

Be Prepared for Earthquakes

Be prepared, use the links below to find out how

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Can You Go It Alone For Three Days?

The first 72 hours after an earthquake are critical. Electricity, gas, water, and telephones may not be working. In addition, public safety services such as police and fire departments will be busy handling serious crises. You should be prepared to be self-sufficient -- able to live without running water, electricity and/or gas, and telephones -- for at least three days following a quake. To do so, keep on hand in a central location the following:

- **Food.** Enough for 72 hours, preferably one week.
- **Water.** Enough so each person has a gallon a day for 72 hours, preferably one week. Store in airtight containers and replace it every six months. Store disinfectants such as iodine tablets or chlorine bleach, eight drops per gallon, to purify water if necessary.
- **First aid kit.** Make sure it's well stocked, especially with bandages and disinfectants.
- **Fire extinguisher.** Your fire extinguisher should be suitable for all types of fires. Teach all family members how to use it.
- **Flashlights with extra batteries.** Keep flashlights besides your bed and in several other locations. DO NOT use matches or candles after an earthquake until you are certain there are no gas leaks.
- **Portable radio with extra batteries.** Most telephones will be out of order or limited to emergency use. The radio will be your best source of information.

- **Extra blankets, clothing, shoes and money.**
- **Alternate cooking sources.** Store a barbecue or camping stove for outdoor camping. CAUTION: Ensure there are no gas leaks before you use any kind of fire as a cooking source and do not use charcoal indoors.
- **Special items.** Have at least a week's supply of medications and food for infants and those with special needs. Don't forget pet food.
- **Tools.** Have an adjustable or pipe wrench for turning off gas and water.

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Would You Be Ready To Ride It Out If An Earthquake Hit Today?

With some basic planning and thinking ahead, preparing your home or workplace for an earthquake is easy. These tips on what to do before, during and after an earthquake may help save you or your loved ones the next time around.

Before An Earthquake

How well you, your family and your home survive an earthquake often depends upon how well you prepare beforehand. Develop a family and neighborhood earthquake plan. The following checklist will help you get started:

- Prepare an emergency kit of food, water, and supplies including a flashlight, portable battery-operated radio, batteries, medicines, first aid kit, money and clothing.
- Know the safe spots in each room -- under sturdy tables, desks, or against interior walls.
- Know the danger spots -- near windows, mirrors, hanging objects, fireplaces and tall, unsecured furniture.
- Conduct practice drills so you and your family know the safe locations in your home.
- Decide how and where your family will reunite if separated during a quake.
- Choose an out-of-state friend or relative who family members can call after the quake to report their whereabouts and conditions.
- Learn first aid and CPR (cardiopulmonary resuscitation.)
- Learn how to shut off gas, water, and electricity in case the lines are damaged. SAFETY NOTE: Do not attempt to relight the gas pilot. Call the utility company.
- Check chimneys, roofs, walls and foundations for stability. Make sure your house is bolted to its foundation.
- Secure your water heater and major appliances as well as tall, heavy furniture, hanging plants, mirrors and picture frames -- especially those over beds.
- Keep breakables, heavy objects, flammable or hazardous liquids such as paints, pest sprays and cleaning products, in secured cabinets or on lower shelves.

- Organize your neighborhood to be self-sufficient after a quake.

During An Earthquake

- If indoors, stay there. Get under a desk or table or stand in a corner.
- If outdoors, get into an open area away from trees, buildings, walls and power lines.
- If in a high-rise building, stay away from windows and outside walls. Get under a table. Do not use elevators.
- If driving, pull over to the side of the road and stop. Avoid overpasses and power lines. Stay inside your car until the shaking is over.
- If in a crowded public place, do not rush for the doors. Crouch and cover your head and neck with your hands and arms.

