

# Fact Sheet

# Earthquakes

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An earthquake is the sudden, sometimes violent movement of the earth's surface from the release of energy in the earth's crust. Earthquakes are one of the most costly natural hazards faced by the Nation, posing a risk to 79 million Americans in 39 states. Although there are no guarantees of safety during an earthquake, identifying potential hazards ahead of time and advance planning can save lives and significantly reduce injuries and property damage.

The number one cause of death in an earthquake is running out of a building and being struck by falling debris! With the stringent construction standards in force in the U.S. today, you are far safer staying **inside** a building when an earthquake occurs.

## Know Your Risk and What To Do

- Contact your local emergency management office to learn about emergency plans.
- Get additional information from the Federal Emergency Management Agency ([www.fema.gov](http://www.fema.gov)), the American Red Cross ([www.redcross.org](http://www.redcross.org)) and U.S. Geological Survey ([www.noaa.gov](http://www.noaa.gov)).
- Inquire about emergency plans and procedures at your child's school and at your workplace.
- Make a family disaster plan that includes out-of-town contacts and locations to reunite if you become separated. Be sure everyone knows home, work and cell phone numbers, and how to call 9-1-1.
- Assemble a 3-day disaster supplies kit with food, water, medical supplies, battery-powered radio and NOAA Weather Radio All Hazards, batteries, flashlights and other items. Consider food supplies for up to a month and water too, if you have space, if your area is subject to a catastrophic level earthquake or you are concerned about homeland security attacks that might require lengthy shelter.
- Gather important documents such as birth and marriage certificates, social security cards, passports, wills, deeds, and financial and insurance records. Store them in a fire and flood safe location or safe deposit box.

## Know the Terms

- **Earthquake** – A sudden slipping or movement of a portion of the earth's crust, accompanied and followed by a series of vibrations.
- **Aftershock** – An earthquake of similar or lesser intensity that follows the main earthquake.
- **Fault** – The fracture across which displacement has occurred during an earthquake. The slippage may range from less than an inch to more than 10 yards in a severe earthquake.
- **Epicenter** – The place on the earth's surface directly above the point on the fault where the earthquake rupture began. Once fault slippage begins, it expands along the fault during the earthquake and can extend hundreds of miles before stopping.
- **Seismic Waves** – Vibrations that travel outward from the earthquake fault at speeds of several miles per second. Although fault slippage directly under a structure can cause considerable damage, the vibrations of seismic waves cause most of the destruction during earthquakes.
- **Magnitude** – The amount of energy released during an earthquake, which is computed from the amplitude of the seismic waves. A magnitude of 7.0 on the Richter Scale indicates an extremely strong earthquake. Each whole number on the scale represents an increase of about 30 times more energy released than the previous whole number represents. Therefore, an earthquake measuring 6.0 is about 30 times more powerful than one measuring 5.0.

## Before an Earthquake

- Repair defective electrical wiring, leaky gas lines and inflexible utility connections. Get appropriate professional help. Do not work with gas or electrical lines yourself.
- Bolt down and secure to the wall studs your water heater, refrigerator, furnace and gas appliances. If recommended by your gas company, have an automatic gas shut-off valve installed that is triggered by strong vibrations.
- Place large or heavy objects on lower shelves. Fasten shelves, mirrors and large picture frames to walls. Brace high and top-heavy objects.
- Store bottled foods, glass, china and other breakables on low shelves or in cabinets that fasten shut.
- Anchor overhead lighting fixtures.
- Be sure the residence is firmly anchored to its foundation.
- Install flexible pipe fittings to avoid gas or water leaks. Flexible fittings are more resistant to breakage.
- Locate safe spots in each room under a sturdy table or against an inside wall. Practice getting to them quickly by moving to these places during each drill.
- Hold earthquake drills with your family members: Drop, cover, and hold on!

## During an Earthquake

- Minimize your movements during an earthquake to a few steps to a nearby safe place. Stay indoors until the shaking has stopped and you are sure exiting is safe.

## After an Earthquake

- Be prepared for aftershocks. These secondary shockwaves are usually less violent than the main quake but can be strong enough to do additional damage to weakened structures.
- Open cabinets cautiously. Beware of objects that can fall off shelves.
- Stay away from damaged areas unless your assistance has been specifically requested by police, fire or relief organizations.
- Be aware of possible tsunamis if you live in coastal areas. These are also known as seismic sea waves (mistakenly called “tidal waves”). When local authorities issue a tsunami warning, assume that a series of dangerous waves is on the way. Stay away from the beach.
- Monitor NOAA Weather Radio All Hazards and commercial radio and TV for information and be ready to follow instructions instantly.

## The Recovery Process

- For direct assistance to individuals’ and families’ immediate needs contact the American Red Cross or other local voluntary agencies.
- Check newspapers, television, or radio news for information on disaster assistance available.
- If you have property damage, contact your insurance company as soon as possible.
- For information on helping children deal with disaster, visit [www.fema.gov](http://www.fema.gov) or get a copy of FEMA 478 **Helping Children Cope with Disaster**. To obtain other fact sheets and publications call the FEMA publications warehouse at 1-800-480-2520.

Dangerous Earthquake Myth!	The Facts:
<b>During an earthquake, head for the doorway.</b>	Doorways are no stronger than any other part of the house and usually have doors that will swing and can injure you. You are safer under a table.