

## FEMA Spearheading NEHRP Implementation Efforts

The Federal Emergency Management Agency's (FEMA) primary role within the National Earthquake Hazards Reduction Program (NEHRP) is to work with state governments and other partners to strengthen the resilience of communities vulnerable to earthquakes. This critical "implementation" mission focuses on putting to use knowledge developed through research on seismic hazards and on reducing risks presented by such hazards. Several major components of this work are explored below.

### Building Codes and Standards

FEMA works closely with the engineering, architectural, building-regulatory, and standards-development communities to ensure that sound seismic provisions are incorporated into the nation's model building codes. These efforts acknowledge that although communities cannot control the seismic hazards to which they are exposed, they can mitigate the potential effects of those hazards. The single most effective way for communities to save lives and protect property threatened by earthquakes is to adopt and enforce up-to-date building codes.

Rather than writing their own codes, states and localities typically adopt model codes, most often those that are updated every 3 years by the International Code Council. The earthquake-related provisions within these codes are heavily influenced by the [NEHRP Recommended Seismic Provisions for New Buildings and Other Structures](#), an authoritative resource that is periodically updated and published by FEMA in partnership with many in the earthquake community.<sup>1</sup>

As well as helping to shape the content of model building codes, FEMA also encourages and facilitates their adoption by providing training and technical assistance to state and local governments. In a recent example of this work, FEMA provided experts to conduct nine workshops for local building code officials, architects, engineers, surveyors, and floodplain managers in Puerto Rico. This training was in support of the 2011 adoption in Puerto Rico of the International Building and Residential Codes and their seismic provisions.

### Tools and Guidance

FEMA manages the development and dissemination of hundreds of [publications and tools](#) as well as [web content](#) and [training materials](#) on behalf of NEHRP. The focus of these products ranges from basic earthquake safety guidance for individuals to advanced earthquake risk reduction techniques for building designers and communities. The goal is to provide individuals, organizations, and communities with the information, skills, and tools that they need to assess their seismic risks and to develop and implement plans to effectively mitigate those risks.

One of the publications recently developed by FEMA is [Reducing the Risks of Nonstructural Earthquake Damage \(FEMA E-74\)](#). During recent earthquakes in Chile, New Zealand, Japan, and the United States, failures of nonstructural building components<sup>2</sup> have typically accounted for the majority of damage and injuries. These failures have produced costly service interruptions, hampered building evacuations and rescue operations, generated fires, flooding, and other hazards, and impeded community recovery. FEMA E-74 describes the sources and types of nonstructural earthquake damage and effective ways to minimize related injuries and losses.

Drawing upon FEMA E-74 and other sources, FEMA also recently created [Earthquake Publications for Businesses \(QuakeSmart Toolkit, FEMA P-811\)](#). This collection of documents, videos, and posters is available online, in downloadable files, and on DVD. It provides actionable and scalable guidance for workplace owners, managers, and employees about the importance of earthquake mitigation and the simple things they can do to reduce the potential for damage, injuries, and financial losses resulting from earthquakes.

FEMA develops and makes available a variety of earthquake-related training resources, and delivers training courses and materials to thousands of earthquake risk reduction stakeholders every year. Through live and recorded instructor-led courses and webinars, online independent study courses, and

<sup>1</sup> The current edition, FEMA P-750, was issued in 2009.

<sup>2</sup> Elements that are not part of the structural system; that is, the architectural, mechanical, electrical, and plumbing systems, as well as furniture, fixtures, equipment, and other contents.



*High-resolution image suitable for poster-sized printing. Available to businesses as part of the QuakeSmart Toolkit (FEMA P-811).*

downloadable or CD/DVD-based training materials, FEMA increases seismic safety awareness, knowledge, and skills among local, regional, and national audiences. Subjects addressed include [earthquake risk analysis and modeling \(use of HAZUS software\)](#), [pre- and post-earthquake building inspections and evaluations](#), [structural and nonstructural mitigation techniques](#), [building codes](#), and other topics related to earthquake preparedness, mitigation, response, and recovery.

FEMA delivers many of its earthquake-related training courses through the National Earthquake Technical Assistance Program (NETAP). In addition to providing the qualified instructors and materials needed to conduct these courses in the field, NETAP also supplies expert assistance to help states and communities create and implement earthquake risk mitigation projects.

### Cooperative Agreements with States and Regional Partnerships

FEMA manages NEHRP Earthquake State Assistance funding through cooperative agreements with states and territories at risk for damaging seismic events. In cooperation with local governmental partners, states are able to use funds awarded under these agreements to implement a variety of earthquake safety and mitigation activities, including mitigation planning, inventorying and inspecting the vulnerability of critical facilities, updating building codes and zoning ordinances, earthquake education, and organizing local stakeholder groups to support these efforts.

NEHRP Earthquake State Assistance has supported numerous initiatives since FEMA inaugurated the cooperative agreements 4 years ago. The State of Washington, for example, conducted a pilot project that assessed the seismic vulnerability of public school buildings in the communities of Walla Walla and Aberdeen—areas with known earthquake faults. This effort produced a model process that can be used to help the state and its cash-strapped school districts target hazard mitigation funds to buildings most at risk. In another replicable project, earthquake assistance was used to mitigate nonstructural hazards in Missouri's Bloomfield Elementary School. Workers secured vending machines, computers, lighting fixtures, and bookcases, and installed an automatic shutoff valve on the gas line.

Many of the states receiving NEHRP Earthquake State Assistance have begun using some of their funding to promote and facilitate public participation in [ShakeOut](#) events. These annual exercises, which originated in southern California in 2008, have expanded nationally and internationally to engage schools and workplaces in earthquake drills and associated disaster preparedness activities. During the past year, NEHRP's state assistance helped to support ShakeOut activities in at least 10 states and territories that involved more than 10 million participants.

Recognizing the hazards and risks shared by states in seismically active regions, FEMA maintains cooperative agreements that help to support the operations of four multistate earthquake consortia. They are the [Cascadia Region Earthquake Workgroup](#), [Central United States Earthquake Consortium](#), [Northeast States Emergency Consortium](#), and [Western States Seismic Policy Council](#). These organizations bring together federal, state, and local officials, the academic and business communities, and the public to build awareness of earthquake hazards and to promote and coordinate planning, education, and preparedness activities throughout their regions.

For more information about FEMA's role in reducing earthquake risks through NEHRP, see the [FEMA earthquake website](#).

For more information, visit [www.nehrp.gov](http://www.nehrp.gov) or send an email to [info@nehrp.gov](mailto:info@nehrp.gov).


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