After An Earthquake

Unless there is an immediate, life-threatening emergency, do not attempt to use the telephone. After a quake, be sure to:

- Check for gas and water leaks, broken electrical wiring or sewage lines. If there is damage, turn the utility off at the source and immediately report gas leaks to your utility company. Check for downed power lines; warn others to stay away.
- Check your building for cracks and damage, including the roof, chimneys and foundation.
- Turn on your portable radio for instructions and news reports. For your own safety, cooperate fully with public safety officials and follow instructions.
- Do not use your vehicle unless there is an emergency. Keep the streets clear for emergency vehicles.
- Be prepared for aftershocks.
- Stay calm and lend a hand to others.
- If you evacuate, leave a message at your home telling family members and others where you can be found.

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Ever Wonder What Causes Earthquakes?

It's probably not something you think about first when earthquakes are mentioned, but knowing what causes these shakers can help you understand your surroundings.

The earth is divided into three main layers -- a hard outer crust, a soft middle layer and a center core. The outer crust is broken into massive, irregular pieces called "plates." These plates have been moving very slowly for billions of years, driven by energy forces deep within the earth. It is this movement that has shaped the physical features of the

earth -- mountains, valleys, plains and plateaus. Earthquakes occur when these moving plates grind and scrape against each other.

In California, two of these plates meet: the Pacific Plate and the North American Plate. The Pacific Plate covers most of the Pacific Ocean floor and the California coastline. The North American Plate stretches across the North American continent and parts of the Atlantic Ocean. The primary boundary between them is the San Andreas fault. It is more than 650 miles long and extends 10 miles deep. Many smaller faults, such as the Hayward fault in the north and the San Jacinto fault in the south, branch from the San Andreas fault. Experts suspect there are many other faults that haven't been discovered yet.

The Pacific Plate grinds northwestward past the North American Plate at a rate of about two inches per year. Parts of the San Andreas fault system adapt to this movement by a constant "creep" resulting in frequent, but moderate, earth tremors. In other areas, movement is not constant and strain can build up for hundreds of years resulting in strong earthquakes when it's released.

Unlike other natural disasters, there is no warning for earthquakes. One could hit today, tomorrow, or next week. Future earthquakes are a serious threat to Californians who could face loss of life, injury and property damage. Consider the sizable damage caused by past quakes.

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Some Significant California Earthquakes

- **Northridge**, M6.7 -- January 17, 1994

57 deaths -- more than 11,000 injuries -- \$40+ billion in damage

- **Landers**, M7.3/**Big Bear**, M6.7 -- June 28, 1992

1 death -- \$93 million in damage

- **Cape Mendocino**, M6.9 -- April 25, 1992

\$48.3 million in damage

- **Sierra Madre**, M5.8 -- June 28, 1991

1 death -- over 30 injuries -- \$33.5 million in damage

- **Upland**, M5.5 -- February 28, 1990

38 injuries -- \$10.4 million in damage

- **Loma Prieta**, M7.1 -- October 17, 1989

63 deaths -- 3,757 injuries -- \$5.9 billion in damage

- **Whittier-Narrows**, M5.9 -- October 1, 1987

Aftershock, M5.3 -- October 4, 1987

8 deaths -- 200 injuries -- \$358 million in damage

- **Palm Springs**, M5.9 -- July 8, 1986

\$5.3 million in damage

- **Morgan Hill**, M6.2 -- April 24, 1984

27 injuries -- \$10 million in damage

- **Coalinga**, M6.4 -- May 2, 1983

47 injuries -- \$31 million in damage

- **Kern County**, M7.7 -- July 21, 1952

12 deaths -- 18 injuries -- \$50 million in damage

- **San Francisco**, M8.5 -- April 18, 1906

700-800 deaths -- \$400 million in damage

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Earthquake: Duck, Cover & Hold

No matter where you are, know how to protect yourself and your family during an earthquake. Practice taking cover as if there were an earthquake and learn the safest places in your home and work. Practice getting out of your home and check to see if the planned exits are clear and if they can become blocked in an earthquake. Practice turning off your electricity and water. Know how to turn off the gas, but do not practice this step. In the event of an earthquake, once you turn off your gas, only your utility company should turn it back on for safety reasons.

