QuakeSmart Business Toolkit

How Earthquakes Affect Businesses

What Are Earthquakes and Why Do They Occur?

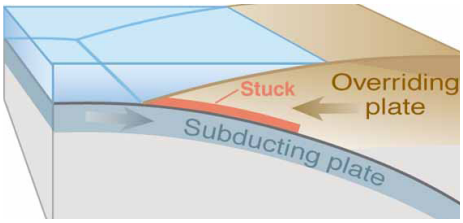
An ***earthquake*** is ground shaking caused by a sudden movement of rock in the Earth's crust. Such movements usually occur along faults, which are thin zones of crushed rock separating blocks of crust. When one block suddenly slips and moves relative to the other along a fault, the energy released creates vibrations called seismic waves that radiate up through the crust to the Earth's surface, causing the ground to shake.

Earthquakes may last only a few seconds or may continue for up to several minutes. They can occur at any time of the day or night and at any time of the year. They are caused by stress that builds up over time as blocks of crust attempt to move but are held in place by friction along a fault. (The Earth's crust is divided into large plates that continually move over, under, alongside, or apart from one another atop the partly molten outer layer of the Earth's core.) When the pressure to move becomes stronger than the friction holding them together, adjoining blocks of crust can suddenly slip, rupturing the fault, and creating an earthquake.

In addition to ground shaking, earthquakes can also generate secondary hazards such as landslides, avalanches, surface faulting, tsunamis, liquefaction and flash floods. For more information on secondary hazards, visit the *How Do Earthquakes Affect People?* section of the *FEMA website*.

To learn more about the science of earthquakes, visit the *U.S. Geological Survey (USGS) Earthquake Hazards Program*.

Vertical Slice Through a Subduction Zone



Source: http://www.usgs.gov

One of the many tectonic plates that make up Earth's outer shell descends, or "subducts," under an adjacent plate. This kind of boundary between plates is called a "subduction zone." When the plates move suddenly in an area where they are usually stuck, an earthquake happens.

How Do Earthquakes Affect Businesses?

Thousands of earthquakes occur in the United States each year; most are too small to significantly affect businesses and communities. However, large and very damaging earthquakes have occurred in the past and could happen again at anytime. Unlike other natural hazards such as hurricanes, floods, and others, an earthquake is a no-notice event that cannot be predicted. Therefore, it is more important for the private sector and the communities to understand their risks, make a mitigation project plan, and take earthquake mitigation actions to ensure safety and stay in business.

Today, businesses of all types and sizes serve as the backbone of every community and the nation's economic strength. Small businesses alone account for more than 99 percent of all companies with employees, employ 50 percent of all private sector workers, and provide nearly 45 percent of the nation's payroll. If businesses are unable to continue operations after an earthquake event, this could impact effective flow of critical products and services (i.e. food, medicine, utilities, financial, etc.), limit individual and community livelihood, and significantly delay disaster recovery.

DID YOU KNOW?

Small businesses alone account for more than 99 percent of all companies with employees, employ 50 percent of all private sector workers, and provide nearly 45 percent of the Nation's payroll.

How Earthquakes Affect Businesses

In general, many businesses have invested in emergency management and continuity of operations planning. However, most businesses have not conducted earthquake mitigation measures to protect their assets, staff and business operations. During an earthquake, buildings—or their components or contents—can be collapsed, toppled, broken apart, tossed around, or rendered inoperable or unusable. The same can happen to lifeline infrastructure systems and their components, including those related to transportation, such as roads, bridges, railways, ports, and airports, and those related to utilities, such as distribution lines for water, wastewater, electric power, telecommunications, natural gas, and liquid fuels. Damage incurred from these hazards, such as broken gas or water pipes, can itself be hazardous, generating further damage by igniting fires or flooding buildings.

Hazards such as structure failure, falling, collapsing or airborne objects, earthquake-induced fires or flooding, and others can also cause serious casualties. In addition to casualties, individuals can incur direct economic losses, either personal or business-related, resulting from damage to existing property. Businesses can temporarily lose the ability to generate income, due to other business and employment interruptions or terminations brought about by damage to private property or public infrastructure.

DID YOU KNOW?

Most businesses have not conducted earthquake mitigation measures to protect their assets, staff and business operations.

What Businesses Can Do

Many businesses understand the concept of emergency management and continuity planning. But these could be complex issues depending on their particular industry, size and scope as well as their level of risks from natural and man-made hazards. All businesses must account for all of their exposed, relevant hazards in order to reasonably stay in business. Guidance to all-hazards, business preparedness, and continuity exist via *Ready.gov*, *Open for Business®*, and *Disaster Resistant Business (DRB)*.

As part of addressing all-hazards, it is critical for businesses to also incorporate actionable ***earthquake mitigation*** solutions into their planning and business decisions. By doing so, businesses protect the organization's assets (people, property, operations); sustain the capability to provide goods and/or services to customers and/or its supply chain; maintain cash flow; preserve competitive advantage and reputation; and provide the ability to meet legal, regulatory, financial and contractual obligations.

FEMA NEWS PHOTO

Businesses in and around Seattle, WA were damaged by the February 2001 earthquake.

How QuakeSmart Can Help

Background

Congress established the *National Earthquake Hazards Reduction Program (NEHRP)* in 1977, which brings together four agencies: *FEMA*, the *U.S. Geological Survey (USGS)*, the National Science Foundation (NSF), and the *National Institute for Standards and Technology (NIST)* in order to coordinate their earthquake-related activities. Under the program, it is FEMA's responsibility to implement earthquake awareness and outreach programs that ultimately reduces seismic risks and improves community resilience from earthquake events. Over the years, FEMA has accomplished numerous initiatives particularly in disaster resilient building codes, training, guidance development, planning support, and others. To further advance this partnership with the private sector, FEMA NEHRP introduced QuakeSmart in 2008 to collaborate with businesses on earthquake awareness and mitigation implementation.

DID YOU KNOW?

Mitigating your earthquake risk mean getting back to business and resuming your operations faster after an earthquake, which allows you to:

- Lower the risk of employee and customer injury;
- Gain a competitive advantage;
- Protect your inventory;
- Potentially reduce insurance premiums;
- Reap the goodwill of your customers, suppliers, employees, and grateful community.

How QuakeSmart Can Help

What is Earthquake Mitigation?

Earthquake Mitigation is any action taken to reduce damages or losses to your business, employees, building and its contents should an earthquake occur. In addition to basic preparedness activities such as creating and exercising disaster plans, preparing disaster supply kits, and knowing how to *Drop, Cover, and Hold On*, the private sector must complement these by implementing mitigation actions to reduce earthquake risks and further minimize disruptions, damages, and losses.

According to the United States Geological Survey (USGS), earthquakes are one of the costliest natural hazards faced by the nation, posing a significant risk to 75 million Americans in 39 states. According to *FEMA 366: HAZUS-MH Estimated Annualized Earthquake Losses for the United States*, estimating the varying degree of earthquake risk throughout the United States is useful for informed decision-making on mitigation policies, priorities, strategies, and funding levels in the public and private sectors. For example, potential losses to new buildings may be reduced by applying seismic building codes and using specialized construction techniques. While there is a good understanding of earthquakes and what they can do in high risk areas such as Los Angeles, there is also growing recognition that while other regions may have a moderate earthquake hazard risk, they are still at high risk of significant damage and loss. This high-risk level reflects the dense concentrations of buildings and infrastructure in these areas constructed without the benefit of modern seismic design provisions.

In addition to potential structural damages, non-structural components (such as contents, furnishings, architectural elements, etc.) significantly contribute to earthquake costs and damages and could impact safe evacuation, continued operations, and rapid recovery for many businesses. If businesses cannot operate immediately after an earthquake due to damages or employee loss, this greatly affects the community, its economy, and its ability to recover after an earthquake. When businesses mitigate their earthquake risks, communities can recover and rebuild faster and stronger.

Ultimately, mitigation is what would ensure that your staff, facility and contents could withstand the earthquake and enable you to continue operations or rapidly recover. If you want to stay in business and save your investment during an earthquake, mitigation is right for you. Working together with other local businesses to mitigate is also essential for a quick recovery for your business as well as the community.

DID YOU KNOW?

Typically, 80 percent of a building's value lies in its nonstructural elements, components and contents. Therefore, if you are a building owner, why not spend your mitigation resources on your biggest investment?

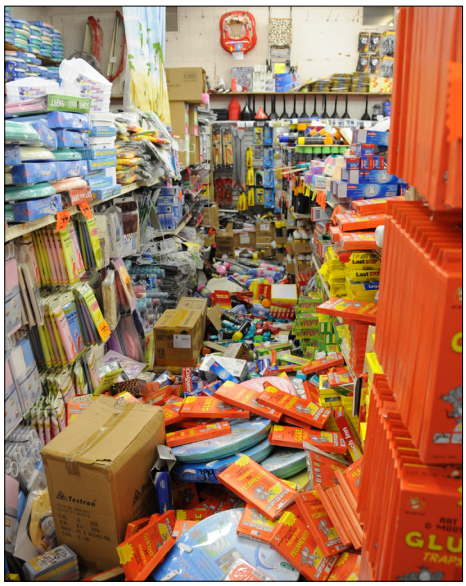


Photo by Adam DuBrowa/FEMA

Calexico, CA, April 7, 2010 – A magnitude 7.2 earthquake struck this market leaving a trail of broken merchandise and products throughout the store. Had the store taken proper mitigation steps such as using straps to keep products in place, damages would have been minimized.

How QuakeSmart Can Help

What is QuakeSmart?

QuakeSmart is a FEMA NEHRP initiative to help businesses in at-risk earthquake communities implement earthquake mitigation actions.

QuakeSmart is a 3-step mitigation process that businesses can easily integrate in their existing or future disaster plans and business decisions:

Step 1: Identify Your Risk

When identifying your risks, the initial step is to determine if your business is at risk for earthquakes. This includes identifying if your facility is in an earthquake hazard area. Then you identify your potential vulnerabilities: structure, non-structural components, and contents (hazard + vulnerability = risks).

