



# National Earthquake Technical Assistance Program (NETAP)

A Resource Guide for Regional and State/Territory Earthquake Program Managers

2019-2020



FEMA



## WHAT IS NETAP?

In accordance with the [Earthquake Hazards Reduction Act of 1977 \(amended in 2004\) and the National Earthquake Hazards Reduction Program \(NEHRP\)](#), it is the responsibility of the Federal Emergency Management Agency (FEMA) to support “the implementation of a comprehensive earthquake education and public awareness program, including development of materials and their wide dissemination to all appropriate audiences and support public access to locality-specific information that may assist the public in preparing for, mitigating against, responding to and recovering from earthquakes and related disasters.”

FEMA developed the [National Earthquake Technical Assistance Program \(NETAP\)](#) as a mechanism for delivering direct assistance to the public through state, territory, or local government entities, to increase their knowledge and ability to analyze their risk, make a plan, and take actions aimed at reducing their earthquake risk and supporting overall community resilience.

NETAP is a program managed by FEMA to rapidly deploy trainings to organizations and communities. This Resource Guide provides information on the available NETAP training courses and how state, territory, or local government entities can request these trainings.

## WHAT ARE NETAP TRAININGS?

NETAP provides in-person trainings and associated materials on topics related to earthquake risk reduction. The trainings, which span from a few hours to two days in duration, are intended for a wide variety of participants with diverse professional backgrounds.

NETAP pays for the salary and travel expenses of an approved instructor and for any educational materials used by the training participants and instructor. The state, territorial, or local government requesting the training, in cooperation with any partnering organizations, is responsible for local logistical requirements (e.g., meeting space, audio/visual equipment, refreshments, recruitment and registration of students). See “What Are the Responsibilities of the Organization Requesting the Training?” below for more information on the requirements for the requestor.

## HOW TO REQUEST NETAP TRAINING

The process for obtaining NETAP assistance is described in the following steps:

Identify  
Need and  
Request  
Training

### 1. Identify Need and Request Training

Applicants are required to complete the [NETAP Training Request Form](#) (pdf), identifying the specific trainings requested, preferred training dates, training location, anticipated number of participants, and the primary point(s) of contact. The [State/Territory Earthquake Program Manager](#) or other state/territory official with responsibility for earthquake mitigation identifies the need for trainings. In some cases, this need may be identified in consultation with local organizations, such as county emergency services or nonprofits focused on earthquake risk reduction.

Request  
sent to  
NETAP  
Contractor

### 2. Request Sent to NETAP Contractor

The State/Territory Earthquake Program Manager forwards the request to the appropriate [FEMA Regional Earthquake Program Manager](#), who after review submits it to the [NETAP Contractor](#) (the Applied Technology Council, ATC) to evaluate the request.

Review and  
Coordinate

### 3. Review and Coordinate

The NETAP Contractor, in collaboration with the FEMA NETAP Manager and the FEMA Regional Earthquake Program Manager, reviews the training request. Further discussion may be needed with the requestor to clarify anything that is unclear or to provide guidance on technical information about the available trainings.

Qualified  
Training  
Approved

### 4. Qualified Training Approved

Based on the review and coordination process, a final decision is made by the FEMA NETAP Manager based on program funding and priorities, target outcomes and benefits of the request, and other relevant factors, such as local earthquake risk, capacity of the requesting organization to execute the proposal in partnership with FEMA, and how well the assistance aligns with local hazard mitigation plans.

Training  
Delivery

### 5. Training Delivery

If approved, the NETAP Contractor deploys approved contract resources in collaboration with the FEMA Regional and State/Territory Earthquake Program Managers (and the requesting organization, if it is not the state/territory).

Performance  
Reporting

### 6. Performance Reporting

Immediately after the NETAP training, the FEMA Regional or State/Territory Earthquake Program Manager (or other requesting organization) submits a written report on progress or final accomplishments. The contracted instructor collects completed evaluation forms from participants.

Certificate of  
Participation

### 7. Certificate of Participation

Upon request, the primary point(s) of contact, or the FEMA Regional or State/Territory Earthquake Program Manager, may request Certificates of Participation for training participants. The primary point(s) of contact must provide a database of participants in Microsoft Word or Excel format to the NETAP Contractor.

