Earthquakes. They strike quickly, without warning.

Unlike many other natural hazards, there is neither a time nor a season when earthquakes are expected. However, that doesn’t mean that you should let an earthquake catch you completely by surprise. Although nothing can stop an earthquake, careful preparation and planning can help make a difference.

The following information highlights some personal safety steps, ways to protect your personal belongings, key retrofit measures, and tips on finding and selecting a contractor. Although we currently cannot predict when or where an earthquake will occur, or how severe an earthquake will be, the steps you take now could help make a difference in how well prepared your home and family are when the ground starts to shake. We encourage you to consider the following information.
Personal Safety... Be Aware and Be Prepared.

Steps to Consider Before An Earthquake
Once the ground starts to shake, it's too late to prepare for an earthquake. That's why formulating a safety plan can help you and your family identify potential problems before they occur. The following is a list of some of the things you can do to help you prepare for an earthquake.

- Identify emergency supplies you may need such as bottled water, non-perishable food and first-aid items.
- Gather and store emergency supplies.
- Learn location of and how to turn off electric, gas and water utilities.
- Purchase at least one multi-purpose dry chemical fire extinguisher.
- Install smoke detectors (replace batteries every six months).
- Sketch a floor plan of your home and identify places that can provide cover during an earthquake.
- Be aware of what to expect during an earthquake.
- Establish an out-of-state contact to help you keep track of your family members in the event of an earthquake.

Steps to Consider Regarding Personal Belongings
The following safety tips steps are easy to follow and can help you protect personal and expensive items like china, heirlooms, figurines, artwork and entertainment equipment.

- Secure televisions, stereos, computers and similar equipment to tabletops with buckles or safety straps.
- Tack down glassware, heirlooms and figurines with earthquake or florist putty.
- Install latches to kitchen cabinet doors to prevent items from flying out.
- Use nylon straps or L-braces to secure tall furniture including armoires.
- Use picture fasteners to keep artwork in place.

Quick Tip: Secure any appliance heavy enough to hurt you during an earthquake or fragile enough to be a financial or emotional loss.

Steps to Consider During an Earthquake
A loud rumbling sound might precede an earthquake by several seconds. Those few seconds could give you a chance to move to a safer location. The following page highlights just a few of the options available to you.
If You Are Inside...
- Drop and take cover under a table or other sturdy furniture. Kneel, sit or stay close to the floor. Hold onto furniture legs for balance. Be prepared to move with your cover.
- You could kneel, sit or stay close to the floor next to a structurally sound interior wall. Place your hands on the floor for balance. For personal safety, it is important to maintain your balance because in a major earthquake the ground may move violently for several minutes.
- Don’t stand in doorways. Violent motion could cause doors to slam against your body, crush your fingers or inflict other serious injuries. More importantly, while standing in a doorway, you could become a target for flying objects.
- Move away from windows, bookcases and unsecured heavy items to avoid being hit by airborne objects.
- If you are in bed, stay there. Try to protect yourself with pillows and blankets. Hang on during the shaking.
- Do not run outside if you are inside. Many injuries occur while people run through the building to the outside.

Remember...
- Drop, cover and hold.
- Hold onto a protective object.
- Move away from windows.
- Remain under shelter until shaking stops.
- Think before you move!
- Do not panic!

Steps to Consider After An Earthquake
Once the earthquake is over, use caution. Taking just a few minutes to think before you act could mean the difference between safety and injury. Here are just a few of the things to keep in mind.

- Wear shoes to protect your feet from debris whenever possible.
- Be alert for aftershocks.
- Check for injuries.
- Check condition of electricity, gas and water utilities.
- Check for fire hazards.
- If you lose electricity, use flashlights and avoid the use of matches and candles.
- If uncertain about the safety of a building, evacuate with caution.
- Contact fire, police and medical services if needed - expect delays in service.
- If the building is in good shape, stay put and listen for advisories on the radio.
- Check emergency supplies.
- Notify your out-of-state contact regarding your safety condition as soon as possible.
- Do not touch downed power lines.
- Check sewage lines before flushing toilets.
- Cooperate with public safety efforts.
Preparing Your Home with Retrofit Measures

Strapping the Water Heater
One of the most common forms of earthquake preparedness is the strapping of water heaters to the wall. Because of the weight and height of your water heater there is a possibility that it could topple over during an earthquake if it hasn’t been properly secured. For example, if your water heater is located near a wall constructed with drywall, make sure the straps are secured to the studs. Many home improvement stores sell simple-to-use kits complete with materials and detailed instructions on how to brace your water heater. If you’re not comfortable doing the work yourself, contact a qualified contractor or check with your local fire department for assistance.