Structural risks include collapse-prone structure types such as non-ductile (brittle) concrete buildings; unreinforced masonry (brick, block, or adobe); plan irregularity (non-rectangular buildings); and soft story configuration (weak first story). Nonstructural risk sources include unreinforced brick parapets, brick chimneys, and ornamental siding, suspended ceilings, light fixtures, and gas-fired equipment and the presence of hazardous materials. At-risk contents may include tall or heavy furniture, storage racks, other furnishings and equipment prone to fall over, and items that may fall or slide and block exits. Actions taken under this step will help you and your organization comprehensively identify and prioritize your overall level of earthquake risks.

Step 2: Make a Plan

Based on your earthquake risks, this step allows you to start planning your mitigation projects to address those risks. Making a mitigation project plan means defining a scope of work, budgeting funds to pay for it, and then scheduling the time to get it done. Depending on your earthquake risks and funding, sometimes the budget or schedule will prompt you to reduce or increase the scope. It is part of the planning process to think about your options and make sure you're spending your resources effectively. Your plan doesn't have to be complicated. Its sole purpose is to help you go from thinking about your risk to mitigating it.

Step 3: Take Action

Finally, implement your mitigation project plan and solutions. Nonstructural solutions might be taking the simple step of anchoring a bookshelf or file cabinet to the wall, as well as adding removable straps to secure the shelf's contents, and a safety latch to prevent the cabinets from opening during shaking. Other solutions include securing ceiling fans with cable supports, storing heavy items on floors, installing flexible gas lines to space heaters or propane tanks, installing hook and loop straps to desk-mounted computers, and securing table lamps or fragile collectibles on shelves with museum wax or putty. Structural solutions could include retrofitting unreinforced masonry, installing shear walls, and strengthening the structural frame of your building by creating a continuous load path.

Without taking these actions, an earthquake may shut down your operations, resulting in lost revenue or worse, the closing of your business. This QuakeSmart Toolkit will provide you with actionable and scalable processes, basic guidelines and easy to use tools to help you easily start each of these steps.

The QuakeSmart Toolkit Poster showcases the 3-step mitigation process.

DID YOU KNOW?

There is a difference between preparedness and mitigation.

Preparedness is getting you ready[1] should the disaster occur. Preparedness efforts include (but are not limited to):

- Creating and exercising a disaster plan – emergency contacts, location of First Aid/ CPR kits, shelter, etc.
- Preparing disaster supply kits – food, water, lighting, tools, protective gear, etc.
- Knowing how to protect yourself during the earthquake (i.e. *Drop, Cover, and Hold On*)

[1] For earthquake preparedness resources such as continuity plan guidance and disaster kit checklists, please visit FEMA's Ready Business Program, 7 Steps to an Earthquake Resilient Business, ShakeOut Website, Disaster Resistant Business Toolkit and IBHS Open for Business® Toolkit.

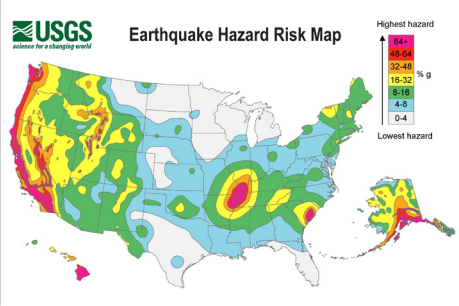
QuakeSmart Business Toolkit

Step 1: Identify Your Risk

1. Identify Your Earthquake Hazard

Businesses need to determine if they're located in an earthquake hazard area. The United States Geological Survey (USGS) website provides useful information about your area's earthquake hazard, including shake maps and data on the most recent earthquakes. It is also important to determine if your supply chain, vendors, clients/customers, etc. are located in an earthquake hazard area because their risk is also your risk. Should any of those be impacted, your business and community could also be affected.

To determine whether your business is located in an earthquake hazard area, please see the USGS Earthquake Hazard Map or visit the *USGS website* for more details.



Source: http://www.usgs.gov

The USGS National Seismic Hazard Maps display earthquake ground motions for various probability levels across the United States and are applied in seismic provisions of building codes, insurance rate structures, risk assessments, and other public policy.

2. Identify Your Earthquake Vulnerabilities

Review the structural and nonstructural vulnerabilities of your building to assess your overall earthquake risk.

Structural Risks

When addressing structural risks, the goal is to make your building more resistant to collapse, damage and disruption in the event of an earthquake. Depending on when and how they were designed and built, existing buildings may have structural weaknesses that make them more vulnerable to earthquakes. Check with your local building-regulatory agency to find out whether, and for how long, structures in your area have been subject to building codes containing seismic design provisions. Facilities constructed before adequate provisions came into effect may have structural vulnerabilities.

NOTE: Businesses renting or leasing should consult the building owner before addressing any structural risks.

Photo by Adam DuBrowa/FEMA

Structural Risk: A homeowner retrofited their home with earthquake straps and bolts to prevent movement in the event of an earthquake.

Nonstructural Risks

During an earthquake, which of the following nonstructural elements within your facility could fall and/or break to cause fire, additional damage, injury, interruption of business operations, or costly repair/recovery expenses? Nonstructural seismic weaknesses can be as or more dangerous, costly, and disruptive as structural vulnerabilities. Any nonstructural items that are not effectively anchored, braced, reinforced, or otherwise secured could become safety hazards or property losses in an earthquake. Design and construction professionals are needed to properly secure some of these components, while others can be made safe by maintenance staff or other employees.

Photo by Mike Griffin

Roof parapet bracing is a highly recommended nonstructural earthquake mitigation activity.

Step 1: Identify Your Risk

The following is a basic checklist of potential nonstructural and structural vulnerabilities:

Nonstructural Building Utility Systems

- ☐ Propane Tank
- ☐ Water Heater
- ☐ Piping
- ☐ HVAC Equipment and Ducts
- ☐ Suspended Space Heater
- ☐ Fuel Tank
- ☐ Air Compressor
- ☐ Automatic Fire Sprinkler Piping & Heads
- ☐ Others (if any, list separately)

_____
_____
_____
_____

Nonstructural Architectural Elements

- ☐ Built-In Partitions
- ☐ Suspended T-Bar Ceilings
- ☐ Suspended Light Fixtures
- ☐ Stairways
- ☐ Windows
- ☐ Roof Parapets
- ☐ Exterior Veneer
- ☐ Exterior Signs
- ☐ Freestanding Walls or Fences
- ☐ Others (if any, list separately)

_____
_____
_____
_____

Nonstructural Furniture and Contents

- ☐ Computers
- ☐ Tall Shelving-Free Standing & Wall Unit
- ☐ Library Shelving or Stacks
- ☐ Tall File Cabinets
- ☐ Drawers and Cabinets
- ☐ Compressed-Gas Cylinders
- ☐ Containers of Hazardous Materials
- ☐ Fragile Artwork
- ☐ Free-Standing Half-Height Partitions
- ☐ Miscellaneous Furniture
- ☐ Others (if any, list separately)

_____
_____
_____
_____

Structural Vulnerabilities

- ☐ Unreinforced masonry construction
- ☐ Cripple walls not bolted to foundation
- ☐ Older, non-ductile concrete construction
- ☐ Concrete tilt up construction with unachored roof system
- ☐ Soft story construction or other building irregularities
- ☐ Unreinforced or unanchored brick elements in your building structure or facade
- ☐ Others (if any, list separately)

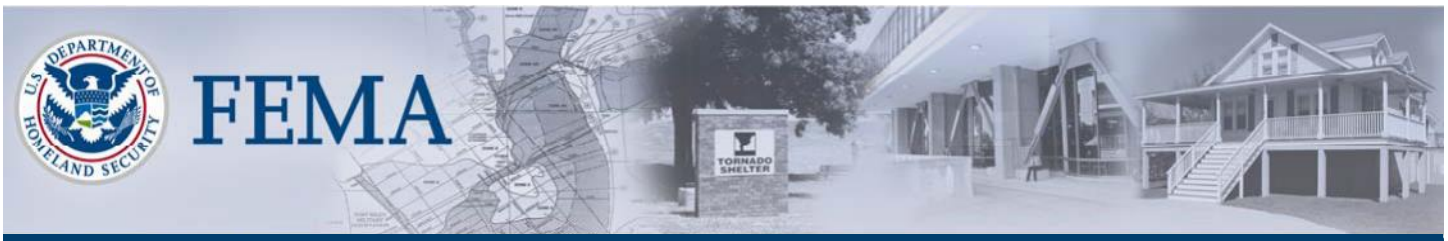
_____
_____
_____
_____

Making buildings safer can be more affordable and less disruptive when done incrementally. See the following FEMA publications for guidance:

- ***Incremental Seismic Rehabilitation of School Buildings, K–12 (FEMA 395)***
- ***Incremental Seismic Rehabilitation of Hospital Buildings (FEMA 396)***
- ***Incremental Seismic Rehabilitation of Office Buildings (FEMA 397)***
- ***Incremental Seismic Rehabilitation of Retail Buildings (FEMA 399)***
- ***Incremental Seismic Rehabilitation of Hotel/ Motel Buildings (FEMA 400)***

For specific methods of securing common nonstructural building components, see *Reducing the Risks of Nonstructural Earthquake Damage (FEMA E-74)*.

Earthquake risk-reduction measures can range from inexpensive methods of securing building contents to more extensive and expensive structural modifications. The mix of measures that is optimal for your facilities will depend on factors such as the potential severity of the earthquake hazards in your locale, the current condition of your facilities, whether your workplace is owned or leased, and how vulnerable your operations are to facility damage and associated downtime.



QuakeSmart Business Toolkit

Step 2: Make a Plan

After you have identified the potential earthquake risks and how they could impact your business, it's time to create your mitigation plan and decide on techniques and solutions to reduce your risks from earthquakes. Knowing how to make a mitigation plan will take you one step closer to becoming a more resilient business. As the backbone of the nation's economy, America's businesses must be ready and able to withstand and recover rapidly from disasters — this takes some planning. Unfortunately, small businesses are more vulnerable to losses from earthquakes because they typically have fewer resources to devote to the development of mitigation plans. Larger businesses may have emergency management and continuity of operations plans as well as other resources but they may not have the knowledge on how to effectively integrate mitigation into their planning and decision making process.

Based on your identified earthquake risks, the work plan templates on this page could be used to support your earthquake mitigation planning process.