## WHAT ARE THE RESPONSIBILITIES OF THE ORGANIZATION REQUESTING THE TRAINING?

Once the training(s) have been approved, the organization requesting the training(s), in cooperation with any partnering organizations, is in charge of the following:

- Advertisement and recruitment of participants for the training. Flyers for use by the requesting organization(s) to advertise the training(s) can be found [here](#). In order to make the best use of NETAP funds and to reach as many people as possible, trainings require a minimum of 25 participants.
- All local logistics, including venue reservation, and audio/visual equipment (projector and screen, as well as microphone and speakers when necessary).
- Submittal of completed NETAP Training Materials Request Form to the NETAP Contractor at least two weeks in advance of the scheduled training(s) to ensure that all training materials arrive in time for the training(s). This form will be provided to the requestor once the training(s) are confirmed.
- Administering a sign-in sheet for each training on which all participants record their presence at the training. An electronic copy of each completed sign-in sheet should be submitted to the trainer and the NETAP Contractor no later than one week after each training.
- Storage of course training materials until the course is delivered.
- If Certificates of Participation are requested, an electronic roster of participant names in Excel or Word format should be provided to the NETAP Contractor. If the requestor would like to distribute the certificates during the training(s), they should submit the electronic roster of registered participants at least five working days in advance of the scheduled training(s). Certificates can also be generated by the NETAP Contractor after the completion of the training(s). In either case, the requestor is responsible for distributing the certificates to the participants.
- Refreshments and/or snacks for participants during breaks (optional).

## AVAILABLE NETAP COURSES

Table 1 provides an overview of available in-person training courses and their duration.

**Table 1 NETAP Training Courses**

Course Number	Course Title	Training Duration
FEMA E-74	Reducing the Risks of Nonstructural Earthquake Damage	6 hours
FEMA 232	Homebuilders' Guide to Earthquake-Resistant Design and Construction	6 hours
FEMA 395	Earthquake Safety and Mitigation for Schools	4 hours
FEMA P-50 and FEMA P-50-1	Simplified Seismic Assessment and Retrofit Guidelines of Detached, Single-Family, Wood-Frame Dwellings	6 hours
FEMA P-154 and ATC-20	Rapid Visual Screening of Buildings for Potential Seismic Hazards (Third Edition) and Postearthquake Safety Evaluation of Buildings	8 hours
FEMA P-154 and ROVER	Rapid Visual Screening of Buildings for Potential Seismic Hazards (Third Edition), and Rapid Observation of Vulnerability and Estimation of Risk	6 hours
FEMA P-154, ATC-20, and ROVER	Rapid Visual Screening of Buildings for Potential Seismic Hazards (Third Edition), Postearthquake Safety Evaluation of Buildings, and Rapid Observation of Vulnerability and Estimation of Risk	2 days (Day 1: 6 hours; Day 2: 5 hours)
FEMA P-749	Earthquake-Resistant Design Concepts: An Introduction to the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures	6 hours
FEMA P-767	Earthquake Mitigation for Hospitals	7 hours
FEMA P-909	Home and Business Earthquake Safety and Mitigation: Train the Trainer	3 hours
FEMA P-1000	Safer, Stronger, Smarter: A Guide to Improving School Natural Hazard Safety	2 hours
FEMA P-1024, FEMA P-1024-RA1, FEMA P-1024-RA2	Performance of Buildings and Nonstructural Components in the 2014 South Napa Earthquake, and South Napa Earthquake Recovery Advisories	2 hours
Building Code Overview	Building Codes – Why They Matter	2 hours
Manufactured Homes	Improving Earthquake Performance of Manufactured Homes	1.5 hours

Table 2 provides information on the target audience for each training course. The information in the table is not meant to limit participation; it is provided for guidance purposes only.

**Table 2 Target Audience for NETAP Trainings**

Training	Architects	Building Officials	Building Owners	Business Owners	Contractors	Emergency Managers	Engineers	Facility Managers	Home/Property Owners	Risk Analysts	School Administrators	Volunteers/General Public
FEMA E-74	•	•	•	•	•	•	•	•	•	•	•	
FEMA 232	•	•	•		•		•		•			
FEMA 395							•	•			•	
FEMA P-50 & FEMA P-50-1	•	•	•	•	•		•		•			
FEMA P-154 & ATC-20	•	•	•			•	•	•	•			•
FEMA P-154 & ROVER	•	•	•			•	•	•	•	•		•
FEMA P-154, ATC-20, & ROVER	•	•	•			•	•	•	•	•		•
FEMA P-749	•	•					•	•				
FEMA P-767	•	•	•			•	•	•		•		
FEMA P-909			•	•	•	•			•			•
FEMA P-1000	•	•				•	•	•			•	•
FEMA P-1024	•	•	•	•	•		•		•		•	
Building Code Overview	•	•	•	•	•	•	•	•	•	•	•	•
Manufactured Homes	•	•			•	•	•	•	•			•

## DESCRIPTION OF NETAP COURSES

### FEMA E-74, Reducing the Risks of Nonstructural Earthquake Damage

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The training on FEMA E-74, *Reducing the Risks of Nonstructural Earthquake Damage*, describes the sources of nonstructural earthquake damage and effective methods of reducing such damage. Nonstructural failures have accounted for the majority of damage in recent U.S. earthquakes. It is critical to raise awareness of potential nonstructural hazards, the costly consequences of nonstructural failures, and the opportunities that exist to limit future losses.

