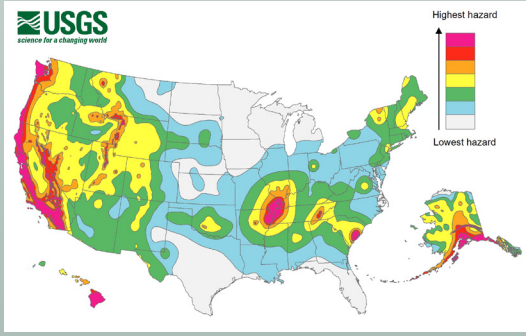
Ready Business®

QUAKESMART TOOLKIT

WHY SHOULD ORGANIZATIONS CARE ABOUT EARTHQUAKE RISK?

Most of the United States is at some risk for earthquakes, and it is important that organizations (businesses, community groups, associations, etc.) understand the potential impacts. Developing a Preparedness and Mitigation Project Plan and taking action protects employees, customers, and business continuity.



NATURAL DISASTER IMPACT

IMMEDIATE	ONE YEAR LATER	THREE YEARS LATER
40% OF SMALL BUSINESSES WON'T REOPEN	**25%** MORE SMALL BUSINESSES WILL CLOSE	**75%** OF BUSINESSES WITHOUT A CONTINUITY PLAN WILL FAIL

THE AVERAGE DAILY LOSS OF A BUSINESS THAT CLOSES DUE TO DISASTER

$3,000 SMALL BUSINESS	**$23,000** MEDIUM-SIZED BUSINESS

WHY IS THIS IMPORTANT?

SMALL BUSINESSES

ACCOUNT FOR **99%** OF ALL COMPANIES	EMPLOY **50%** OF ALL PRIVATE SECTOR EMPLOYEES

Source: 2014 data from the Federal Emergency Management Agency (FEMA) and US Department of Labor.

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Introduction

Should your organization be concerned about earthquake risk? Absolutely. Unlike other natural disasters, earthquakes occur without warning and cannot be predicted. Most of the United States is at some risk for earthquakes, not just the West Coast, so it is important that you understand your risk, develop preparedness and mitigation plans, and take action. Doing so will not only increase the safety of employees and customers, but it will help you stay in business after disasters such as earthquakes strike. Maintaining business continuity is important for you, and when you are able to continue operations after a disaster, you will improve your community's ability to recover as well.

THE QUAKESMART COMMUNITY RESILIENCE PROGRAM MOVES ORGANIZATIONAL LEADERS THROUGH A STEP-BY-STEP PROCESS TO

- ✔ Identify Your Risk
- ✔ Develop a Plan
- ✔ Take Action
- ✔ Be Recognized and Inspire Others

Following these steps in the *QuakeSmart Community Resilience Program* as a part of your overall business continuity planning will help protect assets (people, property, operations); sustain the capability to provide goods and services to customers and/or supply chain; maintain cash flow; preserve competitive advantage and reputation; and provide the ability to meet legal, regulatory, financial, and contractual obligations.

Experts estimate 75 percent of businesses without business continuity planning will fail within three years of a disaster. There are many tools available to complete your business continuity planning, and this program references the Federal Emergency Management Agency (FEMA) *Business Continuity Plan* and the *Disaster Resistant Business (DRB) Toolkit*.

The *Ready Business Program* will provide you with the tools to plan, take action, and become a *Ready Business* by addressing preparedness and mitigation for your STAFF, SPACE, SYSTEMS, STRUCTURE, and SERVICE. You will also have the opportunity to apply for recognition as a member of the QuakeSmart Community.

Introduction: Program Overview

Organizations have five options for recognition through the *QuakeSmart Community Resilience Program*. These levels can be achieved either independently or as a group and include **STAFF, SPACE, SYSTEMS**, **STRUCTURE,** and **SERVICE.** The **SERVICE** level is achieved by completing requirements for **STAFF, SURROUNDINGS, SPACE, SYSTEM,** and **STRUCTURE** levels in addition to the **SERVICE** requirements.

STAFF includes planning and preparedness activities for the protection of your staff.

SPACE includes the contents of your workspace such as furniture, computers or equipment, tall shelving, filing cabinets, hanging artwork, and freestanding partitions.

SYSTEMS include utility systems and nonstructural architectural elements, e.g., air compressors, built-in partitions, propane tanks, fuel tanks, suspended ceilings, suspended space heaters, water heaters, windows, and automatic fire sprinkler systems.

STRUCTURE includes architectural and structural elements of the building, especially construction types that may be vulnerable to collapse or failure during an earthquake such as concrete tilt-up, improperly welded steel frame, unreinforced masonry concrete, unreinforced concrete, or unreinforced soft story construction. The STRUCTURE recognition level also includes the building façade to help identify unreinforced or unanchored brick or exterior architectural elements.

SERVICE includes opportunities for your organization to engage and serve the community following an event.

It is important to remember that injury, damage, concurrent damage, cascading disasters such as fire following the earthquake, business interruption, or even increased repair or recovery costs can come from failure to prepare or mitigate. As a result, the first step in the *QuakeSmart Community Resilience Program* is to complete a *Back-to-Business Self-Assessment* to identify vulnerabilities from any source.

The *Ready Business Program* is intended to recognize and acknowledge businesses and organizations who complete preparedness and mitigation actions to protect employees, customers, and continuity. You can get started by following the steps provided.

For more information or assistance contact ReadyBusiness@flash.org or (877) 221-7233.

Benefits

Peace of mind that your organization is prepared not only for earthquakes, but for other business interruptions or natural disasters.

QuakeSmart Resilient Community Member **window cling** to announce to your customers or clients and employees that you have taken steps to prepare your STAFF, SPACE, SYSTEMS, and STRUCTURE, and be of SERVICE after an event.

QuakeSmart Resilient Community Member **recognition certificate**.

QuakeSmart Resilient Community Member **web badge** to display on your organization's website.

Organization listing on QuakeSmartCommunity.org.

Sample news release to recognize and acknowledge your organization's participation in the *QuakeSmart Community Resilience Program*.

Gain tips for **media placement**.

Inspire others to take steps to improve community resiliency.

Introduction: *QuakeSmart Community Resilience Program*

1

IDENTIFY YOUR RISK

Complete the *Back-to-Business Self-Assessment* to determine the specific areas your organization needs to address to prepare, mitigate risk, and return to operation following a disaster.

2

DEVELOP A PLAN

1. Based on the information in the *Back-to-Business Self-Assessment*, complete the QuakeSmart Preparedness and Mitigation Project Plan for STAFF, SPACE, SYSTEMS, STRUCTURE, and SERVICE to identify preparedness and mitigation actions needed to ensure safety and business continuity. Completing this plan will bring you one step closer to recognition as a QuakeSmart Resilient Community Member.
2. Review the QuakeSmart *Quick Reference Guide* to determine which preparedness and mitigation actions you want to take based on the potential impacts to your organization.
3. Use the Cost Estimation Worksheet to estimate the costs of mitigation.