Earthquake Mitigation Plan Template

Company: _____ **Project Lead:** _____

Name: _____ **Title/Department:** _____

Address: _____ **Address:** _____

Phone Number: _____ **Phone Number:** _____

Executive Summary:_____

_____

_____

_____

_____

Background: *(Summary description of seismic risk to include priorities)*_____

_____

_____

_____

_____

Goals & Objectives:_____

_____

_____

Step 2: Make a Plan

Mitigation Project Plan (Do It-Yourself):

These are nonstructural earthquake mitigation activities that can be completed by someone with common tools and readily available materials. The lists below are non-inclusive. For full guidance on nonstructural risks, please refer to *FEMA E-74: Reducing the Risks of Nonstructural Earthquake Damage*.

Nonstructural Risks	Potential Mitigation Solutions	Assigned To	Budget	Completion Date
Building Utility Systems				
Propane Tanks	*Remove from high risk areas, secure in low traffic area*			
Water Heater	*Brace to wall studs, use flex ible connectors*			
Furniture and Contents				
Computers	*Strap or Velcro® monitor/lap top to desk, latch desktop to desk*			
Tall Shelving	*Attach to wall with brackets*			
Library Stacks	*Brace to floor, install guards for books*			
Tall File Cabinets	*Secure to wall, install cabinet latches*			
Drawers and Cabinets	*Install latches to drawers and cabinets*			
Compressed-Gas Cylinders	*Attach to wall with chains or braces*			
Hazardous Materials	*Remove from business area*			
Fragile Artwork	*Secure to walls with screws and to tables with putty*			
Miscellaneous Furniture/Fixtures	*Secure ceiling fans and lights with safety cables*			

Step 2: Make a Plan

Mitigation Project Plan (Engineering-Required Mitigation Projects – Hire A Professional)

Assessing structural risks and more complex nonstructural risks requires the services of a structural engineer or other design professional to accurately evaluate and design reasonable mitigation measures. The following list is not all-inclusive; it is meant to guide you when speaking with a professional. So when in doubt, hire a professional!

Nonstructural Risks	Potential Mitigation Solutions	Assigned To	Budget	Completion Date
Building Utility Systems				
Piping				
HVAC Equipment & Ducts				
Suspended Space Heater				
Fuel Tank				
Air Compressor				
Automatic Fire Sprinkler Piping & Heads				
Architectural Elements				
Built-in Partitions				
Suspended T-Bar Ceilings/Light Fixtures				
Stairways				
Windows				
Roof Parapets				
Exterior Veneer/ Exterior Signs				
Freestanding Walls or Fences				
Furniture and Contents				
Freestanding Half-Height Partitions				

Step 2: Make a Plan

Structural Risks	Potential Mitigation Solutions	Assigned To	Budget	Completion Date
Unreinforced Masonry Construction				
Cripple walls not bolted to foundation				
Older, non-ductile concrete construction				
Concrete tilt up construction with unanchored roof system				
Soft story construction or other building irregularities				
Unreinforced or unanchored brick elements in your building structure or facade				

Other Considerations: _____

Step 3: Take Action

How to Execute Your Earthquake Mitigation Project Plan

Now that you have identified your risks and developed a mitigation project plan, it's time to take action. Ensure that your plan is fully approved by the owner (landlord if leasing), facility engineers, emergency managers, investment planners, and other pertinent decision makers within your business organization to ensure that the risks are understood, the strategies for addressing them are accepted, and that resources (i.e. staff, time, funds, etc.) are secured to ensure the effective execution and implementation of the plan.

It is also recommended for the project lead to coordinate with the human capital and customer service department so employees and customers can be informed of future activities as well as use this as an opportunity to market the company's dedication to safety. If your company plans to hire a professional or a contractor be sure to check references and ensure the contractor is experienced to do the work.

Photo by John Shea/ FEMA news photos

Mitigation braces hold the cabinet to wall in case of earthquake.

How to Organize an Employee Awareness Campaign

Whether you have 10 employees or 1,000, the recommendations can be scaled to your organization. Should a large earthquake occur in your area, it may prevent your employees from coming to work for days or even weeks. Your workforce is critical to sustaining your business. Even more daunting, the safety of your employees is greatly threatened due to nonstructural hazards such as falling objects and debris. While you cannot control or predict an earthquake, you can inform your staff about the simple steps they can take to mitigate hazards in their home. This fact sheet provides you with guidance on how to organize an employee awareness campaign on earthquake mitigation. Making your employees aware of their home hazards and how to "secure their stuff" may save their lives and ultimately your business, should an earthquake occur.

Photo by Lindsey Athanitis, Outreach Process Partners

QuakeSmart employee awareness campaign held at ServiceMaster headquarters.

Step 3: Take Action

1. Choose A Time for the Awareness Campaign

FEMA recommends a one-week campaign because earthquake mitigation is not a simple concept to understand and getting people to take action requires repetitive messaging to the audience. In fact, research shows that in order to change any habits of your audience; you must provide them with messaging multiple times. Repetition, effective frequency and a simple message influences the greatest behavioral changes. You may want to tie your campaign week around locally recognized events such as a historic earthquake anniversary, a State ShakeOut campaign, and/or national events such as National Preparedness Month, Fire Safety Month or Building Safety Month.

Before you begin the campaign, contact and inform your local Emergency Manager about your events – he or she may offer you additional ideas or may want to participate. A directory of state emergency management agencies is available at this link: *http://www.fema.gov/about/contact/statedr.shtm*.

The QuakeSmart Toolkit Poster can be a useful reminder for businesses looking to educate their employees about earthquake mitigation.

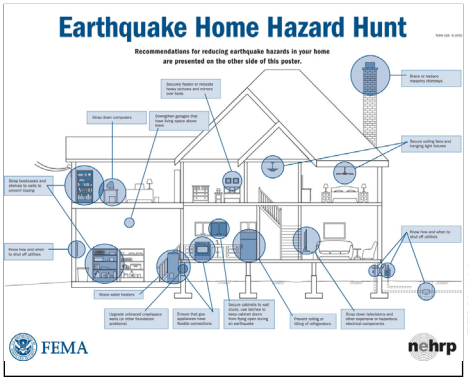
2. Begin the Campaign on a Monday

- **Email or tell your employees** that you are launching QuakeSmart Awareness Campaign that will give them the tools to Identify Their Risk, Make a Plan, and Take Action (*Template A*).
- **Post QuakeSmart posters,** banners, table tents, bulletin board signs, and other FEMA literature around common work areas.
- On Monday, email your employees a **"QuakeSmart Tip of the Day,"** which will inform them of mitigation activities they could do in their home.
- **Upload the QuakeSmart videos** to your company's website, or share the QuakeSmart Toolkit link located on *FEMA.gov/quakesmart*.

The QuakeSmart Mitigation Training Video is one of three videos available in the QuakeSmart Business Toolkit.

3. Engage With Your Employees

- **Survey Employees:** Prior to the campaign, use an online survey tool to measure employee awareness about mitigation, and ask what steps, if any, have they taken to reduce hazards in their home. After the campaign, survey them again and measure its effectiveness. Should the results be favorable, be sure to report this success back to your employees via email or company newsletter.
- **Identify a QuakeSmart Team or Champion:** Find one or more people who can act as "cheerleaders" for earthquake mitigation and encourage others. This might be a good opportunity to boost morale or put certain employees in the spotlight.
- **Host a Lunch 'N Learn:**
  Invite local authorities to speak about earthquake mitigation; present the QuakeSmart videos; purchase earthquake mitigation supplies and discuss them with your employees – raffle them off after the meeting; use FEMA's *Home Hazard Hunt (FEMA 528)* poster as a guide for discussion.



Source: FEMA 528

The Earthquake Home Hazard Hunt poster (FEMA 528) provides visuals and descriptions so that homeowners can identify and fix at-risk areas of their homes to reduce future earthquake damage and disruption.

Step 3: Take Action

As part of your employee awareness campaign, you may want to offer employees a "Tip of the Day" or guidance for what they should be doing at home to ensure their safety from an earthquake event. After all, you would want to make sure that your employees are able to return to work after an earthquake event so you can stay in business and continue your essential functions. Below are some suggestions that you could help share with your employees:

- Move heavy items, such as pictures, mirrors or tall dressers, away from beds, couches and anywhere people sit.
- Secure tall furniture and bookcases with lag bolts to wall studs. Add lips to shelves to prevent costly items from sliding off their supports.
- Put latches on cabinet doors, especially in your kitchen.
- Fasten heavy or valuable items to shelves or tables.
- Secure file cabinets, computers, televisions and machinery that may move during an earthquake.
- Use easy museum/tack putty to secure fragile objects on tables and shelves.
- Store potentially hazardous materials such as cleaners, fertilizers, chemicals, and petroleum products in appropriate containers and in sturdy cabinets fastened to the wall or floor.
- Place large or heavy objects on lower shelves and store breakable items in lower cabinets.
- Ask a carpenter or an electrician to determine whether light fixtures and modular ceiling systems are securely fastened.
- Be sure your water heater is fastened to the studs or masonry of the wall. If you use propane gas, be sure the storage tank is secured. Unsecured water heaters often fall over during earthquakes, which could rupture rigid water and gas connections as well as deplete a source of clean water.
- Fasten heavy objects to the building structure.
- Make sure all gas heaters and appliances are connected to the gas pipe through flexible tubing.
- Relocate objects to avoid blocking exits.
- Secure your wood stove to wall or floor studs. Make sure you have a fire extinguisher close at hand.

Other potential hazards around the home could include bookshelves, windows, lights, dishes, breakables, paintings, tabletop items, file cabinets, and ventilation ducts. For securing a wide range of objects, most local hardware stores carry a wide range of straps, latches, brackets, bracing kits, Velcro™ products, earthquake wax, earthquake putty, wire and bolts. In some cases, objects could be replaced with a more secure or safer substitute, reducing or eliminating a hazard all together. For example, new light fixtures might be considered in place of securing old heavier ones.

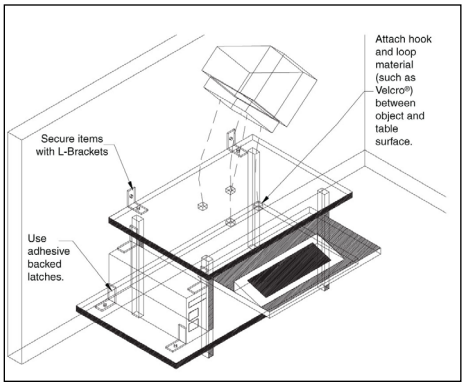


Image courtesy of the Institute for Business & Home Safety (IBHS).