Nonstructural components of buildings include all 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.

Materials provided for the training include:

- FEMA E-74 CD, which includes the following in electronic format: FEMA E-74 report, *Reducing the Risks of Nonstructural Earthquake Damage*

The FEMA E-74 report may be accessed at no cost at the following link:

<https://www.fema.gov/media-library/assets/documents/21405>.

### FEMA 232, Homebuilders' Guide to Earthquake Resistant Design and Construction

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The training on FEMA 232, *Homebuilders' Guide to Earthquake Resistant Design and Construction*, presents seismic design and construction guidance for one- and two-family light-frame residential structures, including information that supplements the 2003 edition of the *International Residential Code*. The FEMA 232 report may be used by homebuilders, homeowners, and other non-engineers.

Materials provided for the training include:

- FEMA 232 report, *Homebuilders' Guide to Earthquake Resistant Design and Construction* (printed copy)

The FEMA 232 report may be downloaded at no cost at the following link:

<http://www.fema.gov/library/viewRecord.do?id=2103>.

### FEMA 395, Earthquake Safety and Mitigation for Schools

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The training on FEMA 395, *Earthquake Safety and Mitigation for Schools*, is for school officials, teachers, facility managers, and other stakeholders interested in reducing earthquake risks in local schools. Numerous school buildings located in multiple states and U.S. territories are vulnerable to earthquake damage that threatens safety and continued operations. In this training, participants learn how to: (1) assess and analyze seismic risks; (2) develop actionable plans for reducing and managing these risks; (3) secure nonstructural elements of school facilities; and (4) use "incremental seismic rehabilitation" as an affordable approach for protecting existing buildings and ensuring occupant safety.

Materials provided for the training include:

- FEMA 395 report, *Incremental Seismic Rehabilitation of School Buildings (K-12): Providing Protection to People and Buildings* (printed copy)

The FEMA 395 report may be downloaded at no cost at the following link:

<https://www.fema.gov/library/viewRecord.do?id=1980>.

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## **FEMA P-50 and FEMA P-50-1, Simplified Seismic Assessment and Retrofit Guidelines of Detached, Single-Family, Wood-Frame Dwellings**

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The training on FEMA P-50, *Simplified Seismic Assessment of Detached, Single-Family, Wood-Frame Dwellings*, provides instruction on inspection procedures and use of a four-page Simplified Seismic Assessment Form to evaluate detached single-family wood-frame dwellings and to assign to each a seismic performance grade. The procedure takes into consideration the potential for damage or collapse in a manner that is consistent and useful to owners, purchasers, insurers, lenders, contractors, design professionals, and regulatory officials. The training on FEMA P-50-1, *Seismic Retrofit Guidelines for Single-Family, Wood-Frame Dwellings*, provides specific guidance for retrofitting a dwelling's seismic deficiencies, as identified using the FEMA P-50 procedure.

Materials provided for the training include:

- FEMA P-50 report, *Simplified Seismic Assessment of Detached, Single-Family, Wood-Frame Dwellings* (printed copy)
- FEMA P-50-1 report, *Seismic Retrofit Guidelines for Detached, Single-Family, Wood-Frame Dwellings* (printed copy)

The FEMA P-50/50-1 reports may be downloaded at no cost at the following links:

[https://www.atcouncil.org/images/files/FEMA\\_P-50.pdf](https://www.atcouncil.org/images/files/FEMA_P-50.pdf).

[https://www.atcouncil.org/images/files/FEMA\\_P-50-1.pdf](https://www.atcouncil.org/images/files/FEMA_P-50-1.pdf).

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## **FEMA P-154, Rapid Visual Screening of Buildings for Potential Seismic Hazards**

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In this training, participants learn how to identify potentially hazardous buildings before earthquakes occur, according to the methodology set forth in the Third Edition of FEMA P-154, *Rapid Visual Screening of Buildings for Potential Seismic Hazards*. The training covers methods and processes that enable personnel to rapidly screen buildings for their expected safety and usability during and after earthquakes. Local officials can use these data to plan and prioritize further engineering and vulnerability analysis, emergency-response needs, and mitigation projects. The Third Edition document was completed in January 2015 and includes an additional level of screening form, as well as many other enhancements.