3

TAKE ACTION

1. Make sure that your Preparedness and Mitigation Project Plan is fully approved by the building owner if you are leasing your building. Always check with your local building official prior to any mitigation activity. You should also ask if your building has a U.S. Resiliency Council Building Rating.
2. Perform preparedness and mitigation activities as prioritized in the Preparedness and Mitigation Project Plan. Document your actions as instructed in the checklists for STAFF, SPACE, SYSTEMS, STRUCTURE, and SERVICE with signatures, photographs, receipts, or letters from a manager, engineer, or design professional, where applicable.

4

BE RECOGNIZED AND INSPIRE OTHERS

1. Complete and submit the application to be recognized as a QuakeSmart Resilient Community Member.

After you have completed these steps, you will be eligible to become a member of the QuakeSmart Community, and will enjoy the peace of mind of knowing you have done your part to promote safety, mitigate potential loss, and protect your business or organization.

1

Identify Your Risk:

Back-to-Business Self-Assessment

PLANNING SCENARIO

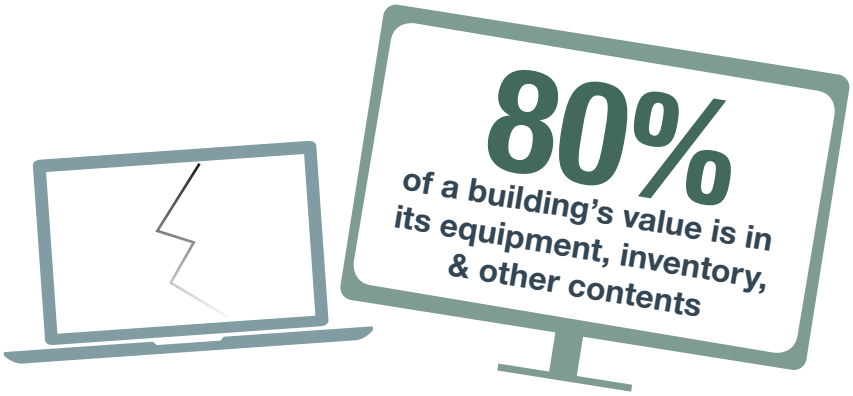
On December 1 of this year, an earthquake strikes your community and damages both the structure and the contents in the building where your organization operates. Due to damage, your building has been 'yellow tagged' during a rapid assessment by the building department and is closed. A more thorough assessment of your building damage is needed to determine if your structure is safe, or can be made safe, prior to reopening.

Due to the number of buildings damaged in your community, your building's detailed damage assessment will take place three days after the earthquake. You should assume you will not be able to access your facilities for at least three days.

Depending on your type of organization, expect that either 50 percent of your inventory (product) is unsellable, or that 50 percent of your computers or other equipment was damaged during the earthquake (choose whichever creates the greater impact on your organization). Assume that all utilities are interrupted.

Further, you should project that the disruptions will continue for one additional day. The assessment will show that the damage is repairable to the structure, so now you will need to address contents cleanup, repairs, and replacement.

Based on this scenario, complete the 13 questions on the following pages to identify your risk.



Source: FEMA E-74, *Reducing the Risks of Nonstructural Earthquake Damage - A Practical Guide*

ASSESS YOUR READINESS

Based on the planning scenario, complete the 13 questions below to highlight some areas your QuakeSmart Preparedness and Mitigation Project Plan and Business Continuity Plan should address.

IMPACTS ON YOUR ORGANIZATION		RESOURCES THAT CAN HELP MINIMIZE DAMAGE, DISRUPTIONS, AND INJURIES
SPACE/SYSTEMS/STRUCTURE		
1. Can your organization operate without any of the following: computers, copier, fax machine, files, inventory, or special equipment (e.g., x-ray equipment, cash register, credit card readers)?	❑ Yes ❑ No	*QuakeSmart Community Resilience Program* - SPACE
2. Can your organization operate without any of the following: gas, power, water, internet, or telecommunications?	❑ Yes ❑ No	*QuakeSmart Community Resilience Program* - SYSTEMS
3. Can you still operate your organization without access to the damaged building?	❑ Yes ❑ No	*QuakeSmart Community Resilience Program* - STRUCTURE
STAFF/CUSTOMERS/VENDORS/SUPPLIERS (PEOPLE)		
4. Can you pay your employees without business income?	❑ Yes ❑ No	Business Continuity Plan - PEOPLE
5. Are your employees able to commute to work?	❑ Yes ❑ No	Business Continuity Plan - PEOPLE
IMPACT ON YOUR ORGANIZATION		
6. Is your organization easily accessible to the public, your customers, and employees (e.g., parking)?	❑ Yes ❑ No	Business Continuity Plan - PEOPLE
7. Are you communicating status with employees, key customers, vendors, and suppliers throughout your recovery?	❑ Yes ❑ No	Business Continuity Plan - PEOPLE

OPERATIONS		
8. If you can't operate the organization without access to the damaged building, will you need to relocate?	❑ Yes ❑ No	Business Continuity Plan - OPERATIONS
9. Have you set priorities on what operations your organization needs to recover 1st, 2nd, 3rd, etc.?	❑ Yes ❑ No	Business Continuity Plan - OPERATIONS
10. Are your suppliers up and running or do you have sufficient parts/supplies on hand to continue without resupply?	❑ Yes ❑ No	Business Continuity Plan - OPERATIONS
11. Are you able to ship your product or provide services out to your customers based on your current impacts?	❑ Yes ❑ No	Business Continuity Plan - OPERATIONS
12. Do you still have all your customers/clients after the disaster?	❑ Yes ❑ No	Business Continuity Plan - OPERATIONS
OVERALL OPERATIONS		
13. Will your losses be too much for your organization to survive if it is closed/inaccessible for at least 3 - 7 days?	❑ Yes ❑ No	*QuakeSmart Community Resilience Program* & Business Continuity Plan

For each question, 1 – 13, that you answered 'No', address the specific issue in the QuakeSmart Preparedness and Mitigation Project Plan, or in your Business Continuity Plan. The QuakeSmart Community Resilience Program has many resources that will assist in determining, as well as addressing, how to reduce the potential for damage to buildings and contents. There are many business continuity planning tools available, and a few resources are listed below.

RESOURCES

- *DRB Toolkit* (Use coupon code at checkout: quakesmart)
- *FEMA Business Continuity Plan*
- *7 Steps to an Earthquake Resilient Business*
- *ResilientWorkplace.org*

2

Develop A Plan

1. Based on the information in the *Back-to-Business Self-Assessment*, create a QuakeSmart Preparedness and Mitigation Project Plan for your STAFF, SPACE, SYSTEMS, STRUCTURE, and SERVICE to identify critical preparedness and mitigation actions needed to ensure safety and business continuity. Completing this plan will bring you one step closer to recognition as a QuakeSmart Resilient Community Member.
2. Review the *Quick Reference Guide* to determine which preparedness and mitigation actions you want to take based on the potential impacts to your organization.
3. Use the Cost Estimation Worksheet to estimate the costs of mitigation.