Tips

- When in a **HIGH-RISE BUILDING**, move against an interior wall if you are not near a desk or table. Protect your head and neck with your arms. Do not use the elevators.
- When **OUTDOORS**, move to a clear area away from trees, signs, buildings, or downed electrical wires and poles.
- When on a **SIDEWALK NEAR BUILDINGS**, duck into a doorway to protect yourself from falling bricks, glass, plaster and other debris.
- When **DRIVING**, pull over to the side of the road and stop. Avoid overpasses and power lines. Stay inside your vehicle until the shaking stops.
- When in a **CROWDED STORE OR OTHER PUBLIC PLACE**, move away from display shelves containing objects that could fall. Do not rush for the exit.
- When in a **STADIUM OR THEATER**, stay in your seat, get below the level of the back seat and cover your head and neck with your arms.

Don't forget to practice . . .

DUCK . . . DUCK or DROP down on the floor.

COVER . . . Take COVER under a sturdy desk, table or other furniture. If that is not possible, seek cover against an interior wall and protect your head and neck with your arms. Avoid danger spots near windows, hanging objects, mirrors or tall furniture.

HOLD . . . If you take cover under a sturdy piece of furniture, HOLD on to it and be prepared to move with it. Hold the position until the ground stops shaking and it is safe to move.

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Emergency Supplies Checklist

Stocking up now on emergency supplies can add to your safety and comfort during and after an earthquake. Store enough supplies for at least 72 hours.

Essentials

- Water-- 1 gallon per person per day (a week's supply of water is preferable)
- Water purification kit
- First aid kit, freshly stocked
- First aid book
- Food
- Can Opener (non-electric)
- Blankets or sleeping bags

- Portable radio, flashlight and spare batteries
- Essential medications
- Extra pair of eyeglasses
- Extra pair of house and car keys
- Fire extinguisher --A-B-C type
- Food, water and restraint (leash or carrier)
- Cash and change
- Baby supplies: formula, bottle, pacifier, soap and baby powder, clothing, blankets, baby wipes, disposable diapers, canned food and juices.

Sanitation Supplies

- Large plastic trash bags for waste; tarps and rain ponchos
- Large trash cans
- Bar soap and liquid detergent
- Shampoo
- Toothpaste and toothbrushes
- Feminine hygiene supplies
- Toilet paper
- Household bleach

Safety and Comfort

- Sturdy shoes
- Heavy gloves for clearing debris
- Candles and matches
- Light sticks
- Change of clothing
- Knife or razor blades
- Garden hose for siphoning and firefighting
- Tent
- Communication kit: paper, pens, stamps

Cooking

- Plastic knives, forks, spoons
- Paper plates and cups
- Paper towels
- Heavy-duty aluminum foil
- Camping stove for outdoor cooking (caution: before using fire to cook, make sure there are no gas leaks, never use charcoal indoors)

Tools and Supplies

- Axe, shovel, broom
- Adjustable wrench for turning off gas

- Tool kit including a screwdriver, pliers and a hammer
- Coil of 1/2" rope
- Plastic tape, staple gun and sheeting for window replacement
- Bicycle
- City map

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Preparing Your Family For An Earthquake

When preparing for an earthquake, plan on having enough supplies to get you and your family through at least the first 72 hours. After a major earthquake, there's a good chance that traditional emergency response teams will be too busy to take care of you and your family. You need to prepare your home and neighborhood.

