/groups not at the meeting in your sector or SMEs/groups from other sectors.

- Broaden participation with associations representing commercial sector (cities, counties too)
- Emergency responders and VOADs:
- Faith-based, non-profit, NGOs (other community leaders)
- Chambers of Commerce, Business improvement districts, corporations
- Rockefeller's 100 Resilient Cities shared lessons learned

Existing Guidance/Ongoing Efforts for Resilience in Sector

5. What are existing codes, standards, guidance, goals, and/or protocol that have been published, or are in-process, in your respective sectors?

- See TISP list
- See NIBS MMC
- ANSI
- Homeland Security Panel standards
- ULI report
- OARS
- RELi
- ASTM committee E06 – resilience standards for buildings
- Passive House
- NFPA 1616 – mass evacuation and sheltering (NFPA 1600 series & NIST)
- IBHS Fortified
- NIST Community Resilience Planning Guide