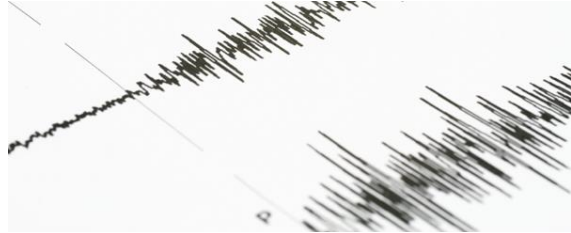


Earthquake Preparedness

One of the most frightening and destructive phenomena of nature is a severe earthquake and its terrible aftereffects. An earthquake is the sudden, rapid shaking of the earth, caused by the breaking and shifting of subterranean rock as it releases strain that has accumulated over a long time.



For hundreds of millions of years, the forces of plate tectonics have shaped the earth, as the huge plates that form the earth's surface slowly move over, under and past each other. Sometimes, the movement is gradual. At other times, the plates are locked together, unable to release accumulated energy. When the accumulated energy grows strong enough, the plates break free. If the earthquake occurs in a populated area, it may cause many deaths and injuries and extensive property damage.

All 50 states and 5 U.S. territories are at some risk for earthquakes. Earthquakes can happen at any time of the year.

The 2011 East Coast earthquake illustrated the fact that it is impossible to predict when or where an earthquake will occur, so it is important that you and your family are prepared ahead of time.

Before an Earthquake

The following are things you can do to protect yourself, your family, and your property in the event of an earthquake.

- ✓ To begin preparing, you should [build an emergency kit](#) and [make a family communications plan](#)
- ✓ Fasten shelves securely to walls.
- ✓ Place large or heavy objects on lower shelves.
- ✓ Store breakable items such as bottled foods, glass, and china in low, closed cabinets with latches.
- ✓ Mirrors, picture frames, and other hanging items should be secured to the wall with closed hooks or earthquake putty. Do not hang heavy objects over beds, sofas, or any place you may be seated.
- ✓ Objects such as framed photos, books, lamps, and other items that you keep on shelves and tables can become flying hazards. Secure them with hooks, adhesives, or earthquake putty to keep them in place.
- ✓ Bookcases, filing cabinets, china cabinets, and other tall furniture should be anchored to wall studs (not drywall) or masonry. Use flexible straps that allow them to sway without falling to the floor.
- ✓ Electronics such as computers, televisions and microwave ovens are heavy and expensive to replace. Secure them with flexible nylon straps.

- ✓ Brace overhead light fixtures and top heavy objects.
- ✓ Repair defective electrical wiring and leaky gas connections. These are potential fire risks. Get appropriate professional help. Do not work with gas or electrical lines yourself.
- ✓ Install flexible pipe fittings to avoid gas or water leaks. Flexible fittings are more resistant to breakage.
- ✓ Secure your water heater, refrigerator, furnace and gas appliances by strapping them to the wall studs and bolting to the floor. If recommended by your gas company, have an automatic gas shut-off valve installed that is triggered by strong vibrations.
- ✓ Repair any deep cracks in ceilings or foundations. Get expert advice if there are signs of structural defects.
- ✓ Get professional help to assess the building's structure and then take steps to install nonstructural solutions, including foundation bolts, bracing cripple walls, reinforcing chimneys, or installing an earthquake-resistant bracing system for a mobile home. Examples of structures that may be more vulnerable in an earthquake are those not anchored to their foundations or having weak crawl space walls, unbraced pier-and-post foundations, or unreinforced masonry walls or foundations. Visit www.fema.gov/earthquake-safety-home [8] for guidance on nonstructural ways to reduce damage and earthquake resistant structural design or retrofit.
- ✓ Store weed killers, pesticides, and flammable products securely in closed cabinets with latches and on bottom shelves
- ✓ Locate safe spots in each room under a sturdy table or against an inside wall. Reinforce this information by moving to these places during each drill.
- ✓ Hold earthquake drills with your family members: Drop, cover and hold on.

Know the Terms

Familiarize yourself with these terms to help identify an earthquake hazard:

Aftershock - An earthquake of similar or lesser intensity that follows the main earthquake.

Earthquake - A sudden slipping or movement of a portion of the earth's crust, accompanied and followed by a series of vibrations.

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.

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.

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.

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.

During an Earthquake

Drop, cover, and Hold On - Minimize your movements to a few steps to a nearby safe place and if you are indoors, stay there until the shaking has stopped and you are sure exiting is safe.