The Plan

- Stock up on at least a three-day supply of food, water, clothes, medical supplies and other necessary equipment for everyone in your family. Make sure everyone knows where to find them.
- Decide where and when to reunite your family should you be apart when an earthquake happens.
- Choose a person outside the immediate area to contact if family members are separated. Long distance phone service will probably be restored sooner than local service. Do not use the phone immediately after an earthquake.
- Know the policies of the school or daycare center your children attend. Make plans to have someone pick them up if you are unable to get to them.
- If you have a family member who does not speak English, prepare an emergency card written in English indicating that person's identification, address and any special needs such as medication or allergies. Tell that person to keep the card with him/her at all times.
- Conduct Earthquake: Duck, Cover & Hold drills every six months with your family.
- Know the safest place in each room because it will be difficult to move from one room to another during a quake.
- Locate the shutoff valves for water, gas and electricity. Learn how to shut off the valves before a quake. If you have any questions, call your utility company.

- Make copies of vital records and keep them in a safe deposit box in another city or state. Make sure your originals are stored safely.
- Before a quake occurs, call your local Red Cross chapter and Office of Emergency Services to find out about their plans for emergency Shelters and temporary medical centers in case of such a disaster.
- Establish all the possible ways to exit your house. Keep those areas clear.
- Know the locations of the nearest fire and police stations.
- Take photos and/or videos of your valuables. Make copies and keep them in another city or state.
- Include your babysitter and other household help in your plans.
- Keep an extra pair of eyeglasses and house and car keys on hand.
- Keep extra cash and change. If electricity is out, you will not be able to use an ATM.

General Tips

- Stay away from heavy furniture, appliances, large glass panes, shelves holding objects, and large decorative masonry, brick or plaster such as fireplaces.
- Keep your hallway clear. It is usually one of the safest places to be.

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Tips for Preparing Children

Infants and Toddlers

For infants and toddlers, special emphasis should be placed on making their environment as safe as possible.

- **Cribs should be placed away from windows and tall, unsecured bookcases and shelves that could slide or topple.**
- **A minimum of a 72-hour supply of extra water, formula, bottles, food, juices, clothing, disposable diapers, baby wipes and prescribed medications should be stored where it is most likely to be accessible after an earthquake. Also keep an extra diaper bag with these items in your car.**
- **Store strollers, wagons, blankets and cribs with wheels to evacuate infants, if necessary.**
- **Install bumper pads in cribs or bassinets to protect babies during the shaking.**
- **Install latches on all cupboards (not just those young children can reach) so that nothing can fall on your baby during a quake.**

Preschool and School-age Children

By age three or so, children can understand what an earthquake is and how to get ready for one. Take the time to explain what causes earthquakes in terms they'll understand. Include your children in family discussions and planning for earthquake safety. Conduct drills and review safety procedures every six months.

- Show children the safest places to be in each room when an earthquake hits. Also show them all possible exits from each room.
- Use sturdy tables to teach children to Duck, Cover & Hold.
- Teach children what to do wherever they are during an earthquake (at school, in a tall building, outdoors).
- Make sure children's emergency cards at school are up-to-date.
- Although children should not turn off any utility valves, it's important that they know what gas smells like. Advise children to tell an adult if they smell gas after an earthquake.

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Tips for the Physically Challenged

Before an Earthquake

- Set up your home, apartment or workplace so that you can quickly get under a sturdy desk, table or other safe place for protection. Identify doorways that do not have doors in which you can take cover.
- Maintain a list of medications, allergies, special equipment, names and numbers of doctors, pharmacists and family members with you at all times.
- Keep extra medication with your emergency supplies.
- Keep extra emergency supplies at your bedside and by your wheelchair.
- Have walking aids near you at all times. Place extra walking aids in different rooms of the house.
- Put a security light in each room. These lights plug into any outlet and light up automatically if there is a loss of electricity. They continue operating automatically for four to six hours, and they can be turned off by hand in an emergency.
- Have a whistle near you to signal for help.
- Find two people you trust who will check on you after an earthquake. Tell them your special needs. Show them how to operate any equipment you use. Show them where your emergency supplies are kept. Give them a spare key.