STAFF, SPACE, SYSTEMS, STRUCTURE, AND SERVICE

After you have identified the potential earthquake risks and determined how they could impact your organization, it's time to create a Preparedness and Mitigation Project Plan and decide which solutions you will use to reduce risks. The Preparedness and Mitigation Project Plan and Cost Estimation Worksheet will support the business continuity planning and readiness process, and bring you one step closer to recognition as a QuakeSmart Resilient Community Member.

QUAKESMART PREPAREDNESS AND MITIGATION PROJECT PLAN

Organization:

Project Lead:

Name:

Title/Department:

Address:

Phone Number:

Email:

Executive Summary:

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

Goals and Objectives:

2 | Develop A Plan: STAFF

These are preparedness measures your organization can take to help your staff get prepared for an earthquake event; however, the list below is not all-inclusive. By performing steps one through five, organizations will be eligible for recognition as a QuakeSmart – STAFF Resilient Community Member. The Suggested Actions are recommended, but not required, for recognition.

POTENTIAL PREPAREDNESS ACTION	ASSIGNED TO	BUDGET	COMPLETION DATE
1 Develop Business Continuity and Crisis Communications Plan			
2 Conduct an Employee Awareness Campaign			
3 Develop an Employee Training Program			
4 Conduct an Employee Training Session			
5 Register for the Great ShakeOut and Conduct an Earthquake Drill			
SUGGESTED ACTION: Build an Emergency Supply Kit			
SUGGESTED ACTION: Purchase a NOAA Weather Radio for Monitoring During an Event/Download a Mobile Alerting App			
SUGGESTED ACTION: Review Insurance Coverage/Create Inventory			

2 | Develop A Plan: SPACE

These are nonstructural earthquake mitigation activities that can be completed by someone with common tools and readily available materials; however, the list below is not all-inclusive. For additional guidance on nonstructural risks, please see the *Quick Reference Guide*: SPACE in this program.

By performing all applicable Do-It-Yourself (DIY) activities, organizations will be eligible for recognition as QuakeSmart – SPACE Resilient Community Member.

NONSTRUCTURAL RISKS	MITIGATION SOLUTION	ASSIGNED TO	BUDGET	COMPLETION DATE
DIY ACTIVITIES				
Computers	Strap or Velcro® monitor/ laptop to desk, latch desktop to desk			
Tall Shelving	Attach to wall with brackets or flexible fasteners			
Library Stacks	Brace to floor, install guards for books			
Tall File Cabinets	Secure to wall, install cabinet latches to drawers			
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			
Freestanding Half-Height Partitions	Brace/Secure to floor			
Miscellaneous Furniture/ Fixtures	Restrain/Secure ceiling fans and lights with safety cables			

2 | Develop A Plan: SYSTEMS

The activities below include nonstructural earthquake mitigation activities that can be completed with common tools and readily available materials, as well as activities that may require an engineer to evaluate steps provided for mitigation; however, the list below is not all inclusive. For additional guidance on nonstructural risks, please see the *Quick Reference Guide:* SYSTEMS in this program.

By performing all applicable DIY activities and two potential DIY or repairperson activities or one professional activity, organizations will be eligible for recognition as a QuakeSmart – SYSTEMS Resilient Community Member.

NONSTRUCTURAL RISKS	MITIGATION SOLUTION	ASSIGNED TO	BUDGET	COMPLETION DATE
DIY ACTIVITIES				
Built-In Partitions (Walls)	Bolt to structure			
Water Heater	Strap—wrap 1½ times, bolt to studs			
Windows	Install protective film covering			
POTENTIAL DIY OR REPAIRPERSON				
Suspended Light Fixtures	Anchor and brace			
Suspended T-Bar Ceilings	Anchor and brace			

Use the Cost Estimation Worksheet to estimate the approximate cost of mitigation.

2 | Develop A Plan: SYSTEMS (continued)

The activities below include nonstructural earthquake mitigation activities that can be completed with common tools and readily available materials, as well as activities that may require an engineer to evaluate steps provided for mitigation; however, the list below is not all inclusive. For additional guidance on nonstructural risks, please see the *Quick Reference Guide:* SYSTEMS in this program.

By performing all applicable DIY activities and two potential DIY or repairperson activities, or one professional activity, organizations will be eligible for recognition as a QuakeSmart – SYSTEMS Resilient Community Member.

NONSTRUCTURAL RISKS	MITIGATION SOLUTION	ASSIGNED TO	BUDGET	COMPLETION DATE
PROFESSIONAL SERVICES REQUIRED				
Freestanding Walls or Fences	Reinforce			
Exterior Signs	Reinforce/bolt to building			
Exterior Veneer	Properly anchor/adhere			
Roof Parapets	Reinforce, bolt to roof			
Air Compressor	Anchor			
Propane/Fuel Tank	Bolt, secure in place			
Suspended Space Heater	Anchor and brace			
Automatic Fire Sprinkler Piping and Heads	Anchor and brace			
HVAC Equipment and Ducts	Anchor			
Piping	Attach and brace, especially between floors			
Stairways	Install sliding connections, enclosure materials			

Use the Cost Estimation Worksheet to estimate the approximate cost of mitigation.

2 | Develop A Plan: STRUCTURE

Assessing structural risk and more complex nonstructural risk requires the services of a structural engineer or other design professional to accurately evaluate and design reasonable mitigation measures; however, the following list is not all inclusive. For additional guidance on structural risks, please see the *Quick Reference Guide:* STRUCTURE in this program.

By performing one retrofit item at a minimum, organizations will be eligible for recognition as a QuakeSmart – STRUCTURE Resilient Community Member.

STRUCTURAL RISKS	MITIGATION SOLUTION	ASSIGNED TO	BUDGET	COMPLETION DATE
PROFESSIONAL SERVICE REQUIRED				
Concrete Tilt-Up Construction without Anchored Roof System	Anchor roof system to walls			
Unreinforced Cripple Walls	Reinforce cripple walls			
Unreinforced Concrete Construction	Reinforce concrete construction			
Unreinforced Masonry	Reinforce masonry construction			
Unreinforced Soft Story Construction	Reinforce soft story construction			
Unreinforced or Unanchored Brick Elements in Building or Façade	Reinforce or anchor brick elements in building structure or façade			
Walls Not Bolted to Foundation	Bolt walls to foundation			

Use the Cost Estimation Worksheet to estimate the approximate cost of mitigation.

2 | Develop A Plan: SERVICE

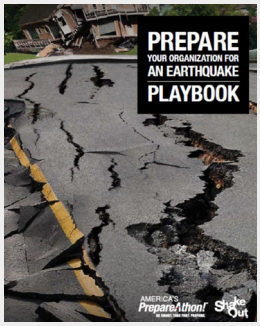
Can your organization provide service to others following a disaster? If you are interested, use the following contacts to include a SERVICE component in your Business Continuity Planning. For additional guidance on the service component, please see the *Quick Reference Guide:* SERVICE in this program.