If Indoors

- ✓ **DROP** to your hands and knees.
COVER your head and neck with your arms. This position protects you from falling and provides some protection for vital organs. Because moving can put you in danger from the debris in your path, only move if you need to get away from the danger of falling objects. If you can move safely, crawl for additional cover under a sturdy desk or table. If there is low furniture, or an interior wall or corner nearby and the path is clear, these may also provide some additional cover. Stay away from glass, windows, outside doors and walls, and anything that could fall, such as lighting fixtures or furniture.
HOLD ON to any sturdy shelter until the shaking stops.
- ✓ Stay away from glass, windows, outside doors and walls, and anything that could fall, such as lighting fixtures or furniture.
- ✓ If you are in bed: **STAY** there and **COVER** your head and neck with a pillow. At night, hazards and debris are difficult to see and avoid; attempts to move in the dark result in more injuries than remaining in bed.
- ✓ **DO NOT** get in a doorway as this does not provide protection from falling or flying objects and you likely will not be able to remain standing.
- ✓ Stay inside until the shaking stops and it is safe to go outside. Do not exit a building during the shaking. Research has shown that most injuries occur when people inside buildings attempt to move to a different location inside the building or try to leave.
- ✓ **DO NOT** use the elevators.
- ✓ Be aware that the electricity may go out or the sprinkler systems or fire alarms may turn on.

If Outdoors

- ✓ If you can, move away from buildings, streetlights, and utility wires.
- ✓ Once in the open, Drop, Cover, and Hold On. **STAY THERE** until the shaking stops. This might not be possible in a city, so you may need to duck inside a building to avoid falling debris.

If in a Moving Vehicle

- ✓ Stop as quickly as safety permits and stay in the vehicle. Avoid stopping near or under buildings, trees, overpasses, and utility wires.
- ✓ Proceed cautiously once the earthquake has stopped. Avoid roads, bridges, or ramps that might have been damaged by the earthquake.

After an Earthquake

If Trapped Under Debris

- ✓ Do not light a match.
- ✓ Do not move about or kick up dust.
- ✓ Cover your mouth with a handkerchief or clothing.
- ✓ Tap on a pipe or wall so rescuers can locate you. Use a whistle if one is available. Shout only as a last resort. Shouting can cause you to inhale dangerous amounts of dust.

When the Shaking Stops

- ✓ When the shaking stops, look around to make sure it is safe to move and there is a safe way out through the debris. Then exit the building.
- ✓ Expect aftershocks. These secondary shockwaves are usually less violent than the main quake but can be strong enough to do additional damage to weakened structures and can occur in the first hours, days, weeks, or even months after the quake. Drop, Cover, and Hold On whenever you feel shaking.
- ✓ Check for injuries and provide assistance if you have training. Assist with rescues if you can do this safely.
- ✓ Look for and extinguish small fires. Fire is the most common hazard after an earthquake. Never use a lighter or matches near damaged areas.
- ✓ Listen to a battery-operated radio or television for the latest emergency information.
- ✓ If you are near the coast, learn the [tsunami](#) risk for your area. If you are in an area that may experience tsunamis, when the shaking stops, walk inland or to higher ground immediately. Monitor official reports for more information on the area's tsunami evacuation plans.
- ✓ Use the telephone only for emergency calls.
- ✓ Go to a designated public shelter if your home had been damaged and is no longer safe. Text **SHELTER** + your ZIP code to **43362** (4FEMA) to find the nearest shelter in your area (example: **shelter 12345**).
- ✓ Stay away from damaged areas. Stay away unless your assistance has been specifically requested by police, fire, or relief organizations. Return home only when authorities say it is safe.
- ✓ Be careful when driving after an earthquake and anticipate traffic light outages.
- ✓ After it is determined that it's safe to return, your safety should be your primary priority as you begin clean up and recovery.
- ✓ Open cabinets cautiously. Beware of objects that can fall off shelves.
- ✓ Find out how to keep food safe during and after an emergency by visiting: <http://www.foodsafety.gov/keep/emergency/index.html>
- ✓ Put on long pants, a long-sleeved shirt, sturdy shoes, and work gloves to protect against injury from broken objects.

- ✓ Clean up spilled medicines, bleaches, gasoline or other flammable liquids immediately. Leave the area if you smell gas or fumes from other chemicals.
- ✓ Inspect the entire length of chimneys for damage. Unnoticed damage could lead to a fire.
- ✓ Inspect utilities.
 - Check for gas leaks. If you smell gas or hear blowing or hissing noise, open a window and quickly leave the building. Turn off the gas at the outside main valve if you can and call the gas company from a neighbor's home. If you turn off the gas for any reason, a professional must turn it back on.
 - Look for electrical system damage. If you see sparks or broken or frayed wires, or if you smell hot insulation, turn off the electricity at the main fuse box or circuit breaker. If you have to step in water to get to the fuse box or circuit breaker, call an electrician first for advice.
 - Check for sewage and water lines damage. If you suspect sewage lines are damaged, avoid using the toilets and call a plumber. If water pipes are damaged, contact the water company and avoid using water from the tap. You can obtain safe water by melting ice cubes.

Source: <http://www.ready.gov>