During and After an Earthquake

- **If you are in bed or out of a wheelchair, stay where you are and cover your head and neck.**
- **If you are in a wheelchair, stay in it and go into a doorway that doesn't have a door. Cover your head and neck with your hands.**
- **Prepare to be self-sufficient for at least three days.**
- **Turn on your portable radio for instructions and news reports. For your own safety, cooperate fully with public safety officials and instructions.**
- **Prepare for aftershocks.**
- **If you evacuate your home, leave a message at your home telling your family members and other where you can be found.**

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Tips for the Elderly

Before an Earthquake

- **Eliminate hazards. Make it as easy as possible to quickly get under a sturdy desk for protection.**
- **Anchor special equipment such as telephones and life support systems. Fasten tanks of gas, such as oxygen, to the wall.**
- **Keep a list of medications, allergies, special equipment, names and numbers of doctors, pharmacists and family members. Make sure you have this list with you at all times.**
- **Keep an extra pair of eyeglasses and medication with emergency supplies.**
- **Keep walking aids near you at all times. Have extra walking aids in different rooms of the house.**
- **Put a security light in each room. These lights plug into any outlet and light up automatically if there is a loss of electricity. They continue operating automatically for four to six hours, and they can be turned off by hand in an emergency.**
- **Make sure you have a whistle to signal for help.**
- **Keep extra batteries for hearing aids with your emergency supplies. Remember to replace them annually.**
- **Keep extra emergency supplies at your bedside.**

- Find two people you trust who will check on you after an earthquake. Tell them your special needs. Show them how to operate any equipment you use. Show them where your emergency supplies are kept. Give them a spare key.

During and After an Earthquake

- If you are in bed or sitting down, do not get up.
- If you are standing, duck and cover or sit down. You could be thrown to the floor if you are standing.
- Prepare to be self-sufficient for at least three days.
- Turn on your portable radio for instructions and news reports. For your own safety, cooperate fully with public safety officials and instructions.
- Prepare for aftershocks.
- If you evacuate, leave a message at your home telling family members and others where you can be found.

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Tips for Apartment and Mobile Home Park Managers

You shouldn't depend on your tenants to know what to do in an emergency. It will be up to you to get them and your building ready for an earthquake. More importantly, you will want to prepare people to be self-sufficient for at least 72 hours after an earthquake.

- Consult local building codes to ensure that buildings meet current seismic safety standards.
- Develop an emergency plan before an earthquake that includes guidelines for storing water and food, obtaining first aid training, appointing floor or area leaders and conducting drills. Encourage tenants to develop their own emergency plans as well.
- Encourage mobile home tenants to better secure their homes by installing structural support bracing systems, leaving wheels on homes (rather than removing them) and securing awnings. A list of state-certified bracing systems is available from the California Department of Housing and Community Development.
- Organize teams that will be responsible for first aid, search-and-rescue, communications and firefighting.
- Provide tenants with a white flag or a distinguishable sign to post that will indicate which of them haven't been seriously injured.
- Practice Earthquake: Duck, Cover & Hold drills in your complex or park.
- Hold meetings to discuss these plans and provide information to your tenants.

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Organizing Your Neighborhood

After an earthquake or other disaster, emergency response agencies could be overburdened and might not be able to get to your neighborhood immediately. You and your neighbors or coworkers may need to take the initial emergency response actions and take care of others for at least 72 hours. Past earthquakes have thrust many untrained people into positions of providing first aid and rescuing people. You need to be prepared!

If a response team has not been organized in your neighborhood or workplace, form one now. Joining and forming a community response team can greatly improve your chances of surviving an earthquake and can improve the self-sufficiency of your neighborhood.

Training

- Learn simple firefighting techniques.
- Learn basic search-and-rescue skills.
- Learn to assess yourself, your family and coworkers for injuries.
- Learn to assess your home and workplace for hazards or damage.
- Learn to assess your community for hazards, needs and available resources.

Contact your local police and fire departments, city/county Office of Emergency Services, American Red Cross chapter or community college to arrange for speakers and training workshops. Response teams should arrange to participate in annual earthquake exercises sponsored by local government and business.

