

Earthquakes: Before, During, After

According to a news article published in the spring of 2006, not even half the residents of the San Francisco Bay Area have taken rudimentary precautions against earthquakes; and yet at least two major faults—the Hayward in the East Bay and the San Andreas up the Peninsula--are overdue for a major rupture.

People living in such areas and expecting to outlive the Darwinian odds can increase their chances by following the suggestions below.

Before the Quake: Preparation

Family Earthquake Plan

- Make sure you and your family know all the "safe spots" in the home, such as against inside walls, as well as the "danger spots" in the home such as windows, mirrors, hanging objects and fireplaces.
- Conduct practice drills. Physically place yourself and your children in the safe locations in the home.
- Learn first aid and CPR through your local Red Cross or other community organization.
- Decide where and when the family will reunite, if separated.
- Keep a list of emergency phone numbers available. Long distance phone service is usually restored before local service. You'll be able to reach someone faster who is across the country, rather than next door. Cell phone use could be restricted without a proper signal. It's helpful to identify an out-of-state relative or friend who can report your condition to other family members.
- Develop a portable survival kit (see below) for your home and for travel.
- Learn how to shut off gas, water and electricity in your home in case power lines are damaged.
- Bolt down gas appliances to reduce fire hazard.
- Check the stability of chimneys, roofs and wall foundations. If you're living in a home that was built before 1935, make sure the house is bolted to the foundation. If your home is on a raised foundation, make sure the **cripple**, or short stud walls between the floor and foundation, are replaced with **shear**, or vertical walls that are used to stiffen the structural frame. If you have questions, contact a licensed contractor.
- Secure heavy furnishings.
- Secure your water heater and other appliances that could move and disrupt utility lines.
- Store breakable and heavy objects on lower shelves. Also, use latches on cabinet doors.

- Keep all flammable and hazardous liquids, such as paints, pest sprays and cleaning products, in cabinets or secured on low shelves.
- Maintain emergency food, water, medicine, a first aid kit, tools and clothing for earthquake aftermath.

If you live in a particularly vulnerable area for earthquake activity, you might also consider attending training for neighborhood residents for home preparedness, first aid, fire suppression and damage assessment. **The best way to survive is by developing a network of families in your neighborhood for an earthquake resource bank** to get to know everyone and identify the special skills of those who live around you. Make a list of equipment and materials that can be shared.

Make special arrangements for the elderly, handicapped persons, those who are under medication, and pets. Be mindful of those who cannot speak English. It's helpful to create information cards, written in English, indicating identification, address and special needs.

Also, know the location of the nearest police station, fire station, and hospital.

It's also recommended to identify a message drop for your family. Secure a location outside your home where your family can leave messages for each other in case you are separated or unable to remain in your home. Examples of a drop point are inside a tin can, in the backyard, or under a stone.

Family Information Clipboard

On the top of our list is at least one a legal size clip board with paper and pen or pencil (attached by a string). A red, permanent ink, felt tipped marking pen attached by a string is also necessary for your clipboard. (Carbon paper recommended) and a can of international orange spray paint! The spray paint is used to paint a large arrow on the side of the building/residence that points to the location of the clipboard so that rescuers can find it.

On the top sheet of paper create a form with headings such as:

1. The Dwelling's Address: 523 Your Street
2. Preliminary Search: Yes No Searched and Cleared: Yes No To be Searched: Yes No
3. Owner's name: John Smith Address: 733 His Street Contact #: (just in case a phone is working someplace) 212-555-9112
4. Principal Occupant's name: Your Name
5. Total number of occupants in dwelling: People (and pets)
6. The following is a list of residents at this address: (List of each person resident, your name first, at your location along with their ages)
7. Name Age Relationship Present Location Condition

8. John Q. Public 49 owner Local High School Shelter OK Mary Public 46 wife Municipal Hospital Broken leg (treated) Timmy Public 16 son unknown, was at swim class Unknown
9. Condition of Utilities: Gas: ON OFF Oil: ON OFF Hydro: ON OFF
10. Additional Notes and Instructions: (sample use follows) Timmy, we are all right. I am at the High School Shelter and Mom is at the hospital with a broken leg. She is doing well. Come to the school. Dad Aug., 12, 1993 - 10:32 a.m. - Building verified and cleared by VUHR Cliff Henry, VUHR Team *etc.*

The clipboard and form serve the following purposes:

1. It provides any rescuer with pertinent information on the occupants, their condition and where about.
2. It allows rescue teams to pass information to other rescuers so that the dwelling is not searched a second or third time thus wasting valuable search efforts.
3. It provides information to friends and relatives who may have joined in the search for you.
4. By using carbon paper it provides authorities with a removable record which may be taken to the Disaster Command Center and added to a database.
5. Can you think of any more purposes this form would serve?

The red marker will allow a rescuer to place a check mark on the paper to show the dwelling has been cleared. Hang the clip board inside the front door.

Disaster Kits

Because any earthquake emergency supply kit you assemble won't do you any good if you can't find it or if you leave it at home when a quake hits, you should consider assembling at least one small kit per family member, one car kit, one workplace kit, and one larger kit near your home's front door.