Materials provided for the training include:

- FEMA P-154 report, *Rapid Visual Screening of Buildings for Potential Seismic Hazards* (Third Edition, printed copy)
- FEMA P-154 CD, which includes the following in electronic format: (1) FEMA P-154 report, *Rapid Visual Screening of Buildings for Potential Seismic Hazards*; and (2) FEMA P-155 report, *Rapid Visual Screening of Buildings for Potential Seismic Hazards: Supporting Documentation*.
- Only upon request: FEMA P-155 report, *Rapid Visual Screening of Buildings for Potential Seismic Hazards: Supporting Documentation* (Third Edition, printed copy)

The FEMA P-154 and FEMA P-155 reports may be downloaded at no cost at the following link:

<http://www.fema.gov/media-library/assets/documents/15212>.



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## ATC-20, Postearthquake Safety Evaluation of Buildings

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In this training, participants learn how to evaluate the safety of buildings following earthquakes. Trainees learn how to perform seismic inspections and safety evaluations of buildings, and to post appropriate safety-status placards. These evaluations and placards can be used in planning and executing evacuation, re-entry, and rebuilding strategies. Under NETAP, ATC-20 training can only be obtained if conducted in conjunction with another FEMA course, such as FEMA P-154.

Materials provided for the training include:

- ATC-20-1, *Field Manual: Postearthquake Safety Evaluation of Buildings* (printed copy)

Additional copies of the ATC-20-1, *Field Manual: Postearthquake Safety Evaluation of Buildings* may be ordered at the following link (only available in hard copy):

[http://store.atcouncil.org/index.php?dispatch=products.view&product\\_id=32](http://store.atcouncil.org/index.php?dispatch=products.view&product_id=32).

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## Rapid Observation of Vulnerability and Estimation of Risk (ROVER)

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In this course, participants learn how to utilize *Rapid Observation of Vulnerability and Estimation of Risk* (ROVER). ROVER is open-source software that automates the paper-based screening procedures documented in the Second Edition of FEMA 154, *Rapid Visual Screening of Buildings for Potential Seismic Hazards*, published in 2002. Building-specific data are entered into ROVER in the field via smartphones or other devices that have GPS capability, and the data are aggregated in a PC-based server. ROVER includes many productivity-enhancing features, such as automated geolocation, integrated digital photography and sketching capabilities, and automated retrieval of site-specific soil and hazard data from U.S. Geological Survey maps.

Materials provided for the training include:

- ROVER CD, *Rapid Observation of Vulnerability and Estimation of Risk* (ROVER) software

Additional information about ROVER may be downloaded at no cost at the following link:

<http://roverready.org/>.

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## FEMA P-749, Earthquake-Resistant Design Concepts: An Introduction to the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures

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Training on the FEMA P-749 report, *Earthquake-Resistant Design Concepts: An Introduction to the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures* (a companion guide to the 2009 edition of FEMA P-750, *NEHRP Recommended Seismic Provisions for New Buildings and Other Structures*), has been designed to encourage design and construction practices that address earthquake hazard and minimize the resulting risk to life and property. Understanding the basis for the seismic regulations in the nation's building codes and standards is important to those outside the earthquake science and engineering community, including elected officials, decision makers in the insurance and financial communities, individual building or business owners, and other concerned citizens. The intent of this training is to provide interested individuals with an easily understandable explanation of the intent and requirements of seismic design in general and the *NEHRP Provisions* in particular.

Materials provided for the training include:

- FEMA P-749 report, *Earthquake-Resistant Design Concepts: An Introduction to the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures*

The FEMA P-749 report may be downloaded at no cost at the following link:

<http://www.fema.gov/library/viewRecord.do?id=4711>.

## **FEMA P-767, Earthquake Mitigation for Hospitals**

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The FEMA P-767, *Earthquake Mitigation for Hospitals*, training introduces participants to earthquake hazards in healthcare settings and methods that can be used to analyze and reduce risks of damage in hospitals and other medical buildings. Such facilities have unique nonstructural components, including equipment and infrastructure systems that can become sources of injury or damage even during smaller earthquakes. By implementing sound, cost-effective mitigation measures, healthcare facilities can reduce seismic risks and ensure that, in the event of an earthquake, they can remain in operation to serve their communities.

Materials provided for the training include:

- FEMA 396 report, *Incremental Seismic Rehabilitation of Hospital Buildings* (printed copy)
- FEMA P-767 CD, which includes the following in electronic format: FEMA P-767 training PowerPoint presentation, *Earthquake Mitigation for Hospitals: Training Program and Presentation Slides*
- FEMA E-74 CD, which includes the following in electronic format: FEMA E-74 report, *Reducing the Risks of Nonstructural Earthquake Damage*

The FEMA 396 report may be downloaded at no cost at the following link:

<http://www.fema.gov/media-library/assets/documents/5167?id=1981>.