Inventory Your Neighbors' Skills

As part of the community response team planning process, teams should conduct an inventory of the skills and resources available at home, work and community. You should have this information on hand before an earthquake for efficient, effective responses. Identify people who:

- Have medical, electrical, child care, leadership, firefighting and survival skills.
- Own chain saws, citizens band radios, four-wheel drive vehicles, motorcycles and water purifiers.
- Are willing and able to be a runner/bicycle to deliver messages if telephone lines are down.

Every home or office has people with special needs. Your neighborhood response team should work with these individuals in advance to determine what extra assistance or supplies they may require after an earthquake or other emergency. Some of the people who may require special assistance include:

Physically Challenged

- Deaf or hearing impaired
- Blind
- Limited mobility -- wheelchair-bound
- Persons who require a special oxygen supply
- Persons with significant medical conditions

Other

- Children who spend time alone at home
- Non-English speaking

Store Supplies

In addition to the water, food and other supplies that everyone needs to stock, members of the community response team should store tools. Items such as the following should be stored in a central and easily accessible location.

- Gloves and goggles
- Adjustable wrenches
- Hard hats and vests
- Flashlights with extra batteries
- Axes and crowbars
- Ropes

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Tips for Pet Owners

When preparing your home for an earthquake, don't forget to include your pets on the list. They will depend on you even more after an earthquake to take care of them and their needs.

Before an Earthquake

- Store enough food and water to last for 72 hours, preferably for one week. Prepare a shelter or evacuation kit for your pet, including an unbreakable dish, veterinarian records, a restraint (leash or pet carrier) and medication with instructions.
- Keep your pet's ID tag up-to-date.
- Make sure nothing can fall on your pet.
- Arrange for a neighbor to take care of your pet if you are not able to get home after an earthquake.

During and After an Earthquake

- **Do not try to hold onto your pet during the shaking. Animals will instinctively protect themselves and hide where they're safe. If you get in their way, even the nicest pets can turn on you.**
- **Be patient with your pets after a quake. They get stressed just like people and need time to readjust. They may disappear for some time, but they generally show up again when things have calmed down.**
- **If you have outdoor pets, you should keep them indoors until the aftershocks have subsided and they have calmed down.**
- **If you must evacuate your home, leave your pet secured in a safe place. Pets will not be allowed in shelters. Be sure to leave plenty of clean water and food. If possible, visit your pet daily until you can return home.**

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How to Secure Your Furniture

You must secure the contents of your home or office to reduce hazards. You should secure anything heavy enough to hurt you if it falls on you. Here are steps you should take to secure your possessions.

Secure Tabletop Objects

- **TVs, stereos, computers, lamps and chinaware can be secured with buckles and safety straps attached to the tabletop (which allows for easy movement of the units when needed) or with hook and loop fasteners glued to both the table and the unit.**
- **Glass and pottery objects can be secured with nondrying putty or microcrystalline wax.**

Secure Items in Your Kitchen

- **Use child-proof latches, hook and eye latches or positive catch latches, designed for boats, to secure your cabinet doors.**
- **Make sure your gas appliances have flexible connectors to reduce the risk of fire.**
- **Secure your refrigerator to prevent movement.**

Anchor Your Furniture

- **Secure the tops of all top-heavy furniture such as bookcases and file cabinets to the wall. Be sure to anchor the stud, not just to the plasterboard. Flexible fasteners such as nylon straps allow tall objects to sway without falling over, reducing the strain on the studs.**

Protect Yourself from Broken Glass

- **Replace your windows with ones made from safety glass or cover them with a strong shatter-resistant film. Be sure you use safety film and not just a solar filter.**

Secure Overhead Objects

- **Ceiling lights and fans should be additionally supported with a cable bolted to the ceiling joist. The cable should have enough slack to allow it to sway.**
- **Framed pictures, especially glass-covered, should be hung from closed hooks so that they can't bounce off. Only soft art such as tapestries should be placed over beds and sofas.**