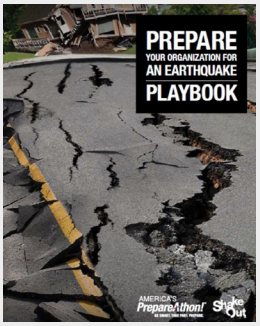
By performing all applicable preparedness activities in STAFF and mitigation actions in SPACE, SYSTEMS, and STRUCTURE, organizations will be eligible for recognition as a QuakeSmart – SERVICE Resilient Community Member by completing the following actions.

SERVICE ACTION	ASSIGNED TO	BUDGET	COMPLETION DATE
Contact your Local Emergency Management Office			
Identify Ways to Engage and Participate in Your Community			

RELIEF KITS	CHARGING STATION	FOOD PREPARATION	VOLUNTEER
If your organization is open after the disaster, you could become a distributor or storage warehouse for Disaster Relief Kits. Providing a place for the supplies to be stored locally allows volunteer organizations to readily distribute them throughout affected areas.	Does your organization have electricity after the disaster? If so, you may want to become a volunteer charging station. Provide a safe, secure place for emergency responders, volunteers, and community members to charge their cell phones, power wheelchairs, and battery-powered tools.	Does your organization have the capability to prepare or serve meals? Providing a sanitary kitchen for emergency responders, volunteers, or community members to prepare or receive meals following a disaster is essential for rebuilding the community.	Not sure how your organization can directly contribute after the disaster? Volunteer. Contact your Local Emergency Manager and determine where the volunteer opportunities exist in the community. You could prepare meals, sort debris, or even work at a local office of a volunteer organization. For additional ideas, visit National Voluntary Organizations Active in Disaster.

PREPAREDNESS ACTION	PREPAREDNESS SOLUTIONS	PREPAREDNESS RESOURCES
STEP 1: Develop Business Continuity and Crisis Communications Plan.	Create a Business Continuity Plan that includes strategies for storing critical business documents and data.	Ready Business *Business Continuity Plan*
	Consult the *DRB Toolkit.*	DRB Toolkit® Disaster Resistant Business *DRB Toolkit*
	Assign a Business Continuity Team Leader responsible for implementing the Business Continuity Plan to bring your organization back to business after an event.	Ready Business *Business Continuity Plan*
	Create a Crisis Communications Plan that includes both internal and external communication protocols for before, during, and after a disaster.	PREPARE MY BUSINESS.org *Crisis Communications*

PREPAREDNESS ACTION	PREPAREDNESS SOLUTIONS	PREPAREDNESS RESOURCES
STEP 2: Conduct an Employee Awareness Campaign	Conduct an employee awareness campaign to explain the risk of earthquake and to make employees aware of home hazards, preparedness actions, and mitigation activities. Reference *How to Prepare for an Earthquake* for additional content.	 *How to Prepare for an Earthquake.* Prepareathon
	Know and educate employees on the safest response during an earthquake.	ShakeOut™ *Recommended Earthquake Safety Actions*
STEP 3: Develop an Employee Training Program	Develop a training program that provides several activities for employee engagement. Drills or exercises should be incorporated into the program. Consider developing a one-week campaign that ties into 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.	 *Prepare Your Organization for an Earthquake.* Prepareathon

PREPAREDNESS ACTION	PREPAREDNESS SOLUTIONS	PREPAREDNESS RESOURCES
STEP 4: Conduct an Employee Training Session	Hold a preparedness discussion with your staff. Discuss what you have done to prepare for earthquakes with your staff, and review your Business Continuity Plan, Crisis Communication Plan, and Awareness Campaign messages. Use the *Prepare Your Organization for an Earthquake Playbook* to facilitate this discussion and engage your employees. The discussion should: • Educate the employees about your organization's business continuity and crisis communication plans • Include basic first aid and CPR training .• Describe cover locations	 *Prepare Your Organization for an Earthquake.* Prepareathon
STEP 5: Register for the Great ShakeOut and Conduct an Earthquake Drill	Register your organization to participate in the ShakeOut and conduct your earthquake drills accordingly. 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.	ShakeOut™ www.ShakeOut.org
SUGGESTED ACTION: Build an Emergency Supply Kit	Build an emergency kit with supplies that you may need before, during, and after an earthquake or other event.	Ready Business *Emergency Supply List*

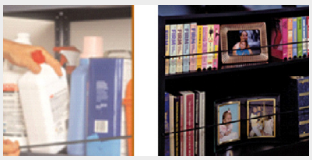
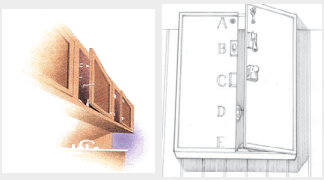
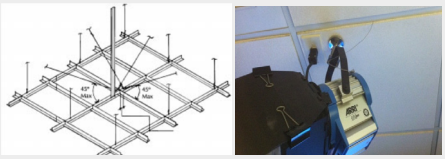
PREPAREDNESS ACTION	PREPAREDNESS SOLUTIONS	PREPAREDNESS RESOURCES
SUGGESTED ACTION: Purchase a NOAA Weather Radio for Monitoring During an Event/Download Mobile Alerting App	Purchase a NOAA Weather Radio with single area message encoding (SAME) and download a severe weather alerts app for your mobile device. Smartphone apps provide information about shelters, how to provide first aid, and how to seek assistance for recovery. Also, the U.S. Geological Survey manages the Earthquake Notification Service, which provides free notification emails when earthquakes happen in your area or anywhere in the world. You may also sign up to receive emergency notifications from your local emergency services. Download Be Smart. Take Part. Know Your Alerts and Warnings. for a summary of available notifications. Remember, although there is no advance notice of an earthquake, emergency information will be provided immediately after an event through radio and TV broadcasts and via Wireless Emergency Alerts texted to cell phones. Designate a Team Leader and assign them to monitor your NOAA Weather Radio during an event. Listen and heed instructions given by local emergency management officials. Have backup batteries and chargers.	NOAA Weather Radio All Hazards
SUGGESTED ACTION: Review Insurance Coverage/ Create Inventory	Meet with your insurance agent annually to review your insurance, especially property coverage limits, deductibles, and coinsurance requirements. Maintain a current photo or video inventory of your premises, equipment, inventory, supplies, etc.	*Insurance Coverage Discussion Form*

RESOURCES:

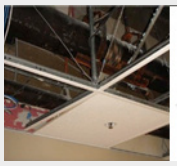
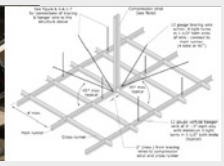
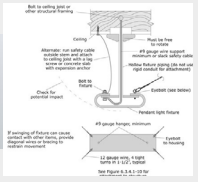
DHS. *Prepare Your Organization for an Earthquake Playbook.* Prepareathon

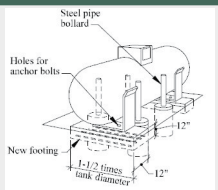
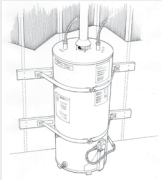
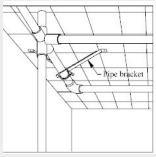
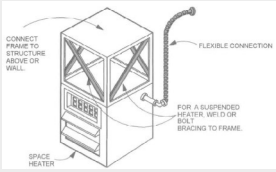
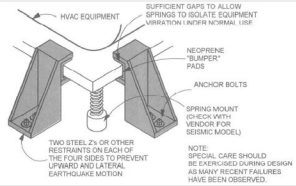
DHS. *How to Prepare for an Earthquake.* Prepareathon