Computers can easily be secured to prevent any damage or injury in the event of an earthquake.

Photo by Lindsey Athanitis, Outreach Process Parnerst

Use easy museum/tack putty to secure fragile objects on tables and shelves.

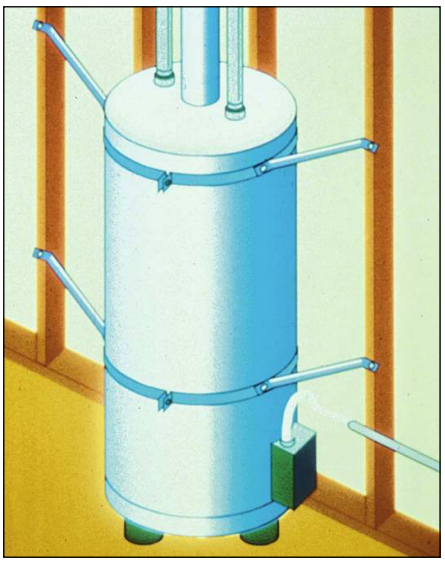


Illustration by Mike Griffin

Securing water heaters is a easy-to-do yet essential step to mitigating your earthquake risks.

Step 3: Take Action

- **Host an Information Fair:** If you are a small business, team up with neighboring businesses or your Chamber of Commerce to have an information fair on earthquake mitigation. If you are a large business, consider inviting outside organizations to showcase information on mitigation and preparedness such as the American Red Cross, local police and fire departments, mitigation supply companies, hospitals, etc.

- **Create a Contest:** Once employees are aware of earthquake mitigation, create a contest where employees can take QuakeSmart action at home. Have them take pictures of their efforts and share them with your QuakeSmart Champion. The employee with the most efforts could be given non-financial incentives such as certificates of achievements, public recognition, or an award for outstanding QuakeSmart achievement. These pictures could be shared on your company website, newsletter, emailed to clients or stakeholders, and shared with local media.

- **Review and Reward Progress:** Following the campaign, consider quarterly reminders or having your QuakeSmart Champion follow-up with employees about their mitigation efforts. Consistency and repetition will encourage continued action.

- **Make it a Tradition:** Use the results of the campaign to revise it for the following year. Consider the following questions for a follow-up campaign - What communication tools worked well? How can you keep the message fresh? Are there new avenues to QuakeSmart? Have your Champion check *FEMA.gov/quakesmart* for updated materials.

Source: FEMA 479

Presentations of earthquake risk information can be made more effective through the use of maps and other visual aids designed to address the specific needs and interests of individual decision-makers.

Source: FEMA 479

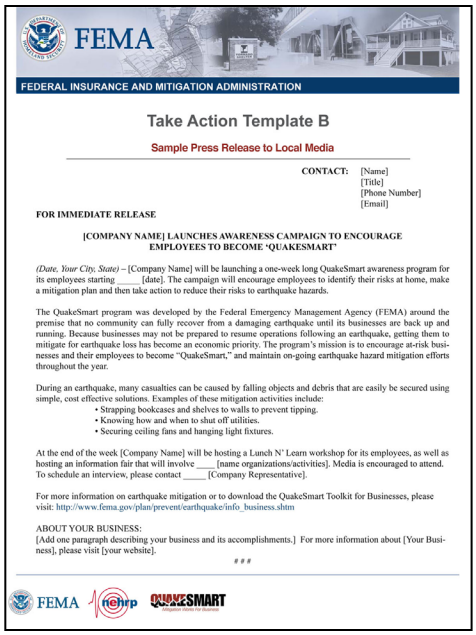
It may be helpful to arrange formal meetings with your experts to ensure that their knowledge, communications skills, and enthusiasm are adequate to help you obtain the support of key professional groups.

4. Alert the Media

Informing the media about your awareness campaign can boost your business' reputation as well as encourage the rest of community to take QuakeSmart action. If you host an information fair, consider inviting a local TV, radio, or newspaper reporters to cover the event. Use *Template B* as a guide for press release format.

5. Utilize Social Media Outlets

If your company uses Facebook, Twitter, LinkedIn or other social media to communicate, showcasing your QuakeSmart campaign can deliver fresh and interesting content. Provide continual updates highlighting any of the actions mentioned above in Section 3. Recognize an employee or even provide updates about your company's mitigation efforts. Perhaps assign the social media role to your QuakeSmart Champion during the week-long campaign.



FEMA

FEDERAL INSURANCE AND MITIGATION ADMINISTRATION

Take Action Template B

Sample Press Release to Local Media

CONTACT: [Name]
[Title]
[Phone Number]
[Email]

FOR IMMEDIATE RELEASE

[COMPANY NAME] LAUNCHES AWARENESS CAMPAIGN TO ENCOURAGE EMPLOYEES TO BECOME 'QUAKESMART'

(Date, Your City, State) – [Company Name] will be launching a one-week long QuakeSmart awareness program for its employees starting _____ [date]. The campaign will encourage employees to identify their risks at home, make a mitigation plan and then take action to reduce their risks to earthquake hazards.

The QuakeSmart program was developed by the Federal Emergency Management Agency (FEMA) around the premise that no community can fully recover from a damaging earthquake until its businesses are back up and running. Because businesses may not be prepared to resume operations following an earthquake, getting them to mitigate for earthquake loss has become an economic priority. The program's mission is to encourage at-risk businesses and their employees to become "QuakeSmart," and maintain on-going earthquake hazard mitigation efforts throughout the year.

During an earthquake, many casualties can be caused by falling objects and debris that are easily be secured using simple, cost effective solutions. Examples of these mitigation activities include:

- Strapping bookcases and shelves to walls to prevent tipping.
- Knowing how and when to shut off utilities.
- Securing ceiling fans and hanging light fixtures.

At the end of the week [Company Name] will be hosting a Lunch N' Learn workshop for its employees, as well as hosting an information fair that will involve ____ [name organizations/activities]. Media is encouraged to attend. To schedule an interview, please contact _____ [Company Representative].

For more information on earthquake mitigation or to download the QuakeSmart Toolkit for Businesses, please visit: http://www.fema.gov/plan/prevent/earthquake/info_business.shtm

ABOUT YOUR BUSINESS:
[Add one paragraph describing your business and its accomplishments.] For more information about [Your Business], please visit [your website].

###

FEMA nehrp QUAKESMART

Take Action Template B is available in the QuakeSmart Toolkit for businesses to modify and distrubute their own press releases.

Step 3: Take Action

How to Build Partnerships within Your Community

Local businesses and communities depend on each other to prepare for disasters and reduce potential losses of life and property. Hazard mitigation partnerships generate knowledge, solve problems, and aid in planning. Examples of collaboration through partnerships include:

- Developing mitigation project plans;
- Sharing expertise and access to specialized tools, such as geographic information systems (GIS);
- Conducting risk assessments of exposures and vulnerabilities;
- Providing architectural and engineering assistance;
- Streamlining the permit and approval processes;
- Conducting community surveys;
- Hosting mitigation symposiums, business preparedness meetings, and professional retrofit seminars;
- Conducting marketing activities, cooperative extension activities, and awareness seminars.

Ideas for Partnerships

Choose or consider the kind of partnership mentioned on the right and then apply any of the ideas below:

- Host a QuakeSmart Lunch 'n Learn or workshop on business mitigtion. Use the QuakeSmart Business Toolkit for guidance, and present the available QuakeSmart videos to your audience.
- Create an Earthquake Alliance, either within your company or with other key businesses that may include a hospital, bank, local government officials, fire/police departments, retailers including hardware, grocery, and clothing, etc. Together, discuss how an earthquake can impact an entire community and how business mitigation can reduce their risks. (For a successful alliance case study, refer to the *Earthquake Country Alliance*, based in California.)
- Use locally recognized events such as an earthquake preparedness month, State ShakeOut campaign, and/or national events such as National Preparedness Month, Fire Safety Month or Building Safety Month to kick off your events. The media is more likely to cover your event due to the heightened awareness during these months, which may help boost attendance.

Please refer to ***How to Organize an Employee Awareness Campaign*** in the QuakeSmart Toolkit. The awareness campaign can be applied to any of your audience groups below.

Internal Partnerships

- Franchises
- Subsidiaries
- Suppliers
- Subcontractors
- Employees

External Partnerships

- Chambers of Commerce
- Non-profit Organizations
- Local Government and Emergency Management
- Local or State engineering or architectural associations
- State Hazard Mitigation Officers
- Local Tribal Governments
- Media
- Local and Regional Earthquake Organizations:
  - *Cascadia Region Earthquake Workgroup (CREW)*
  - *Northeast States Emergency Consortium (NESEC)*
  - *Western States Seismic Policy Council (WSSPC)*
  - *Earthquake Country Alliance (ECA)*

Step 3: Take Action

Ideas for Partnerships (continued...)

- Depending on your location, you may work with State or regional earthquake program managers, regional earthquake consortia, seismic safety commissions, committees, and councils, and other FEMA earthquake partners. For contact information of more than 300 organizations and individuals involved in earthquake mitigation at the federal and state levels and in the non-governmental sector, visit the *Directory of FEMA Earthquake Partners*.

- Work with local Boy Scouts, Girl Scouts or your local school district to encourage children to spread the word. Children are some of the best messengers when it comes to mitigation, safety and preparedness.

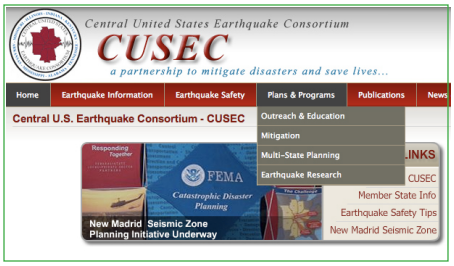
- Use free communication networks: newsletters, website headers, and public service announcements.

- Survey area businesses and assess the costs associated with earthquake mitigation versus potential damage. Present the information gathered to partner stakeholders.

- Ask partners to designate a Business Mitigation and Earthquake Awareness Day.

