

# EARTHQUAKES



Ceiling tiles fall. A light fixture crashes to the floor. Windows shatter. Bridges collapse.

You've just experienced a **Cascadian Subduction Zone earthquake**. It may be similar to the one that caused the tsunamis in 2004 in the Indian Ocean and in 2011 in Japan. Welcome to the first in our series of Your Health, Your Safety: Our Concern. This installment covers the basics of how to keep safe when the earth decides to move under your feet. Subsequent issues will provide more details on this and other topics.



The ruins of San Francisco, still smoldering after the 1906 earthquake, taken from the tower of the Union Ferry Building on Market Street between Sacramento and Third Streets.  
National Archives and Records Administration  
College Park, MD 20740



## Getting Ready

- **Secure your office and home.** Store heavy items and those that can spill (such as cleaners and pesticides) in low shelves and away from heat sources. Be sure to:
  - Bolt bookcases, china cabinets, and other tall furniture to wall studs.
  - Hang heavy items, such as pictures and mirrors away from beds, couches, and anywhere people sleep or sit.
  - Brace overhead light fixtures.
  - Install strong latches or bolts on cabinets to prevent things from falling out.
  - Bolt and brace water heaters and gas appliances to wall studs.
  - Put large, heavy items close to the floor.
- **Learn how to shut off the gas valves and water in your house,** and keep a wrench handy for that purpose.



- **Identify Safe Areas and Escape Routes.**

Look for places inside and outside to take cover in the event of an earthquake, and know the quickest and safest ways to exit your home or office.



- **At work, keep a flashlight and sturdy shoes by your workstation.** At home, keep these items by each person's bed, in case an earthquake strikes while you are sleeping.

• **Prepare Disaster Supplies.** Collect supplies such as a flashlight, first aid kit, radio with batteries, essential medicines, emergency food and water, non-electric can opener, cash/credit cards, and sturdy shoes. Remember supplies for family members with disabilities and for pets.

- **Have an Emergency Communication Plan.** Have contact numbers for each family member and emergency agency numbers (such as poison control). Decide where to reunite in an emergency in case family members are separated and choose someone out of state as a phone contact. It is often easier in an emergency to make long distance calls.

**Emergency Numbers**

Poison Control .... **1 800 222-1222**

Portland General  
Electric ..... **503 464-7777**  
or ..... **1 800 544-1795**

Pacific Power ..... **1 877 508-5088**

Northwest  
Natural Gas ..... **1 800 882-3377**

# When the House is Trying to Kill You

*When an earthquake starts, there are many dangers to watch out for, many of them falling from above. Simple precautions can save you a lot of pain.*

Collapsing debris, such as a falling bookcase, is the biggest cause of injury during an earthquake. So, what do you do when you feel an earthquake and you're indoors? **Drop** to your hands and



knees. **Cover** your head and neck or get under a strong table or desk. If that's not possible, crouch away from shelves, windows, and falling objects.



**Hold** on to the table or desk and be prepared to move with it, or hold your position until the shaking stops. Most injuries from falling



objects happen indoors when people move to a different location or try to leave. Contrary to what was previously thought, doorways are no stronger than any other part of the building, and swinging doors can injure you. Be sure to get under a sturdy piece of furniture and hold on. This will provide some protection from falling objects. Stay inside until the shaking stops and it's safe to leave. When you leave, do not use elevators.



## When the Sky is Falling

*Although it seems like the earth may want to swallow you whole, ground movement is rarely the direct cause of death or injury. Most casualties result from collapsing walls, flying glass, and falling objects. So what happens if you're outside when an earthquake happens? Stay outside.*

- Move away from buildings into open spaces. Don't stand directly outside buildings, at exits, or alongside exterior walls. Try to avoid trees, power lines, and streetlights as well.
- If you're in a mountainous area or near unstable slopes or cliffs, be alert for falling rocks and other debris. Landslides are often triggered by earthquakes.
- If you're in a vehicle, pull over to a clear location and stop. Avoid bridges, overpasses and power lines if possible. Stay inside with your seatbelt fastened until the shaking stops. Then, drive carefully, avoiding bridges and ramps that may have been damaged.
- If a power line falls on your vehicle, do not get out! You could be electrocuted. Wait for assistance.

# When the Shaking Stops

What should you do after an earthquake happens?

- Expect an aftershock. Aftershocks are less violent than the initial quake, but they can be strong enough to do damage and bring down weakened structures. Treat aftershocks the same way you do an earthquake: duck, cover, and hold on.
- Help injured, trapped, or disabled persons. Remember that infants and the elderly may need special attention.
- Listen for news from portable radios, and use phones for emergency calls only.
- Stay away from damaged areas and beware of fragile structures.
- Be aware of tsunamis in coastal areas. Move inland if you are near the coast.
- Safely check for gas leaks and electrical damage. If a gas leak is found, leave the building immediately. Turn off the gas at the outside main valve, if possible. If frayed wires or other electrical hazards are found, safely turn off electricity if possible. (More in these items in our Disaster Supplies issue.)
- Clean up spilled chemicals, such as bleaches or flammable liquids if possible.
- Keep an eye on pets. Animals can become violent after an earthquake.



## Quake Quiz

Q: How is the size of an earthquake measured?

A: The size of an earthquake is measured as a value on the logarithmic Richter Scale, where higher values indicate more severe earthquakes. For example: “2” is 10 times more powerful than a “1” and releases 32 times more energy!

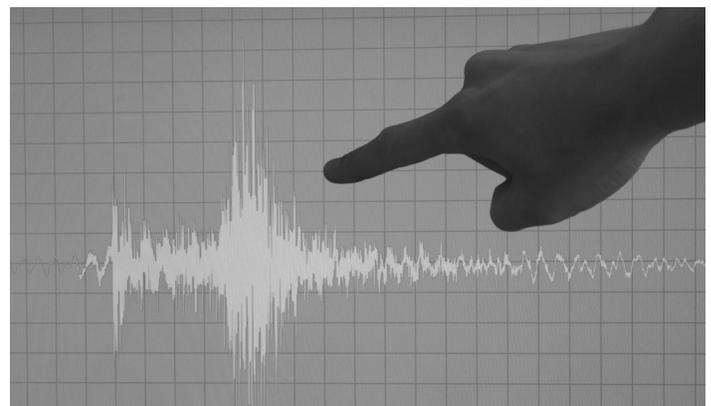
Q: Why does the Pacific Northwest have earthquakes?

A: The surface of the earth is made of tectonic plates, whose movements cause earthquakes. Oregon is located on Cascadia Subduction Zone, an area of tectonic plates that prehistorically have caused up to 9.0 level quakes.

Q: Is there really a chance that there will be an earthquake in Oregon?

A: Yes. There have been earthquakes in recent history, including a level 5.9 in 1993.

Richter Scale	Magnitude
< 3.0	<b>Minor:</b> Generally not felt.
3.0–4.9	<b>Light:</b> Felt, but rarely causes damage.
5.0–6.9	<b>Moderate:</b> Causes damage in areas up to about 100 miles across.
7.0–9.9	<b>Major:</b> Can cause serious damage from hundreds to thousands of miles across.



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### Sources and more information

The American Red Cross — <http://www.RedCross.org>  
US Department of Homeland Security — <http://www.ready.gov>  
Federal Emergency Management Agency — <http://www.fema.gov>