The FEMA E-74 report may be downloaded at no cost at the following link:

<https://www.fema.gov/media-library/assets/documents/21405>.

## **FEMA P-909, Home and Business Earthquake Safety and Mitigation: A “Train the Trainer” Course**

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The goal of the training on FEMA P-909, *Home and Business Earthquake Safety: A “Train the Trainer” Course*, is to create a cadre of trainers with the ability to provide citizens with basic knowledge on earthquakes and simple steps toward safety and mitigation in their homes and businesses with the goal to reduce the loss of life and property from an earthquake. This training includes a demonstration how to mitigate the seismic risk of a component, such as a water heater.

Materials provided for the training include:

- FEMA P-909 CD, which includes the following in electronic format: FEMA P-909 training PowerPoint presentation, *Home and Business Earthquake Safety: A “Train the Trainer” Course*

## **FEMA P-1000, Safer, Stronger, Smarter: A Guide to Improving School Natural Hazard Safety**

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This training on FEMA P-1000, *Safer, Stronger, Smarter: A Guide to Improving School Natural Hazard Safety*, provides guidance on school operations (i.e., what to do before, during, and after an event) and on the physical protection of school facilities (i.e., what can be done to the structure and facility to improve safety). The training also includes some discussion of the FEMA P-1000 supplements, which provide guidance specific to earthquakes, floods, hurricanes, tornadoes, and tsunamis.

The following materials will be provided:

- FEMA P-1000 report, *Safer, Stronger, Smarter: A Guide to Improving School Natural Hazard Safety*

The FEMA P-1000 report may be downloaded at no cost at the following link:

<https://www.fema.gov/media-library/assets/documents/132592>.

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## **FEMA P-1024, Performance of Buildings and Nonstructural Components in the 2014 South Napa Earthquake, and FEMA South Napa Earthquake Recovery Advisories**

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This training gives an overview of the FEMA P-1024, *Performance of Buildings and Nonstructural Components in the 2014 South Napa Earthquake*, report that assesses and documents the performance of a population of buildings impacted by the South Napa earthquake and provides a series of recommendations to improve mitigation. The training also includes an overview of the accompanying FEMA South Napa Earthquake Advisories: (1) FEMA P-1024-RA1, *South Napa Earthquake Recovery Advisory: Repair of Earthquake-Damaged Masonry Fireplace Chimneys*, which recommends best practices for the reconstruction of earthquake-damaged masonry chimneys in one- and two-family dwellings to minimize risk of damage in future earthquakes; and (2) FEMA P-1024-RA2, *South Napa Earthquake Recovery Advisory: Earthquake Strengthening of Cripple Walls in Wood-Frame Dwellings*, which addresses the earthquake strengthening of cripple walls and foundation anchorage in one- and two-family dwellings supported by elevated concrete foundation systems and cripple walls not taller than approximately seven feet.

Materials provided for the training include:

- FEMA P-1024 report, *Performance of Buildings and Nonstructural Components in the 2014 South Napa Earthquake*, which includes copies of FEMA P-1024-RA1, *South Napa Earthquake Recovery Advisory: Repair of Earthquake-Damaged Masonry Fireplace Chimneys*, and FEMA P-1024-RA2, *South Napa Earthquake Recovery Advisory: Earthquake Strengthening of Cripple Walls in Wood-Frame Dwellings* (printed copy)

The FEMA P-1024 report and FEMA South Napa Recovery Advisories may be downloaded at no cost at the following link:

<https://www.fema.gov/media-library/assets/documents/103966>.

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## **Building Code Overview, Building Codes – Why They Matter**

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Building codes are regulations governing design, construction, alteration, and maintenance of structures. They are the foundation for community resilience. This training provides an overview of the building code pertaining to earthquake effects on buildings and underline the importance of code adoption and enforcement. This training also highlights why this information is important to emergency managers, decision makers, and the general public.

Materials provided for the training include:

- Presentation slides (PDF format)

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## **Improving Earthquake Performance of Manufactured Homes**

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Recent earthquakes have resulted in poor performance of manufactured homes, indicating that there is much room for improvement. The purpose of this training is to: (1) provide an overview of regulations governing design and construction of manufactured homes and home installation; (2) review relevant performance issues observed in recent earthquakes; and (3) provide available guidance for improved earthquake performance of manufactured homes.

Materials provided for the training include:

- Presentation slides (PDF format)