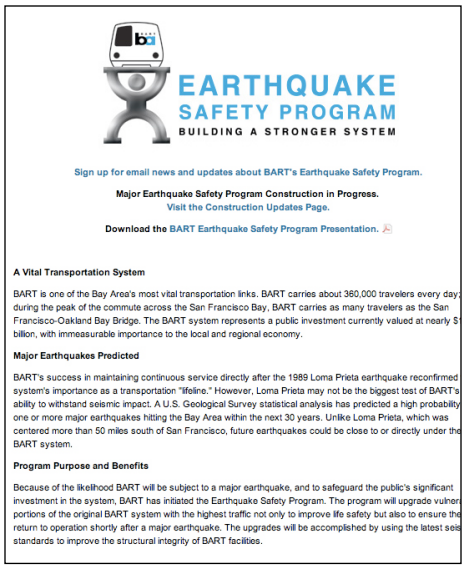
- Post your accomplishments and initiatives on your company's website so others, including prospective community investors, know what your partnership is doing to protect their business investments and build a sustainable community. Also consider social media as an outreach channel.

- Work with community officials to encourage strong mitigation and emergency response planning at local and state levels and advocate for improvements to public infrastructure including communications, transportation, and utilities.



Source: http://www.cusec.org

Regional Earthquake Consortia, such as the Central United States Earthquake Consortium (CUSEC), can offer additional information and resources for mitigation partnerships or programs. The QuakeSmart Toolkit also offers a list of Valuable Websites and Other Resources.



Source: http://www.bart.gov

San Francisco Bay Area Rapid Transit (BART) System posts updates on their website about the "Earthquake Safety Program" and current construction in progress.

Step 3: Take Action

How to Celebrate Success

If you have taken the proper steps of being QuakeSmart by *identifying your risk, making a plan,* and *taking action*, then now is the time to celebrate your mitigation success story. By informing your community on how you have mitigated, you can encourage others to do the same. Creating a resilient business ultimately creates a resilient community. Sharing your success story not only informs the public on how to reduce their hazards, but it also can simultaneously promote your business and its services.

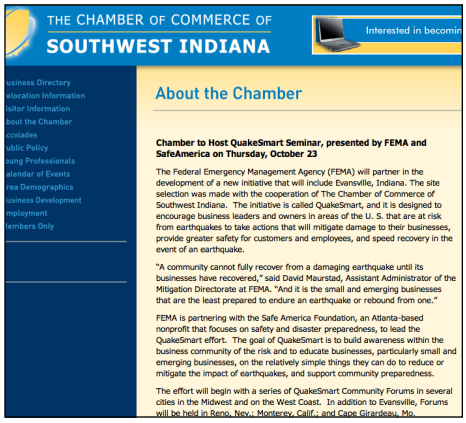
Before releasing your mitigation success story, it's important to organize your outreach plan and consider the following:

Photo by Justin Malko

Barry Pascal, retired owner of Northridge Pharmacy, encourages members of the Encino Chamber of Commerce to mitigate their businesses.

1. Your Audience

- Employees
- Customers
- Other Businesses/Business Groups
- Surrounding Communities
- Tribal Communities/Governments
- Community/Government Officials
- Chambers of Commerce
- Local Media



THE CHAMBER OF COMMERCE OF
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About the Chamber

Chamber to Host QuakeSmart Seminar, presented by FEMA and SafeAmerica on Thursday, October 23

The Federal Emergency Management Agency (FEMA) will partner in the development of a new initiative that will include Evansville, Indiana. The site selection was made with the cooperation of The Chamber of Commerce of Southwest Indiana. The initiative is called QuakeSmart, and it is designed to encourage business leaders and owners in areas of the U. S. that are at risk from earthquakes to take actions that will mitigate damage to their businesses, provide greater safety for customers and employees, and speed recovery in the event of an earthquake.

"A community cannot fully recover from a damaging earthquake until its businesses have recovered," said David Maurstad, Assistant Administrator of the Mitigation Directorate at FEMA. "And it is the small and emerging businesses that are the least prepared to endure an earthquake or rebound from one."

FEMA is partnering with the Safe America Foundation, an Atlanta-based nonprofit that focuses on safety and disaster preparedness, to lead the QuakeSmart effort. The goal of QuakeSmart is to build awareness within the business community of the risk and to educate businesses, particularly small and emerging businesses, on the relatively simple things they can do to reduce or mitigate the impact of earthquakes, and support community preparedness.

The effort will begin with a series of QuakeSmart Community Forums in several cities in the Midwest and on the West Coast. In addition to Evansville, Forums will be held in Reno, Nev.; Monterey, Calif.; and Cape Girardeau, Mo.

Source: http://www.evansvillechamber.com

In 2008, the Evansville Chamber of Commerce held a QuakeSmart forumfor its members. The event resulted in over 100 members in attendance and received exceptional media coverage in television and print.

2. Key Messages

- "We are all in this together!"
- "Mitigation makes communities more resilient to disasters."
- "The costs of mitigation are more than worth it. On average, every dollar spent on hazard mitigation provides $4 in future benefits."
- "A business toolkit on earthquake mitigation is now available on *FEMA.gov*."

3. Partnerships

- The more parties involved in mitigating risks in the community, the more media friendly your story becomes.
- Partnering with your FEMA Regional Office, local or State emergency management agencies and other disaster related government officials would be a good first step to getting the message out.

Source: FEMA QuakeSmart Trianing Video

Documenting your mitigation actions will encourage media coverage.

4. Become a Leader

If no one else in the community is taking charge, think of being the mitigation mentor and champion in your community.

Step 3: Take Action

5. Document Your Mitigation

Pictures are worth a thousand words. Video and/or photography of your mitigation will encourage television news programs, blogs and social media sites to cover your story.

6. Draft Talking Points

Talking points are one or two-sentence statements that highlight your key messages, which summarize your story and guide public speakers. Talking points are often used as sound bites (especially with radio or television). See *Template C* for an example.

7. Write Press Materials

- Press releases are used to pitch news media on covering your story. They are generally summaries written in a journalist-friendly format. See *Template D* for an example.

- Media Alerts or Media Advisories are created to announce an event to the broadcast media (radio or television). See *Template E* for an example.

8. Utilize Social Media Outlets

If your company uses Facebook, Twitter, LinkedIn or other social media channels to communicate, showcasing your QuakeSmart efforts can deliver fresh and interesting content. Provide continual updates highlighting any of your mitigation actions, or recognize an employee who may have done the same at home. Perhaps assign the social media role to a QuakeSmart Champion during the one-week campaign.

9. Publicize Your Employee Awareness Campaign

(See *How to Organize an Employee Awareness Campaign* on page 1.)

10. Determine the Best Outlets for Your Mitigation Story

An effective place to share your mitigation story is on the *FEMA Mitigation Best Practices Portfolio* online. The portfolio hosts a catalog of mitigation best practices and case studies from FEMA representatives and businesses across the country. With a sample best practice and an easy-to-use online submission form, the FEMA Mitigation Best Practices Portfolio is the most effective way to share your story with other businesses and communities looking to reduce their disaster risk.

Here are some recommended outlets to share your story:

- State, local and Tribal governments
- News Media
  Local newspapers, blogs, radio programs, television news programs, and industry trade magazines – See media pitching tips on the next page
- Business groups
  Chambers of Commerce, business groups, tourism committees and economic development councils
- Social Media sites
  Facebook, Twitter, YouTube, Google+, Flickr, LinkedIn, Reddit, Digg, StumbleUpon and others
- Service organizations
  American Red Cross, Salvation Army, Rotary, Kiwanis, Masons and scouting organizations
- Social organizations
  Church organizations, neighborhood associations and fire/police department auxiliaries
- Professional associations
  Emergency managers, bankers, realtors, insurance professionals, floodplain managers,contractors, engineers, firefighters and peace officers
- Trade shows/Business fairs
- Local or special events

Step 3: Take Action

11. Pitching Your Story to the News Media

No matter what size project you've undertaken, you may want to contact the media. Here are some tips to consider when contacting the media:

- Make sure you're contacting the appropriate journalist by researching their previous stories. A Google search can provide very useful information on the media contact's previous stories and sometimes offers their direct contact information.

- Figure out your "hook"—what you're going to say to get them interested in the story.

- When speaking with the media use your hook to quickly tell the story. Feel free to engage in conversation and make suggestions, but leave them to decide how they want to use your information. Be able to provide information that can help them write the story—press materials, contact names and phone numbers, etc.

- It is also essential to ask a media contact some or all of these questions:

  - Are you currently on deadline? If so, ask when would be a better time to contact them.
  - Is "our story" something you would generally cover? If not, could you suggest another contact within your organization who might be interested?
  - Do you have any related story deadlines coming up?
  - Who makes the final decision to cover a story?
  - Do you have an editorial calendar?
  - When would be a good time to follow up with you again?

- If you haven't received a response after a few days, following up via email or phone is recommended.

Source: FEMA 479

Be prepared to take advantage of opportunities afforded by the media, especially in post-event situations, to present earthquake hazard information and promote seismic safety programs and risk reduction activities that will lessen the affects of future earthquakes.

Source: http://www.istockphoto.com

Following up with the media via phone or email after the initial contact improves your chances of getting coverage.

Step 3: Take Action

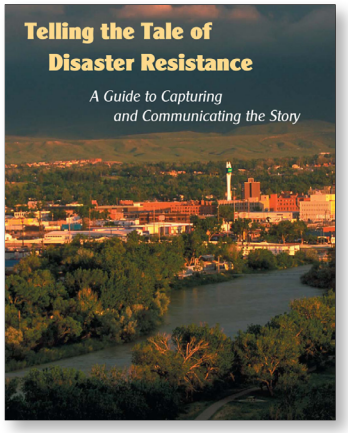
12. Other Events to Celebrate Your Success

- Press events at the site of an earthquake mitigation project.
- Sponsoring a booth at a county or state fair. Hand out copies of your story and other earthquake mitigation materials.
- Adapt your story to a school-age audience—then tell the tale to a classroom of children.
- Partner with hardware or home improvement stores on a how-to workshop of earthquake mitigation ideas.
- Get an earthquake mitigation proclamation from local or state officials—use your story with the proclamation to convey the message.
- Launch a "Safe Business" campaign to encourage earthquake mitigation action within business communities.
- Encourage fire service agencies to incorporate earthquake mitigation into their public-education campaigns.
- Launch a community effort to preserve historical properties by using earthquake mitigation measures.
- Use your stories in conjunction with special campaigns or events—e.g., "Severe Weather Awareness Week," "Fire Prevention Week," "Safe Kids Week," etc.