Quick Reference Guide: SPACE

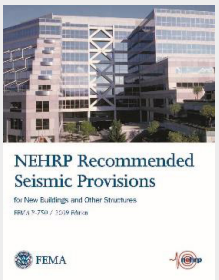
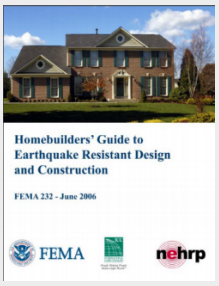
NONSTRUCTURAL RISKS	MITIGATION SOLUTION	MITIGATION ILLUSTRATIONS
Computers	Strap or Velcro® monitor/laptop to desk, latch desktop to desk	
Tall Shelving	Attach to wall with brackets or flexible straps	
Shelves with Supplies, Folders, or Books	Once furniture is braced, install lip guards to prevent shelving items from falling	
Tall File Cabinets	Secure to wall, install positive catch latches in non-locking drawers	
Drawers and Cabinets	Install latches to drawers and cabinets	
Compressed-Gas Cylinders	Attach to wall with chains or braces	
Fragile Artwork and Pictures	Secure to walls with screws and to tables with putty, and use closed hooks for hanging art and pictures	
Lights, Ceiling Fans, and Suspended T-Bar Ceilings	Secure with safety cables	

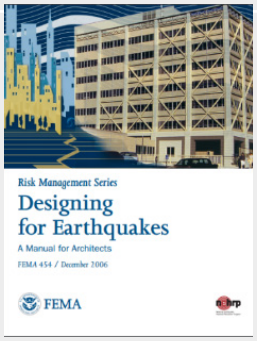
For more detailed guidance, see the Quick Reference Guide or the FEMA E-74, *Reducing the Risks of Non-Structural Earthquake Damage.*

NONSTRUCTURAL RISKS	MITIGATION SOLUTION	MITIGATION ILLUSTRATIONS
Built-in Partitions	Connect to structure above ceiling and add reinforcement if made of heavy materials or supporting shelves	 
Suspended T-Bar Ceilings	Bolt and anchor grid to structure using diagonal hangers or bracing wires	 
Suspended Light Fixtures	All lights should be connected to structure, not to suspended ceiling; keep pendant lights from swinging by using diagonal wires or bracing to restrain movement	 
Stairways	Should have a fixed connection to one floor and sliding connection to the other; if stair enclosures have brittle materials (unreinforced masonry), encapsulate or replace	
Windows	Install protective film, especially where broken glass would cause the most injuries or damage	
Roof Parapets	Brace parapets to roof using engineer recommendations that include flashing and weatherproofing	
Exterior Veneer	Consult with an engineer to determine if veneer is properly attached to structure with anchors or adhered	
Exterior Signs	Secure signage and canopies to structure and reinforce with vertical braces	

NONSTRUCTURAL RISKS	MITIGATION SOLUTION	MITIGATION ILLUSTRATIONS
Propane/Fuel Tank	Consult with an engineer to inspect and determine recommendation	
Water Heater	Secure with heavy, metal-gauge strapping 1½ times around tank and bolt into wall studs, water/gas connection should be flexible	
Piping	Secure to structures and add reinforcement at vulnerable spots (joints, bends) and between floors	
HVAC Equipment and Ducts	Anchor to floor, and if on vibration isolators then secure each machine to each other and the floor, follow local codes	 
Suspended Space Heater	Secure to building structure and reinforce connections to fuel lines and other piping, consult local codes.	
Air Compressor	For equipment on vibration isolators, install snubbers or bumpers, otherwise anchor to structure	
Automatic Fire Sprinkler Piping and Heads	Brace to structure and reinforce connections (joints); look for other equipment/hazards that may move and damage system	

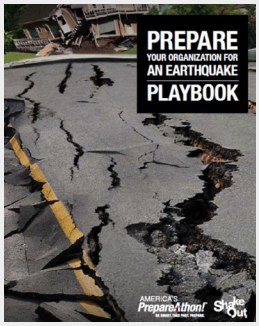
For more detailed guidance, see the Quick Reference Guide or the FEMA E-74, *Reducing the Risks of Non-Structural Earthquake Damage.*

STRUCTURAL RISKS	MITIGATION SOLUTIONS	MITIGATION RESOURCES
Concrete Tilt-Up Construction without Anchored Roof System	Concrete tilt-up buildings are reinforced concrete structures with exterior concrete walls constructed flat on the ground and then tilted "up" into position, often including warehouses or other industrial facilities. The seismic vulnerability of this type of construction is the potential for the roof and wall connection to fail and the wall panels to fall away from the building, resulting in roof collapse. Retain a professional to anchor the roof system to the walls to help address this type vulnerability.	 FEMA P-749, *An Introduction to the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures.* FEMA P-750, *NEHRP Recommended Seismic Provisions for New Buildings and Other Structures* Association of Bay Area Governments Resilience Program. *Guide to Earthquake Vulnerable Commercial Building Types*  FEMA 232, *Homebuilders' Guide to Earthquake Resistant Design and Construction* For a comprehensive list of FEMA building design earthquake publications, see *Earthquake Publications: Building Designers, Managers and Regulators*

NONSTRUCTURAL RISKS	MITIGATION SOLUTION	MITIGATION ILLUSTRATIONS
Unreinforced Cripple Walls	Cripple walls are short frame walls extending from the foundation to the bottom of the first floor, often enclosing a crawl space or serving as walls for a stepped foundation. The seismic vulnerability of this type of construction is primarily because of inadequate in-plane strength or inadequate anchorage to the foundation: these walls are the most highly loaded of all the light-frame walls in a house due to resisting the entire load from above. Retain a professional to reinforce cripple walls.	FEMA 232, *Homebuilders' Guide to Earthquake Resistant Design and Construction*
Unreinforced Concrete Construction	Retain a professional to reinforce concrete construction	 FEMA 454, *Designing for Earthquakes: A Manual for Architects*
Unreinforced Masonry	Unreinforced Masonry is a structural element of masonry construction without sufficient steel reinforcement. Retain a professional to reinforce masonry construction.	FEMA P-749, *An Introduction to the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures.* FEMA 232, *Homebuilders' Guide to Earthquake Resistant Design and Construction*

NONSTRUCTURAL RISKS	MITIGATION SOLUTION	MITIGATION ILLUSTRATIONS
Unreinforced Soft Story Construction	Soft-story construction occurs when the stiffness of one story is substantially less than that of the stories above. Additionally, weak-story construction occurs when walls or frames providing lateral resistance in one story is substantially less strong than those in the adjacent stories. Weak-story construction often accompanies a soft-story irregularity, but not always. Retain a professional to reinforce soft story construction	FEMA P-749, *An Introduction to the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures.* FEMA 232, *Homebuilders' Guide to Earthquake Resistant Design and Construction*
Unreinforced or Unanchored Brick Elements in Building or Façade	Retain a professional to reinforce or anchor brick elements in building structure or façade.	FEMA P-749, *An Introduction to the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures.* FEMA 232, *Homebuilders' Guide to Earthquake Resistant Design and Construction*
Walls Not Bolted to Foundation	Retain a professional to bolt walls to foundation.	FEMA 232, *Homebuilders' Guide to Earthquake Resistant Design and Construction*

Use the Cost Estimation Worksheet to estimate the approximate cost of mitigation.

