

**ESP**

**FOCUS**

## Earthquakes



### California is earthquake country!

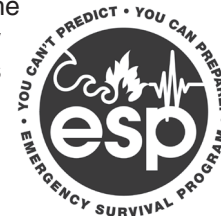
Thousands of earthquakes occur in California each year, but most are too small to be felt. Some cause moderate damage and injuries in a small area. Others can cause regional destruction.

Because the San Andreas fault is the longest fault in the region, it produces the largest earthquakes. Scientists estimate that large earthquakes on the San Andreas occur about every 150 years. The largest earthquake on the southern portion of the San Andreas in recorded history occurred in 1857. The fault ruptured all the way

from Parkfield in southern Monterey County to Cajon Pass in San Bernardino County. Scientists estimate its magnitude at 7.9. A repeat of this earthquake today would cause extensive damage, deaths, and injuries throughout Southern California. Many scientists are even more concerned about the potential for a large earthquake on the southernmost section of the San Andreas, from the Salton Sea through the Coachella Valley to the Cajon Pass, where an earthquake has not occurred since around 1680. Such an earthquake may also cause great damage throughout the region.

In Southern California alone there are over 300 other faults that may also cause damaging earthquakes. Most everyone in Southern California lives within 30 miles of one of these faults. When earthquakes on these faults are in populated areas, the losses can be substantial. The Northridge earthquake in 1994 caused more than 33 deaths, more than 9,000 injuries, and \$40- \$42 billion in losses.

No one knows when or where such a quake will occur, but everyone can reduce their risk of death, injury, and property loss in an earthquake by following the Seven Steps to Earthquake Safety outlined on the reverse side of this Focus Sheet, wherever they live, work, or play.



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[www.espfocus.org](http://www.espfocus.org)

# The Seven Steps to Earthquake Safety

The following steps are excerpted from "Putting Down Roots in Earthquake Country." The full text can be viewed and ordered at [www.earthquakecountry.info](http://www.earthquakecountry.info).

## Step 1: Fix potential hazards in your home

- Install latches on kitchen cabinets.
- Secure TVs, stereos, computers, etc. with Velcro straps. Use putty or wax adhesive for smaller items.
- Hang mirrors and artwork from closed hooks.
- Secure top-heavy furniture and appliances to walls.
- Install flexible connectors on gas appliances.
- Strap water heaters correctly to the wall.
- Store flammable or hazardous materials on lower shelves or on the floor

## Step 2: Create a disaster plan

- Practice "drop, cover, and hold on."
- Keep shoes and a flashlight next to each bed.
- Take a Red Cross first aid and CPR course.
- Know how and when to shut off utilities.
- Learn how to properly use a fire extinguisher.
- Select a safe place outside of your home to meet your family or housemates after the earthquake.
- Designate an out-of-state contact person who can be called to relay information.
- Keep your children's school release card current.

## Step 3: Create disaster supplies kits

Keep a *personal disaster supplies kit* in your home, in your car, and at work, with at least the following:

- Medications and important medical information
- First aid kit and handbook
- Spare eyeglasses or contact lenses
- Bottled water and snack foods
- Whistle (to alert rescuers to your location)
- Emergency cash, in small bills.
- List of out-of-state contact phone numbers
- Working flashlight with extra batteries and bulbs
- Personal hygiene supplies
- Copies of personal identification
- In addition to your personal disaster supplies kits, store a household disaster supplies kit with a three-day to one-week supply of items needed to live without normal services (water, electricity, etc.) and to begin recovery.

## Step 4: Fix your building's potential weaknesses

If your building needs the following retrofitting, you likely need to consult a professional:

- The framing of your house should be bolted at least every 6 feet to the perimeter of the concrete foundation (every 4 feet in a multistory building).
- Homes with a crawl space should have plywood connecting the studs of the short "cripple" walls.
- Larger openings in the lower floor, such as a garage door, should be properly reinforced.
- Masonry walls and chimneys should be reinforced.

For those who rent: You control which apartment or house you rent. Ask the landlord these questions:

- What retrofitting has been done on this building?
- Have water heaters been strapped to the wall studs?
- Can I secure furniture to the walls?

## Step 5: During earthquakes and aftershocks

Drop! Cover! and Hold On!

- During earthquakes, drop to the floor, take cover under a sturdy desk or table, and hold on to it firmly.
- If you are in bed, hold on and stay there, protecting your head with a pillow.
- The area near outer walls is very dangerous. Do not try to go outside during shaking.
- If outside, move to a clear area if you can safely do so; avoid power lines, trees, and other hazards.
- If driving, pull over to the side of the road, stop, and stay in your car until shaking stops.

## Step 6: After the earthquake, check for injuries and damage

*Check for injuries:*

- If a person is bleeding, put direct pressure on the wound. Use clean gauze or cloth, if available.
- Administer rescue breathing if necessary.
- Carefully check children or others needing special assistance.
- Do not move seriously injured persons unless they are in immediate danger of further injury.
- Get medical help for serious injuries.

*Check for damage:*

- If possible, put out small fires immediately.
- Shut off the main gas valve only if you suspect a leak. Wait for the gas company to turn it back on.
- Shut off power at the main breaker switch if there is any damage to your house wiring. Unplug broken lights or appliances as they could start fires.
- Hazardous materials such as bleach, chemicals, and gasoline should be covered with dirt or cat litter.
- Stay away from chimneys or brick walls with visible cracks. Don't use a fireplace with a damaged chimney.
- Stay away from downed power lines and objects in contact with them.

## Step 7: When safe, continue to follow your disaster plan

The first days after the earthquake...

Until you are sure there are no gas leaks, do not use open flames or operate any electrical or mechanical device that can create a spark. Never use the following indoors: camp stoves, gas lanterns or heaters, gas or charcoal grills, or gas generators. These can release deadly carbon monoxide or be a fire hazard in aftershocks.

- Turn on your portable or car radio for information and safety advisories.
- Call your out-of-state contact, tell them your status, then stay off the phone.
- Check on the condition of your neighbors.
- If power is off, plan meals to use up refrigerated and frozen foods first.
- If your water is off or unsafe, you can drink from water heaters, melted ice cubes, or canned vegetables.
- Report damage to your local building department and to your local office of emergency services.

*If you cannot stay in your home...*

Because shelters will likely be overcrowded, do not leave home just because utilities are out of service or your home and its contents have suffered only moderate damage. If you do evacuate, tell a neighbor and your out-of-state-contact where you are going, and take your personal disaster supplies kits and other essentials.

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