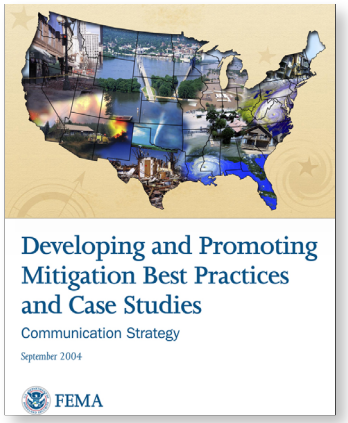
For additional resources to help communicate your story and develop mitigation best practices, visit *Telling the Tale of Disaster Resistance: A Guide to Capturing and Communicating the Story* and *Developing and Promoting Mitigation Best Practices and Case Studies: Communication Strategy Toolkit*.

Photo by Justin Malko

The Los Angeles Fire Department attending a QuakeSmart event in Encino, CA.



Telling the Tale of Disaster Resistance: A Guide to Capturing and Communicating the Story provides some of the "best practices" of those who have promoted disaster-resistance efforts throughout the country.



Developing and Promoting Mitigation Best Practices and Case Studies: Communication Strategy Toolkit shows how to communicate mitigation ideas, expertise and resources to lessen the impact of disasters, and show that mitigation is both effective and affordable.

Take Action Templates

TEMPLATE A: Sample Email or Memorandum to Employees

Dear Employees:

As you know, we work and live within an active seismic zone and earthquakes are a potential threat to your safety at work, and at home. Therefore, we are launching a week-long QuakeSmart awareness program, which will help you identify your risks, make a plan, and take action. Each day, we will provide you with helpful tips on how to mitigate hazards and how to better secure your home and its contents. At the end of this week, we invite you to attend a _____ [name event] so that knowledgeable officials can answer questions you may have.

For more information on earthquake mitigation or to download the QuakeSmart Toolkit for Businesses, please visit: http://www.fema.gov/quakesmart.

Earthquakes can happen at any time. We [Company Name] care about the safety of you and your family, and we hope you find the QuakeSmart information helpful and beneficial.

Sincerely,

[Company Official]

Take Action Templates

TEMPLATE B: Sample Press Release to Local Media

CONTACT: [Name]
[Title]
[Phone Number]
[Email]

FOR IMMEDIATE RELEASE

[COMPANY NAME] LAUNCHES AWARENESS CAMPAIGN TO ENCOURAGE EMPLOYEES TO BECOME 'QUAKESMART'

(Date, Your City, State) – [Company Name] will be launching a week long QuakeSmart awareness program for its employees starting _____ [date]. The campaign will encourage employees to identify their risks at home, make a mitigation plan and then take action to reduce their risks to earthquake hazards.

The QuakeSmart program was developed by the Federal Emergency Management Agency (FEMA) around the premise that no community can fully recover from a damaging earthquake until its businesses are back up and running. Because businesses may not be prepared to resume operations following an earthquake, getting them to mitigate for earthquake loss has become an economic priority. The program's mission is to encourage at-risk businesses and their employees to become "QuakeSmart," and maintain on-going earthquake hazard mitigation efforts throughout the year.

During an earthquake, many casualties can be caused by falling objects and debris that are easily be secured using simple, cost effective solutions. Examples of these mitigation activities include:

- Strapping bookcases and shelves to walls to prevent tipping;
- Knowing how and when to shut off utilities;
- Securing ceiling fans and hanging light fixtures.

At the end of the week [Company Name] will be hosting a Lunch N' Learn workshop for its employees, as well as hosting an information fair that will involve _____ [name organizations/activities]. Media is encouraged to attend. To schedule an interview, please contact _____ [Company Representative].

For more information on earthquake mitigation or to download the QuakeSmart Toolkit for Businesses, please visit: http://www.fema.gov/quakesmart.

ABOUT YOUR BUSINESS:
[Add one paragraph describing your business and its accomplishments.] For more information about [Your Business], please visit [your website].

# # #

Take Action Templates

TEMPLATE C: Sample Talking Points

- Based on the USGS seismic hazard map, our local community is located in an earthquake risk area.
- As you know, our community has suffered _____ major earthquakes in the past __ years.
- Each major earthquake has cost our community _____of dollars in damages, injuries and lost revenue.
- [Insert language on how this business is specifically committed to ensuring the safety of their business operations, their employees, and customers by _____].
- To build a resilient community, all businesses need to share their best practices and resources for earthquake mitigation.
- Future earthquake damages can be reduced and potentially avoided by following the QuakeSmart three-step process of earthquake mitigation:
    - o Identify your risk
    - o Make a plan
    - o Take action
- For help with earthquake mitigation, visit FEMA.gov and download the QuakeSmart earthquake mitigation toolkit for businesses.

TEMPLATE D: Sample Press Release

CONTACT: [Name]
[Title]
[Phone Number]
[Email]

FOR IMMEDIATE RELEASE

[COMPANY NAME] LAUNCHES AWARENESS CAMPAIGN FOR [COMMUNITY] TO BECOME 'QUAKESMART'

(*Date, Your City, State*) – After completing an earthquake mitigation program, [Company Name] is initiating a week-long QuakeSmart awareness program for all [local area/town/city] community businesses starting _____ [date]. The campaign will encourage local businesses to identify their risks at home, make a mitigation plan and then take action to reduce their risk to earthquake hazards.

The QuakeSmart program was developed by the Federal Emergency Management Agency (FEMA) around the premise that no community can fully recover from a damaging earthquake until its businesses are back up and running. Because businesses may not be prepared to resume operations following an earthquake, getting them to mitigate for earthquake loss has become an economic priority. The program's mission is to encourage at-risk businesses and their employees to become "QuakeSmart," and maintain on-going earthquake hazard mitigation efforts throughout the year.

During an earthquake, most injury and death is caused from falling objects and debris that can easily be secured using simple, cost effective solutions. Examples of these mitigation activities include:

- Strapping file cabinets, bookcases and shelves to walls to prevent tipping.
- Knowing how and when to shut off utilities.
- Securing ceiling fans, hanging light fixtures and computers.

At the end of the week [Company Name] will be hosting a Lunch 'n Learn workshop for other local business owners, as well as hosting an information fair that will involve [name organizations/activities]. Media is encouraged to attend. To schedule an interview, please contact [company representative].

For more information on earthquake mitigation for businesses or homeowners, please visit: http://www.fema.gov/quakesmart.

ABOUT YOUR BUSINESS:
[Add one paragraph describing your business and its accomplishments.] For more information about [Your Business], please visit [your website].

# # #

Take Action Templates

TEMPLATE E: Sample Media Alert/Advisory for Broadcast Media

(For Large Event Only)

*******MEDIA ALERT*******

[Insert Business Name(s)] Host(s) Information Fair on Earthquake Mitigation for the Community
Local Businesses, Community Leaders and Citizens Encouraged to be 'QuakeSmart' at Educational Event

WHEN: [Insert day], [insert date], [insert time],

WHERE: [Insert location]

WHAT: [Insert eye-catching activities and sights, such as the following:]

- Community and business leaders from [insert town(s)] demonstrating possible earthquake damages and ways to mitigate their risk.
- A variety of speakers including the Mayor, Police Chief, Fire Chief, Local Emergency Manager, Geologist [insert name] and other disaster experts.
- Over [insert number] school children participating in a variety of fun yet educational activities related to earthquake mitigation.

INTERVIEW AND PHOTO OPPORTUNITIES:

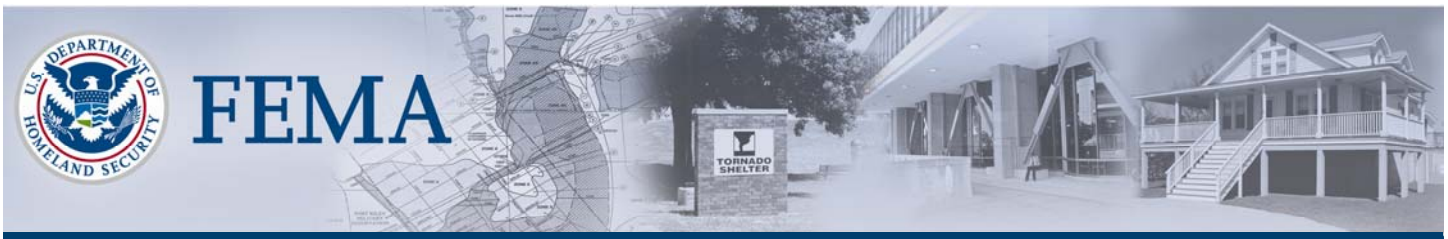
[Insert spokespeople]
[Insert community/public leaders/local celebrity]
[Insert examples of active photo opportunities that will be available]

FOR MORE INFORMATION:

[Insert contact name, email, phone]

ABOUT YOUR BUSINESS:

One paragraph describing your business and its accomplishments. For more information about [Your Business], please visit [your website].



Other FEMA Earthquake Publications

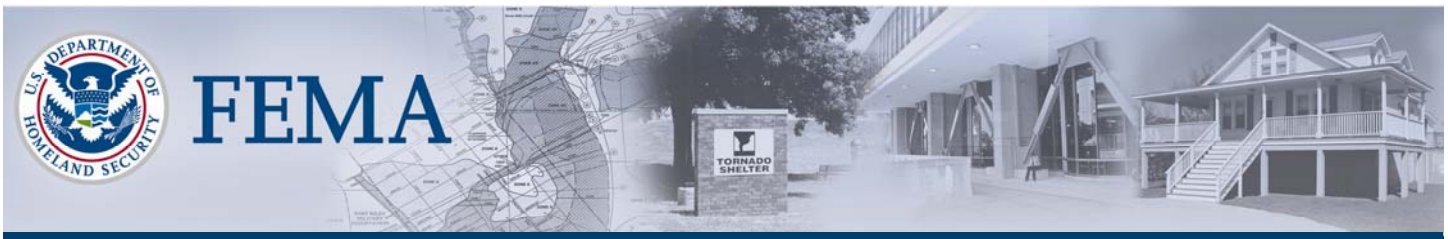
The following publications are intended to guide businesses during the earthquake mitigation process. Each title is hyperlinked to its location on the FEMA website. All FEMA publications can be ordered from the FEMA Distribution Center via phone (800-480-2520), fax (240-699-0525) or E-mail (FEMA-Publications-Warehouse@dhs.gov). Please provide the title, item number and quantity of each publication, along with your name, address, zip code, and daytime telephone number when ordering. FEMA publications can also be downloaded from the FEMA Library.