Quick Tip: Inspect your water heater — be sure that all screws are tight and have been properly secured to your wall.

Flexible Gas Lines
Gas line connections to household items like gas stoves and water heaters can be protected by installing flexible gas pipes. Major appliances often fall-over during an earthquake, and flexible gas lines can give added bend and flexibility between the gas line connection and appliance should a quake hit your area.

Quick Tip: Inspect your stove, water heater or other gas appliances for flexible gas lines. Have a licensed plumber or contractor install flexible lines if needed.

Automatic Gas Shutoff Valves
There are a variety of automatic gas shutoff valves on the market today. These valves attach to your gas meter, and are designed to stop the flow of gas into your home. They are also designed to activate during quakes of 5.2 or greater. Some devices even have a built-in reset option for homeowners.

Automatic gas shutoff valves must be approved by the Office of the State Architect and need to conform to State of California standards. Some counties and cities may have additional standards, so it’s a good idea to check on local codes. When you consider the installation of an automatic gas shutoff valve, be sure to check with a few manufacturers and compare price, features, specifications and warranties.

Quick Tip: Check with your local gas utility company to see if they offer or have access to a resource for automatic gas shutoff valves.

Foundation Bolting and Cripple Wall Reinforcement
These concepts sound a bit more intimidating than they really are, but this section could be of special interest to you, especially if your home was built before 1960. Older wood frame homes should have their frames secured with expansion bolts every three to four feet along the foundation. If anchor bolts are not present, your home may slide off its foundation,
causing potential harm to you and damage to your home.

A cripple wall is the wood-framed stud wall extending from the top of the foundation to the framing of the first floor. The height of a cripple wall can generally range from 14 inches to 4 feet. Reinforcing the cripple wall with 1/2 inch thick plywood can add to the strength of your home’s frame. If you have reinforced cripple walls, the plywood should be secured to the stud wall with 8d nails spaced 3 inches apart.

Many contractors in California can install bolts to your home’s foundation and reinforce the cripple wall between the foundation and first floor. If you’re qualified, consider performing the work on your own, especially if the crawl space is tall enough for you to move freely.

Quick Tip: Conduct a review of your home’s structure, check for bolts and reinforced cripple walls.

Tips for Selecting A Contractor
If you’re handy around the house and qualified to do the work, you may be able to do some retrofit activities on your own. However, if you feel more comfortable having work done by a professional, then here are some helpful hints to consider that can make your search and selection a bit less nerve rattling. Prior to calling any contractor, be sure to list your retrofit goals.

- Check with family or friends for personal references.
- Contact at least three local contractors for bids.

- Check to see that they are licensed.
- Check for number of years in business.
- Ask for references and follow-up with them.
- Check for liability coverage and workers compensation insurance.
- Look for another contractor if you feel pressure tactics are being used.
- Require a written contract and don’t sign until you fully understand the terms.
- Consider putting a satisfaction or arbitration clause in your contract.
- Don’t pay cash, and don’t let the payments get ahead of the work completed.
- State law requires that contractors cannot ask for a deposit of more than 10% of the total cost of the job, or $1,000, whichever is less.

Checking the Contractor License
The Contractors State License Board (CSLB) can verify if a contractor has a valid license. Call the CSLB at the number listed on the back of this brochure to verify whether the contractor is licensed, in good standing, bonded and is in the proper classification to fit your needs.

Building Codes and Permits
Whether doing work on your own or using a contractor, always check with your local building department to find out if you’ll need a permit or if any local building codes exist for the type of retrofit activity you have in mind.