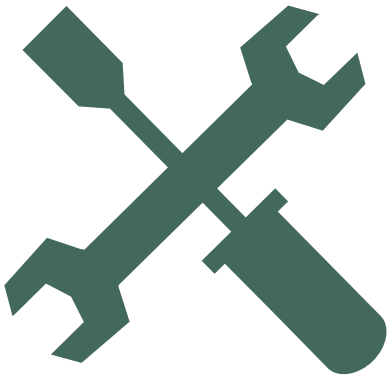
PREPAREDNESS ACTION	PREPAREDNESS SOLUTIONS	PREPAREDNESS RESOURCES
Contact your Local Emergency Management Office	Contact your local emergency management office to identify emergency management resources in your area. Contact your local emergency management office during your disaster planning. Use their knowledge to inform on how you can provide service(s) before and after a disaster strikes. Include their input in your Business Continuity Plan.	FEMA *Emergency Management Agencies*
Engage with your Community	In addition to preparing your organization, it is important to understand your local and tribal community emergency operations plans and to work with other organizations in your community or tribe. Opportunities to participate in whole community planning include the following: • Learn about public-private partnerships. • Participate in local or tribal organizations that make your community a safer and more prepared place to live and do business, such as your local Citizen Corps Council, hazard mitigation planning team, or local and tribal Community Emergency Response Team (CERT). Citizen Corps Councils include representatives from all sectors of the community. This whole community membership helps to ensure the community perspective is reflected in local emergency management practices.	 *Prepare Your Organization for an Earthquake Playbook.* Prepareathon CERT COMMUNITY EMERGENCY RESPONSE TEAM

3

Take Action

1. Make sure that your Preparedness and Mitigation Project Plan is fully approved by the building owner if you are leasing your building. Always check with your local building official prior to any mitigation activity. You should also ask if your building has a U.S. Resiliency Council Building Rating.

2. Perform preparedness and mitigation activities as prioritized in the Preparedness and Mitigation Project Plan. Document your actions as instructed in the checklists for STAFF, SPACE, SYSTEMS, STRUCTURE, and SERVICE with signatures, photographs, receipts, or letters from a manager, engineer, or design professional, where applicable.



3 | Take Action: QuakeSmart STAFF Checklist

Use the following checklists to assist in documenting actions taken to prepare your staff and organization for earthquake events. Submit these checklists with your application for recognition under *Step Four: Be Recognized and Inspire Others.* The Suggested Actions are recommended, but not required for recognition.

PREPAREDNESS ACTIONS	ACCOMPLISHED	INITIALS	DATE
1 Developed Business Continuity and Crisis Communications Plans	Must be completed to receive recognition		
2 Conducted an Employee Awareness Campaign	Must be completed to receive recognition		
3 Developed an Employee Training Program	Must be completed to receive recognition		
4 Conducted an Employee Training Session	Must be completed to receive recognition		
5 Registered for the Great ShakeOut and Conducted your Earthquake Drill	Must be completed to receive recognition		
SUGGESTED ACTION: Built an Emergency Supply Kit	❑ Yes ❑ No ❑ Not Applicable		
SUGGESTED ACTION: Purchased a NOAA Weather Radio for Monitoring During an Event/Downloaded a Mobile Alerting App	❑ Yes ❑ No ❑ Not Applicable		
SUGGESTED ACTION: Reviewed Insurance Coverage/Created Inventory	❑ Yes ❑ No ❑ Not Applicable		

NONSTRUCTURAL RISKS	MITIGATION SOLUTION	ACCOMPLISHED	INSERT PHOTO OR RECEIPT
DIY ACTIVITIES			
Computers	Strapped monitor/laptop to desk, latched desktop to desk	❑ Yes ❑ No ❑ Not Applicable	
Tall Shelving	Attached to wall with brackets or flexible fasteners	❑ Yes ❑ No ❑ Not Applicable	
Library Stacks	Braced to floor, installed guards for books	❑ Yes ❑ No ❑ Not Applicable	
Tall File Cabinets	Secured to wall, installed cabinet latches to drawers	❑ Yes ❑ No ❑ Not Applicable	
Drawers and Cabinets	Installed latches to drawers and cabinets	❑ Yes ❑ No ❑ Not Applicable	
Compressed-Gas Cylinders	Attached to wall with chains or braces	❑ Yes ❑ No ❑ Not Applicable	
Hazardous Materials	Removed from business area	❑ Yes ❑ No ❑ Not Applicable	
Fragile Artwork	Secured to walls with screws and to tables with putty	❑ Yes ❑ No ❑ Not Applicable	
Miscellaneous Furniture/ Fixtures	Secured ceiling fans and lights with safety cables	❑ Yes ❑ No ❑ Not Applicable	
Freestanding Half-Height Partitions	Braced/secured to floor	❑ Yes ❑ No ❑ Not Applicable	

NONSTRUCTURAL RISKS	MITIGATION SOLUTION	ACCOMPLISHED	INSERT PHOTO OR RECEIPT
DIY ACTIVITIES			
Built-in-Partitions (Walls)	Bolted to structure	❑ Yes ❑ No ❑ Not Applicable	
Water Heater	Strapped – wrapped 1½ times, bolted to studs	❑ Yes ❑ No ❑ Not Applicable	
Windows	Installed protective film covering	❑ Yes ❑ No ❑ Not Applicable	
POTENTIAL DIY OR REPAIRPERSON			
Suspended Light Fixtures	Anchored and braced	❑ Yes ❑ No ❑ Not Applicable	
Suspended T-Bar Ceilings	Anchored and braced	❑ Yes ❑ No ❑ Not Applicable	
PROFESSIONAL SERVICES REQUIRED			
Freestanding Walls or Fences	Reinforced	❑ Yes ❑ No ❑ Not Applicable	
Exterior Signs	Reinforced/bolted to building	❑ Yes ❑ No ❑ Not Applicable	
Exterior Veneer	Properly anchored/adhered	❑ Yes ❑ No ❑ Not Applicable	
Roof Parapets	Reinforced, bolted to roof	❑ Yes ❑ No ❑ Not Applicable	