To see the full list of FEMA's earthquake publications or for more information, please click on the following link: *http://www.fema.gov/plan/prevent/earthquake/pubindex.shtm*.

FEMA Publications Title	Item Number
SCHOOL BUILDINGS	
Design Guide for Improving School Safety in Earthquakes, Floods, and High Winds	FEMA 424
Incremental Seismic Rehabilitation of School Buildings (K-12)	FEMA 395
RETAIL BUILDINGS	
Incremental Seismic Rehabilitation of Retail Buildings	FEMA 399
Seismic Considerations for Steel Storage Racks Located in Areas Accessible to the Public	FEMA 460
HOSPITAL BUILDINGS	
Incremental Seismic Rehabilitation of Hospital Buildings	FEMA 396
Design Guide for Improving Hospital Safety in Earthquakes, Floods, and High Winds	FEMA 577
HOTEL/MOTEL BUILDINGS	
Incremental Seismic Rehabilitation of Hotel/Motel Buildings	FEMA 400
MULTIFAMILY APARTMENT BUILDINGS	
Incremental Seismic Rehabilitation of Multifamily Apartment Buildings	FEMA 398
OFFICE BUILDINGS	
Incremental Seismic Rehabilitation of Office Buildings	FEMA 397

Other FEMA Earthquake Publications

FEMA Publications Title	Item Number
ALL BUILDINGS	
Catalog of FEMA Earthquake Resources	FEMA P-736A
Earthquake-Resistant Design Concepts: An Introduction to the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures	FEMA P-749
Communicating with Owners and Managers of New Buildings on Earthquake Risk: A Primer for Design Professionals	FEMA 389
Creating a Seismic Safety Advisory Board: A Guide to Earthquake Risk Management	FEMA 266
Homebuilders' Guide to Earthquake-Resistant Design and Construction	FEMA 232
Installing Seismic Restraints for Duct and Pipe	FEMA 414
Installing Seismic Restraints for Electrical Equipment	FEMA 413
Installing Seismic Restraints for Mechanical Equipment	FEMA 412
Planning for Seismic Rehabilitation: Societal Issues	FEMA 275
Promoting Seismic Safety: Guidance for Advocates	FEMA 474
Rapid Visual Screening of Buildings for Potential Seismic Hazards: A Handbook. Second Edition	FEMA 154
Reducing the Risks of Nonstructural Earthquake Damage: A Practical Guide. Third Edition	FEMA E-74
Seismic Considerations for Communities at Risk	FEMA 83
Unreinforced Masonry Buildings and Earthquakes: Developing Successful Risk Reduction Programs	FEMA P-774



QuakeSmart Business Toolkit

Recommended FEMA Earthquake Mitigation Training

Course: Earthquake Basics — Science, Risk, and Mitigation

http://training.fema.gov/EMI/ - Type the course title in the search bar on the top right of the page.

This 30 minute independent study course presents basic information on earthquake science, risk, and mitigation. It also discusses techniques for structural and non-structural earthquake mitigation. Earthquake Basics is targeted to a wide range of audiences, including homeowners, business owners, the private sector, federal, state, tribal and local government workforce at all levels, first responders, non-profit organizations, volunteers, and community-based organizations. A FEMA certificate will be given to those who successfully complete the post course test. This training resides on the FEMA Emergency Management Institute (EMI) website.

Course: Train-the-Trainer — Home and Business Earthquake Safety Training

http://www.fema.gov/earthquake-training/national-earthquake-technical-assistance-program

This is an in-person training program for structural and nonstructural earthquake mitigation. The intended audience for the end result training is non-technical, including homeowners and business owners. For the Train the Trainer delivery, the audience is emergency managers, first responders, or others who are interested in leading a presentation on this topic. It is assumed that the trainers will be somewhat knowledgeable about earthquake safety, but they may or may not have led presentations on the subject previously.

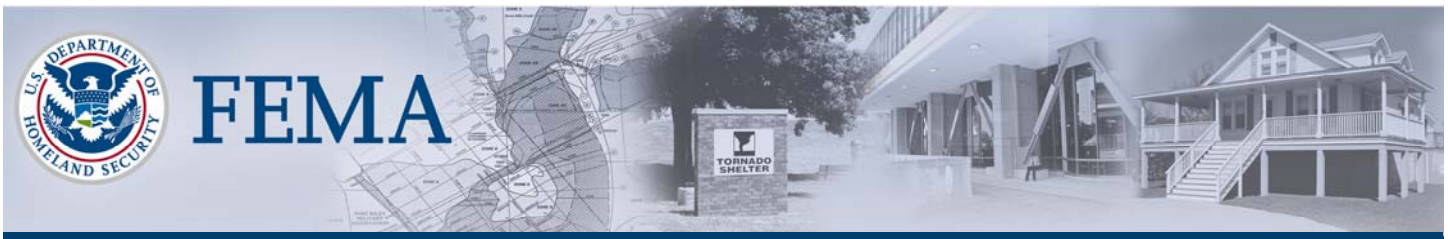
The format for the Train the Trainer (TTT) will be in-person live training. A 45-minute live seminar will be held to train people how to deliver this training to others in the future. The first 10-15 minutes of the session will be dedicated to teaching people how to organize, plan, recruit, and deliver a training seminar. Handout slides will be provided for future reference. The next 30 minutes of the session will be a delivery of the actual presentation. This will allow the future trainers to see the live session and understand first-hand how the delivery should be conducted. A Q&A session (5 – 10 minutes) will be included at the end of the training. A quiz (with answers) is also incorporated so that the trainers are judged on their basic knowledge of the material prior to delivering the end result training.

The end result training will be delivered by people who have attended the TTT session. A full PowerPoint slide presentation with basic speaker notes will be provided for the trainers. The end result training will be 30 minutes, and it is intended to be in-person, live training. Since the audience will be non-technical lay people who are attending out of a general desire to learn (rather than having a specific need or requirement for attending), this training will be interactive, visually engaging, and useful. This training might be similar to learning/training seminars delivered by The Home Depot and other retailers that provide basic knowledge to interested home and business owners. The intent is that the seminar attendees will become more knowledgeable and will take steps toward earthquake mitigation in their homes and small businesses.

Other Potential Training for Businesses

Through partnership with local and State government and organizations, businesses may be able to request directly and/or indirectly for earthquake mitigation training via the National Earthquake Technical Assistance Program. For more information, visit: *http://www.fema.gov/national-earthquake-hazards-reduction-program*.

For a complete listing of FEMA earthquake-related training visit page 23 of the FEMA P-736 Catalog of FEMA Earthquake Resources at *http://www.fema.gov/library/viewRecord.do?id=3538*.



Valuable Websites and Other Resources

FEMA Resources

FEMA Earthquake Information/QuakeSmart Toolkit
http://www.fema.gov/earthquake-publications/quakesmart-toolkit-table-contents
http://www.fema.gov/quakesmart

The National Earthquake Hazards Reduction Program
http://www.fema.gov/national-earthquake-hazards-reduction-program
http://www.nehrp.gov

Ready.gov Business
http://www.ready.gov/business

Mitigation Best Practices Search
http://www.fema.gov/mitigationbp/index.jsp

Index of Earthquake Publications
http://www.fema.gov/plan/prevent/earthquake/pubindex.shtm

Earthquake Publications for Individuals and Homeowners
http://www.fema.gov/library/viewRecord.do?id=3551

FEMA Library
http://www.fema.gov/library/index.jsp

The FEMA Library is a searchable web-based collection of all publicly accessible FEMA information resources, including: CDs, DVDs, VHS tapes, audio tapes, disability resources, posters and display items, brochures, publications, guidance and policy papers, program regulations and guidelines, forms, slide presentations, and some documents.

Relevant Emergency Management Links for Businesses

State/Local Emergency Management Agency Contact Information
http://www.fema.gov/plan/prevent/earthquake/state_contacts.shtm

National Emergency Management Association (NEMA)
http://www.nemaweb.org

U.S. Chamber of Commerce
http://www.uschamber.com

Valuable Websites and Other Resources

Other Technical and Earthquake Resources

Applied Technology Council
http://atcouncil.org

Building Seismic Safety Council
http://www.nibs.org/index.php/bssc

California Emergency Management Agency
http://www.oes.ca.gov

California Earthquake Country Alliance
http://earthquakecountry.info/alliance

California Institute of Technology Earthquake Research Affiliates
http://www.caltech-era.org

Cascadia Region Earthquake Workgroup (CREW)
http://crew.org

Central United States Earthquake Consortium (CUSEC)
http://cusec.org

Earthquake Engineering Research Institute
http://www.eeri.org

Federal Alliance for Safe Homes (FLASH)
http://www.flash.org

Institute for Business and Home Safety (IBHS)
http://www.disastersafety.org

MCEER
http://mceer.buffalo.edu

Mid-America Earthquake Center
http://mae.cee.illlinois.edu

National Council of Structural Engineers Associations
http://www.ncsea.com

Northeast States Emergency Consortium
http://www.nesec.org

Pacific Earthquake Engineering Research Center
http://peer.berkeley.edu

ShakeOut.org
http://www.shakeout.org

Structural Engineers Association of California
http://www.seaoc.org

Southern California Earthquake Center (SCEC)
http://www.scec.org

University of Memphis Center for Earthquake Research and Information
http://www.ceri.memphis.edu

USGS Earthquake Hazards Program
http://earthquake.usgs.gov

Western States Seismic Policy Council
http://www.wsspc.org

Reviewers and Contributors

Federal Emergency Management Agency

Ed Laatsch, Building Science Branch/NEHRP Chief

Mike Mahoney, NEHRP, Geophysicist

Claudette Fetterman, NEHRP, Senior Program Specialist

Wendy Phillips, NEHRP, Senior Program Specialist

Sue Evers, NEHRP, Region VII

Jennifer Lynette, NEHRP, Region IX

Tamra Biasco, NEHRP, Region X

David Javier, Mitigation Outreach & Communication Section, Program Specialist

Ebony Turner, Private Sector Office, Program Specialist

John Mohan, FIMA External Affairs Liaison

FEMA Contract Support

Tom McLane, Applied Technology Council, Director of Business Development

Lindsey Athanitis, Outreach Process Partners, Vice President

Darin Tambascio, Outreach Process Partners, Outreach Manager

Non-Profit and Private Sector Organizations

Ed Fratto, Northeast States Emergency Consortium (NSEC), Executive Director

NESEC is a 501(c) (3) not for profit all-hazards emergency management organization, located in Wakefield, Massachusetts. Established in 1991, NESEC is the only all-hazard state consortium in the nation lead exclusively by State Directors of Emergency Management and is supported and funded by DHS/FEMA. The organization develops, promotes, and coordinates comprehensive "all-hazards" emergency management activities throughout the Northeast and partners with federal, state and local governments, and private organizations to reduce losses of life and property when the next disaster strikes the Northeast.

