



EERI Policy White Paper

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Creating Earthquake-Resilient Communities

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EERI Policy Position

EERI advocates for all levels of government to develop community-driven earthquake resilience plans and strategies of action that address a community's building stock and associated social, economic, environmental, and lifeline infrastructure systems and that would lead to more rapid and robust recovery from future earthquakes.

Background

When disaster strikes, many communities are prepared to respond to the immediate emergency but most are not prepared for a robust recovery over the long term. One of their biggest surprises often relates to the extent of damage to the built environment, which leads to prolonged recovery, social distress, and economic turmoil. Earthquake-related public policy and building codes have traditionally only focused on creating a safe built environment without consistent regard for recovery. Communities have been lost or stalled in their recovery because of a lack of understanding about recovery challenges, planning for recovery goals, and long-term focus on achieving community resilience. Whether affected by natural, technological, or human-caused events, most communities will eventually recover, but the degree of the recovery and the ultimate outcome depend on the extent of pre-event efforts to prevent incidents, mitigate risks, protect assets and the environment, and recover community social and economic functions.

The 100 Resilient Cities program, initiated by the Rockefeller Foundation, is "helping cities around the work become more resilient to physical, social, and economic shocks and stresses."¹ Shocks refer to the occurrence of natural and man-made hazards. Stresses refer to the chronic day-to-day problems communities face, such as crime, unemployment, high-cost housing, etc. They suggest that both need to be addressed simultaneously since a community's ability to respond to a hazard event can be blocked by chronic stresses.

Community resilience is the ability to recognize risk, resolve social stresses, anticipate shocks due to hazard events, adapt to changing conditions, and recover rapidly from hazard events to a new and better normal. People in resilient communities need to be well-informed as the emergency unfolds, work together to stay in their homes, and return to a fairly normal routine in their neighborhoods within weeks. Commerce needs to restart within weeks to provide jobs and tax revenue. Power, water, transportation systems, and communication networks need to begin operating quickly to support a well-planned recovery.

Achieving community resilience is an ongoing and evolving process that might take some communities decades to accomplish. Success begins with the development of a resilience plan, which is a plan for

1. 100 Resilient Cities. 2016. <https://www.rockefellerfoundation.org/our-work/initiatives/100-resilient-cities/>

recovery prepared by a multi-disciplinary team of governmental leaders, business leaders, and other stakeholders. Resilience plans identify a community's stresses, long-term goals, earthquake hazard levels (shocks), and key vulnerabilities. A resilience plan contributes to the long-term community goals, assures the ability to continuously govern, and protects community well-being. After plans are developed, they must be implemented through policies and mitigation actions that resolve the consequences of the existing stresses and anticipated shocks.

Tools are now being developed to direct the resilience planning process by public and private entities. For example, the 100 Resilient Cities Program, sponsored by the Rockefeller Foundation, focuses on a holistic view of cities and the social conditions they face in dealing with their stresses and shocks. The National Institute of Standards and Technology (NIST) is in the midst of a multiyear program to develop and implement guidelines and tools for community resilience planning. *The Community Resilience Planning Guide for Buildings and Infrastructure Systems* was recently published to help communities address these challenges through a comprehensive planning approach that accounts for the support needed to restore community social functions and recognizes the dependencies across lifeline infrastructure systems. The National Academies Resilient America Roundtable is actively implementing the recommendations from their publication *Disaster Resilience: A National Imperative*, with a concentration on the defining the metrics needed for planning and implementation.

Needed Action

EERI advocates for all levels of government to develop community-driven earthquake resilience plans, in conjunction with their other planning efforts. These plans must be holistic and give balanced consideration to the social, economic, environmental, and lifeline infrastructure systems that lead to a more rapid and robust recovery from earthquakes.

These plans are most successful when they incorporate some or all of the following principles and actions:

- Utilize a local multi-disciplinary resilience team for planning and implementation of resilience actions;
- Align resilience objectives with other long-term community goals that address sustainability, public health, well-being, growth, prosperity, etc.;
- Understand and respond to the social factors that make communities more vulnerable to disasters, including housing costs, access to transportation, home ownership, income, education, racial and ethnic background, non-native language speakers, and age;
- Design and implement an interactive platform for information search and exchange with ready access for community organizations, groups, and households;
- Set appropriate, typically higher, performance goals for new construction;
- Understand the community's earthquake risk, including their dependence on and the vulnerability of their built environment;
- Reduce expected damage to the built environment;
- Engage community organizations, groups, and households in estimating the potential cost of recovery and develop plans to finance the needed work; and
- Organize to support a robust long-term recovery after a damaging earthquake and have policies and building codes in place that facilitate building back better so there will be less damage and negative impacts in future events.

EERI also advocates for, contributes to, and supports the following activities related to improving community resilience, which utilize the multidisciplinary talents of its membership:

1. All efforts aimed at gathering and archiving post-earthquake data related to community resilience including long-term funding support for a Community Resilience Observatory that will gather and archive resilience related data from actual events nationwide.
2. Collaboration with other related organizations to maintain a focus on the social, economic, environmental, and lifeline infrastructure systems of community resilience and how to mitigate the impact of earthquakes while addressing inherent community stresses.
3. Collaboration among professionals of various disciplines—Earthquake Sciences, Earthquake Engineers, Emergency Response Managers and Planners, and Chambers of Commerce, etc.
4. Speaking with a common voice on research and implementation policies that represent balance among the competing social, economic, and built environment needs.
5. Actively supporting the development of processes and tools that assist communities to understand their risks, and conduct pre-event planning.
6. Changes in the Stafford Act that support resilience planning and funding for resilient construction.
7. Encouraging regional chapters of EERI to engage with their local community's resilience planning efforts.

References and Sources for More Information

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