NONSTRUCTURAL RISKS	MITIGATION SOLUTION	ACCOMPLISHED	INSERT PHOTO OR RECEIPT
PROFESSIONAL SERVICES REQUIRED (continued)			
Air Compressor	Anchored	❑ Yes ❑ No ❑ Not Applicable	
Propane/Fuel Tank	Bolted, secured in place	❑ Yes ❑ No ❑ Not Applicable	
Suspended Space Heater	Anchored and braced	❑ Yes ❑ No ❑ Not Applicable	
Automatic Fire Sprinkler Piping and Heads	Anchored and braced	❑ Yes ❑ No ❑ Not Applicable	
HVAC Equipment and Ducts	Anchored	❑ Yes ❑ No ❑ Not Applicable	
Piping	Attached and braced, especially between floors	❑ Yes ❑ No ❑ Not Applicable	
Stairways	Installed sliding connections, enclosure materials	❑ Yes ❑ No ❑ Not Applicable	

STRUCTURAL RISKS	MITIGATION SOLUTION	ACCOMPLISHED	INSERT DOCUMENTATION
Concrete Tilt-Up Construction without Anchored Roof System	Anchored roof system to walls	❑ Yes ❑ No ❑ Not Applicable	
Unreinforced Masonry	Reinforced masonry construction	❑ Yes ❑ No ❑ Not Applicable	
Unreinforced Concrete Construction	Reinforced concrete construction	❑ Yes ❑ No ❑ Not Applicable	
Walls Not Bolted to Foundation	Walls bolted to foundation	❑ Yes ❑ No ❑ Not Applicable	
Unreinforced Soft Story Construction	Reinforced soft story construction	❑ Yes ❑ No ❑ Not Applicable	
Unreinforced or Unanchored Brick Elements in Building or Façade	Reinforced or anchor brick elements in building structure or façade	❑ Yes ❑ No ❑ Not Applicable	
Unreinforced Cripple Walls	Reinforced cripple walls, if needed	❑ Yes ❑ No ❑ Not Applicable	

SERVICE ACTION	SERVICE SOLUTION	INITIALS	DATE
Contacted your Local Emergency Management Office	These activities are written into your Business Continuity Plan		
Identified Ways to Engage and Participate in Your Community	These activities are written into your Business Continuity Plan		

4

Be Recognized and Inspire Others

Now that you have taken the steps to prepare and mitigate your organization to protect customers and employees, you can gain recognition for your accomplishment by completing the application and submitting with the checklists completed from *Take Action* to be recognized as a QuakeSmart Resilient Community Member.

You will receive a QuakeSmart Resilient Community Member recognition certificate, window cling, and web badge to let your customers and staff know that you are a QuakeSmart organization, and your organization will be added to the list of program participants at www.quakesmartcommunity.org. You will also receive a sample news release that you may use to let your community know that you have taken action to prepare.

PLEASE COMPLETE:

Organization Name:

Owner/Manager:

Address:

Phone Number: Fax:

Email:

Organization Website URL:

QuakeSmart Designation Level **(Please indicate each level you are applying for):**	
❑ QuakeSmart **STAFF**	Must complete Steps 1-5 STAFF preparedness activities for recognition
❑ QuakeSmart **SPACE**	Must complete all applicable SPACE mitigation activities for recognition
❑ QuakeSmart **SYSTEMS**	Must complete all applicable SYSTEMS DIY activities and two potential DIY or repairperson activities or one professional activity
❑ QuakeSmart **STRUCTURE**	Must complete one of the applicable STRUCTURE activities for recognition
❑ QuakeSmart **SERVICE**	Must complete all applicable SERVICE activities and STAFF, SPACE, SYSTEMS, and STRUCTURE for recognition

Please include with your application the preparedness actions and mitigation checklists completed from *Step Three: Take Action.*

Feedback

Tell us about yourself and your organization

1. TYPE OF ORGANIZATION?

- ❑ Retail
- ❑ Professional Office
- ❑ Restaurant
- ❑ Service Provider
- ❑ Nonprofit
- ❑ Industrial
- ❑ Daycare Center/School
- ❑ Other, please list

_____

_____

2. HOW MANY PEOPLE DO YOU EMPLOY?

- ❑ 1 - 9
- ❑ 10 - 24
- ❑ 25 - 49
- ❑ 50 - 99
- ❑ 100 - 249
- ❑ 250 - 499
- ❑ 500 or more

3. HOW DID YOU HEAR ABOUT THE QUAKESMART PROGRAM?

- ❑ QuakeSmart Business Summit
- ❑ Local Fire Department
- ❑ From another organization
- ❑ Online
- ❑ Great ShakeOut
- ❑ FEMA
- ❑ State or local emergency management office
- ❑ Other, please list

_____

_____

4. DOES YOUR ORGANIZATION PARTICIPATE IN THE GREAT SHAKEOUT EARTHQUAKE DRILLS?

- ❑ Yes
- ❑ No

5. PLEASE PROVIDE ANY SUGGESTIONS FOR THE QUAKESMART COMMUNITY RESILIENCE PROGRAM:

_____

_____

Thank you for your participation in the *QuakeSmart Community Resilience Program*. You will receive a response to your application within 2 - 4 weeks.

For questions about the program or application, contact FLASH at (877) 221-7233 or email ReadyBusiness@flash.org. Once you have completed the application(s), please scan and email to ReadyBusiness@flash.org.

For business continuity and preparedness questions, please contact FEMA at FEMA-Private-Sector@fema.dhs.gov.

_____

Signature | Print Name | Date

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FLUOR

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FLASH

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California Institute of Technology

Valuable Websites

DRB TOOLKIT

http://www.DRBToolKit.org (use coupon code at checkout: QuakeSmart)

EARTHQUAKE COUNTRY ALLIANCE – SEVEN STEPS TO EARTHQUAKE SAFETY

http://earthquakecountry.org/sevensteps/

FEMA EARTHQUAKE INFORMATION/QUAKESMART TOOLKIT

http://www.fema.gov/QuakeSmart

http://www.flash.org/QuakeSmart/

FEDERAL ALLIANCE FOR SAFE HOMES (FLASH)

http://www.flash.org/QuakeSmart

http://www.flash.org/peril_earthquake.php

www.quakesmartcommunity.org

GREAT SHAKEOUT EARTHQUAKE DRILLS

http://www.shakeout.org

READY

https://www.ready.gov/earthquakes

RESILIENT WORKPLACE

http://www.resilientworkplace.org

The following is a list of websites and content referenced in this document.