Jim Wilkinson, Central U.S. Earthquake Consortium (CUSEC), Executive Director

CUSEC's mission is to reduce deaths, injuries, property damage and economic losses resulting from earthquakes in the Central U.S. The organization's primary objective is to serve as the "coordinating hub" for the region and provide dynamic support to multi-state response and recovery planning, resource acquisition; public education and awareness; promotion; mitigation, and research associated with earthquake preparedness. CUSEC Member States are those most vulnerable to the effects of earthquakes in the region and include Alabama, Arkansas, Illinois, Indiana, Kentucky, Mississippi, Missouri, and Tennessee.

Cale Ash, Vice President, Tim Walsh, Treasurer, Cascadia Regional Earthquake Work Group

CREW is a coalition of private and public representatives working together to improve the ability of communities throughout the Cascadia Region to reduce the effects of earthquakes and related hazards, such as tsunami.

Reviewers and Contributors

Zoe Boyer, Project Manager, Leslie Chapman-Henderson, President/CEO, Trenise Lyons, Project Manager, Bruce McCullen, Small Business Owner, Aveda Salons and FLASH Partner, Federal Alliance for Safe Homes (FLASH)

FLASH is a non-profit, 501(c) (3) organization dedicated to promoting disaster safety and property loss mitigation. They represent and partner with like-minded organizations from the public, private and non-profit sector; to demonstrate leadership through creation of useful and reliable disaster safety education programs; and to sponsor ongoing outreach initiatives to encourage citizens to build, buy and use buildings that are constructed or retrofitted with disaster safety in mind.

Debra Ballen, General Counsel and Senior Vice President for Public Policy, Candace Iskowitz, Director of Public Affairs, Diana McClure, Business Resiliency Manager, Brenda O'Connor, Senior Vice President of Public Affairs, Institute for Business and Home Safety (IBHS)

IBHS' mission to conduct objective, scientific research to identify and promote effective actions that strengthen homes, businesses, and communities against natural disasters and other causes of loss. Its members are insurers and reinsurers that conduct business in the United States or reinsure risks located in the United States. Affiliate membership is open to brokers, managing general agents and independent agents. Associate membership is open to all others who support our mission.

Patti Sutch, Western Seismic State Policy Council (WSSPC), Executive Director

WSSPC is a regional earthquake consortium in the western states organized as a 501(c) (3) non-profit organization and is funded by DHS/FEMA and the U.S. Geological Survey. Headquartered in Sacramento, California, members are the State Geological Survey and Emergency Management Directors of 13 western states, 3 U.S. territories, a Canadian territory and a Canadian province, and liaisons to 7 western state seismic safety councils and commissions.

Doug Selby, Big Lots, CFI, Store Safety and District Loss Prevention Manager

From everyday consumables and housewares to toys and seasonal goods, Big Lots offers amazing values that other stores just can't match. As the nation's largest broadline closeout retailer, we have the buying power to find and negotiate the best deals in the business.

Ines Pearce, Pearce Global Partners Inc. (PGP), Chief Executive *

PGP is a premier firm providing government, businesses, and communities with comprehensive planning, training, and education to help reduce the potential for devastating loss of life and property resulting from natural and human-caused disasters. PGP specializes in public-private partnerships (PPP) and our approach is all-hazards.

Kate Long, California Emergency Management Agency (Cal EMA), Earthquake and Tsunami Program Deputy *

Cal EMA is responsible for the coordination of overall state agency response to major disasters in support of local government. The Agency is responsible for assuring the state's readiness to respond to and recover from all hazards – natural, manmade, war-caused emergencies and disasters – and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts.

Chris Wright, Amgen Inc., Senior Manager of Worldwide Crisis Management*

Amgen is a leading human therapeutics company in the biotechnology industry. For more than 25 years, the company has tapped the power of scientific discovery and innovation to advance the practice of medicine. Amgen pioneered the development of novel products based on advances in recombinant DNA and molecular biology and launched the biotechnology industry's first blockbuster medicines. Today, as a Fortune 500 company serving millions of patients, Amgen continues to be an entrepreneurial, science driven enterprise dedicated to helping people fight serious illness.

Julie H. Davenport II, Wells Fargo Enterprise Incident Management, CHS III, AVP, Regional Emergency Manager, Southern California *

Wells Fargo & Company is a diversified financial services company providing banking, insurance, investments, mortgage, and consumer and commercial finance through more than 9,000 stores and 12,000 ATMs and the Internet (wellsfargo.com and wachovia.com) across North America and internationally.

Gerald Shamburg, The Walt Disney Company Manager, West Coast Operations, Global Crisis Management *

Since its founding in 1923, The Walt Disney Company and its affiliated companies have remained faithful to their commitment to produce unparalleled entertainment experiences based on the rich legacy of quality creative content and exceptional storytelling. The Walt Disney Company, together with its subsidiaries and affiliates, is a leading diversified international family entertainment and media enterprise with four business segments: media networks, parks and resorts, studio entertainment and consumer products.

Reviewers and Contributors

Ryan Walker, Disaster Resistant Business Toolkit Workgroup (DRB Toolkit), Vice President *

The Disaster Resistant Business Toolkit Workgroup (DRBTW) has been a 501(c)(3) non-profit since 2007, although we began as a public-private partnership in 2002. The DRBTW consists of Business Continuity, Emergency Management, planning and training experts from government and all-sized companies who collaborated to develop this software tool that

would assist small to midsize businesses build their own disaster plans

Margaret Vinci, Caltech, Manager, Office of Earthquake Programs *

The mission of the California Institute of Technology is to expand human knowledge and benefit society through research integrated with education. We investigate the most challenging, fundamental problems in science and technology in a singularly collegial, interdisciplinary atmosphere, while educating outstanding students to become creative members of society.

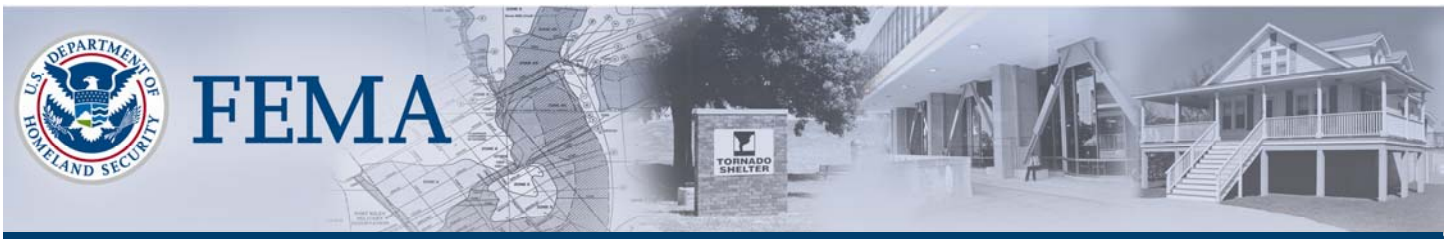
Victoria Craig, Consortium of Business Continuity Professionals, Inc., Executive Vice President *

The foundation of the Consortium of Business Continuity Professionals, Inc. is based on the needs of organizations that have put business continuity plans into place but are grappling with how to best integrate the management of those plans with the ongoing objectives of their businesses.

Phyllis Walker, ARM, AInstIB, Risk Management Consultant *

Monica Buchanan, State Farm Insurance, Claims Section Manager *

All contacts with an asterisk (*) are members of the ECA Business Committee:
ECA is a California statewide "alliance of alliances" linking the public information efforts of organizations and individuals that provide earthquake information and services. Participants include the Redwood Coast Tsunami Workgroup, the Bay Area Earthquake Alliance, the Central Coast Earthquake Alliance, and the Southern California Earthquake Alliance (new name of the original "ECA"). Other regional alliances may join the ECA in the future representing other parts of the state. ECA members include: scientists and engineers; non-profit organization and business leaders; community groups and activists; federal, state, and local government leaders and agencies; tribes; and others who share a passion for making a difference towards reducing California's earthquake risk.



QuakeSmart Business Toolkit

Comment Form

To submit the completed comment form, please click the button at the bottom of this document.
Additional questions and/or comments can be emailed to fema-nehrp@dhs.gov.

1) Please tell us about yourself (your name, title, business, type and place of business, optional contact information).

2) How did you hear about the QuakeSmart Toolkit?

- ☐ FEMA website
- ☐ At a local QuakeSmart event
- ☐ At an earthquake conference
- ☐ Through Chamber of Commerce
- ☐ Other business leaders
- ☐ Employees/Co-Workers
- ☐ News Coverage (list outlets below)

3) Please rate how familiar were you with the concept of earthquake mitigation (5 being the most familiar).

1 ☐ *2* ☐ *3* ☐ *4* ☐ *5* ☐

4) Which document(s) did you find most useful/helpful?

- ☐ How Earthquakes Affect Businesses
- ☐ How QuakeSmart Can Help
- ☐ Step 1: Identify Your Risk
- ☐ Step 2: Make a Plan
- ☐ Step 3: Take Action
- ☐ Take Action Templates
- ☐ Other FEMA Earthquake Mitigation Publications
- ☐ Recommended FEMA Earthquake

5) Please provide us with any comments or recommendations on how to improve the QuakeSmart Toolkit, or if you have any questions about the toolkit contents.

SUBMIT