Page #	Title of Document	Link
3	FEMA. *Business Continuity Plan.* Ready Business	www.fema.gov/media-library/assets/documents/89510
3	*Disaster Resistant Business (DRB) Toolkit*	www.DRBToolkit.org
4	Ready Business email	ReadyBusiness@flash.org
5	QuakeSmart Community	www.quakesmartcommunity.org
6	*Cost Estimation Worksheet*	www.flash.org/pdf/Retrofit_Estimating_Sheets7.xlsx
6	U.S. Resiliency Council Building Rating	www.usrc.org
9	*DRB Toolkit*	www.DRBToolkit.org
9	FEMA. *Business Continuity Plan.* Ready Business	www.fema.gov/media-library/assets/documents/89510
9	*7 Steps to an Earthquake Resilient Business*	www.earthquakecountry.org/roots/7StepsBusiness2008.pdf
9	Resilient Workplace	www.ResilientWorkplace.org
11	*Cost Estimation Worksheet*	www.flash.org/pdf/Retrofit_Estimating_Sheets7.xlsx
12	*Cost Estimation Worksheet*	www.flash.org/pdf/Retrofit_Estimating_Sheets7.xlsx
15	*Cost Estimation Worksheet*	www.flash.org/pdf/Retrofit_Estimating_Sheets7.xlsx
16	*Cost Estimation Worksheet*	www.flash.org/pdf/Retrofit_Estimating_Sheets7.xlsx
17	*Cost Estimation Worksheet*	www.flash.org/pdf/Retrofit_Estimating_Sheets7.xlsx
18	*National Voluntary Organization Active in Disaster*	www.nvoad.org/how-to-help/volunteering
19	DHS. *Business Continuity Plan.* Ready Business.	www.fema.gov/media-library-data/1389019980859-b64364cba1442b96dc4f4ad675f552e4/Business_ContinuityPlan_2014.pdf
19	*DRB Toolkit*	www.DRBToolkit.org
19	DHS. *Business Continuity Plan.* Ready Business.	www.fema.gov/media-library-data/1389019980859-b64364cba1442b96dc4f4ad675f552e4/Business_ContinuityPlan_2014.pdf
19	Small Business Administration. Crisis Communications	www.agilityrecovery.com/assets/SBA/crisiscomms.pdf
20	DHS. How to Prepare for an Earthquake. Prepareathon	http://www.fema.gov/media-library-data/1408632135401-3d0521fa59d0dd4016e82f08fe7f3732/Prepareathon_EARTHQUAKES_HTG_FINAL_508.pdf
20	ShakeOut. *Recommended Earthquake Safety Actions*	www.earthquakecountry.org/downloads/ShakeOut_Recommended_Earthquake_Safety_Actions.pdf
20	DHS. *Prepare Your Organization for an Earthquake.* Prepareathon	www.fema.gov/media-library-data/1409865580490-e83e2d1b906d35cc766477cb9459ca0e/prepareathon_playbook_earthquakes_final_090414_508a.pdf
21	DHS. *Prepare Your Organization for an Earthquake.* Prepareathon	www.fema.gov/media-library/assets/documents/98396
21	ShakeOut	www.shakeout.org

The following is a list of websites and content referenced in this document (continued).

Page #	Title of Document	Link
21	DHS. *Emergency Supply List.*	www.fema.gov/media-library-data/1390846764394-dc08e309debe561d866b05ac84daf1ee/checklist_2014.pdf
22	*NOAA Weather Radio All Hazards*	http://www.nws.noaa.gov/nwr/
22	*Earthquake Notification Service*	https://earthquake.usgs.gov/ens/
22	*Be Smart. Take Part. Know Your Alerts and Warnings.* Prepareathon	http://www.fema.gov/media-library-data/1440448868597-c0112a8bd0aa1c4a62ed44ba68b24d3f/Alerts_and_Warnings_508_20150824.pdf
22	DHS. *Open for Business Worksheet: Insurance Coverage Discussion Form.* Ready Business.	www.fema.gov/media-library-data/1389017324674-9b45706d0f7cb9bccef9c3e4dd4a64dd/Business_InsuranceDiscussionForm_2014.pdf
23	DHS. *Prepare Your Organization for an Earthquake Playbook.* Prepareathon	www.fema.gov/media-library-data/1409865580490-e83e2d1b906d35cc766477cb9459ca0e/prepareathon_playbook_earthquakes_final_090414_508a.pdf
23	DHS. *How to Prepare for an Earthquake.* Prepareathon	www.fema.gov/media-library-data/1408632135401-3d0521fa59d0dd4016e82f08fe7f3732/PrepareAthon_EARTHQUAKES_HTG_FINAL_508.pdf
24	*Quick Reference Guide*	http://flash.org/pdf/QuakeSmart_Reference_Guide.pdf
24	FEMA E-74, *Reducing the Risks of Non-Structural Earthquake Damage.*	www.fema.gov/fema-e-74-reducing-risks-nonstructural-earthquake-damage
26	*Quick Reference Guide*	http://flash.org/pdf/QuakeSmart_Reference_Guide.pdf
26	FEMA E-74, *Reducing the Risks of Non-Structural Earthquake Damage.*	www.fema.gov/fema-e-74-reducing-risks-nonstructural-earthquake-damage
27	FEMA P-749, *An Introduction to the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures.*	www.fema.gov/media-library/assets/documents/21866
27	FEMA P-750, *NEHRP Recommended Seismic Provisions for New Buildings and Other Structures.*	www.fema.gov/media-library/assets/documents/18152
27	*Association of Bay Area Governments Resilience Program. Guide to Earthquake Vulnerable Commercial Building Types.*	resilience.abag.ca.gov/commercial-building-types/
27	FEMA 232, *Homebuilders' Guide to Earthquake Resistant Design and Construction*	www.fema.gov/media-library/assets/documents/6015
27	FEMA *Earthquake Publications: Building Designers, Managers, and Regulators*	www.fema.gov/earthquake-publications-building-codes-and-seismic-rehabilitation

The following is a list of websites and content referenced in this document (continued).

Page #	Title of Document	Link
28	FEMA 232, *Homebuilders' Guide to Earthquake Resistant Design and Construction*	www.fema.gov/media-library/assets/documents/6015
28	FEMA 454, *Designing For Earthquakes: A Manual for Architects.*	www.fema.gov/media-library/assets/documents/8669
28	FEMA P-749, *An Introduction to the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures.*	www.fema.gov/media-library/assets/documents/21866
28	FEMA 232, *Homebuilders' Guide to Earthquake Resistant Design and Construction*	www.fema.gov/media-library/assets/documents/6015
29	FEMA P-749, *An Introduction to the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures.*	www.fema.gov/media-library/assets/documents/21866
29	FEMA 232, *Homebuilders' Guide to Earthquake Resistant Design and Construction*	www.fema.gov/media-library/assets/documents/6015
29	FEMA P-749, *An Introduction to the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures.*	www.fema.gov/media-library/assets/documents/21866
29	FEMA 232, *Homebuilders' Guide to Earthquake Resistant Design and Construction*	www.fema.gov/media-library/assets/documents/6015
29	FEMA 232, *Homebuilders' Guide to Earthquake Resistant Design and Construction*	www.fema.gov/media-library/assets/documents/6015
29	*Cost Estimation Worksheet*	www.flash.org/pdf/Retrofit_Estimating_Sheets7.xlsx
30	*Emergency Management Agencies*	www.fema.gov/emergency-management-agencies
30	DHS. *Prepare Your Organization for an Earthquake Playbook.* Prepareathon	www.fema.gov/media-library-data/1409865580490-e83e2d1b906d35cc766477cb9459ca0e/prepareathon_playbook_earthquakes_final_090414_508a.pdf
31	U.S. Resiliency Council	www.usrc.org
32	*QuakeSmart*	www.quakesmartcommunity.org
39	Ready Business email	ReadyBusiness@flash.org
39	FEMA Private Sector Division Email	FEMA-Private-Sector@fema.dhs.gov