The small kit can be a backpack or fishing vest and should be secured to a bedpost, as should a pair of shoes with socks and light sticks stuffed firmly into them. Otherwise a quake might throw it all across the room. The small kit should include:

1. a dozen or so disposable dust masks,
2. 1 roll of toilet paper,
3. 2 candles,
4. matches,
5. 4 safety pins,
6. a pen,
7. a small knife,
8. \$20.00 (or more) in cash,
9. 3-5 meters of strong string,
10. spoon,
11. plastic bowl with lid,

12. 1 liter of bottled water and a water filtration straw,
13. 3-4 packages of dried fruit, nuts, or crackers,
14. ID tag with home address and phone number on it,
15. small rainproof emergency poncho.

These items can be wrapped inside 2 t-shirts, then wrapped in a waterproof plastic bag or 4-5 plastic shopping bags.

The larger kit should include:

- Flashlight
- Radio – battery operated
- Batteries
- Whistle
- Dust mask
- Pocket knife
- Emergency cash in small denominations and quarters for phone calls
- Sturdy shoes, a change of clothes, and a warm hat
- A flash drive with these instructions downloaded into it.
- Local map
- Some water some and food packets.
- Permanent marker, paper and tape
- Photos of family members and pets for re-identification purposes
- Cell phone
- List of emergency point-of -contact phone numbers
- List of allergies to any drug (especially antibiotics) or food
- Copy of health insurance and identification cards
- Extra prescription eye glasses, hearing aid or other vital personal items
- Prescription medications and first aid supplies (see below)
- Toothbrush and toothpaste
- Extra keys to your house and vehicle
- Any special-needs items for [children](#), [seniors or people with disabilities](#). Don't forget to make arrangements for your [pets](#).
- Work gloves
- Sealed towlettes
- Small ax
- Hand shovel
- Hammer and nails
- Multi-tool with small screwdrivers
- Crowbar or claw tool
- Plastic sheeting rolls
- Plastic garbage bags - heavy duty, 30 gallon or larger
- Small and large plastic bags
- Coils of rope and wire
- Tent - family sized
- Tarp - PVC or canvas, minimum of two, 8' x 10'

- Sleeping bags
- Cheesecloth to strain particles from water
- Compass

First Aid Kit

Make sure to store your first aid kit in a secure location that will be accessible after an earthquake. You must rotate all supplies in your kit to keep them fresh, especially if kept in a vehicle - exposure to heat can shorten the shelf life of your supplies. A good rule is to refresh them when you change your clocks for daylight savings time, or when you check smoke detector batteries.

Essential medications and supplies:

- Antibiotic ointment
- Extra prescriptions for all family members, as well as children's aspirin and other age-specific over the counter medications
- Diarrhea medication
- Eye drops
- Cold/Cough medicine
- Benadryl
- Insect repellent
- Ear and nose drops
- Hydrogen peroxide
- Skin disinfectant spray
- Old pairs of prescription eyeglasses
- Band-Aids
- Latex gloves
- Surgical mask
- Instant heat and cold packs
- Ace bandages
- Butterfly bandages
- Gauze pads
- Cotton swabs
- Adhesive tape
- Sterile bandage rolls
- Triangular bandage for a sling
- Tongue depressors
- Splint material
- Spray bottle with 10% bleach solution for disinfecting

Remember that you need to be able to get to these supplies after an earthquake, so store them in an area that has minimal chance of being buried under debris. A good receptacle for storing these items is a large, weatherproof trash can.

Water

Loss of safe drinking water is deadly. Most individuals will begin to experience side effects from dehydration after 36 hours. Starvation can be delayed by several days or weeks provided there is an ample, safe water supply.

At the bare minimum, you should store one gallon, per person, per day, for at least seven days.

After an earthquake, city water is vulnerable to contaminants through ruptured pipes and adulterated filtering systems. Do not take adequate water supplies for granted. Wait until an official "all clear" before using city water. Boil suspect water for ten minutes before use.

If your water supply is questionable, use these methods to treat it:

The best option : Add liquid chlorine bleach - eight drops per gallon of water. Double this amount if the water is cloudy.

A good option : Add 2% tincture of iodine to the water, or twelve drops per gallon of water. Double this amount if the water is cloudy.

An acceptable option : Boil the water vigorously for 10 minutes.

Dirty water should be strained through cheesecloth, a paper towel or a coffee filter before treating it to remove suspended matter. Wash and sanitize all food containers before use by washing them with warm, soapy water followed by a 10% bleach solution. Empty the bleach out after a five-minute soak, and let dry.

Sanitation

Having these materials staves off infection or illness that is caused by unsanitary conditions. Store these items in your equipment kit as well:

- Plastic bags - heavy duty garbage can size and small, zip-lock types
- Powdered chlorine lime - proper storage is required. This is an oxidizer and it's corrosive.
- Portable camp toilet with chemicals
- Toilet paper
- Handi-Wipes for water-free cleaning
- Shampoo, toothpaste, deodorant, tampons and sanitary napkins
- Insect, fly, mosquito and ant spray

During the Earthquake

If you are indoors when shaking starts:

- **DROP, COVER, AND HOLD ON.** If you are not near a strong table or desk, drop to the floor against an interior wall and cover your head and neck with your arms.
- Avoid windows, hanging objects, mirrors, tall furniture, large appliances and cabinets filled with heavy objects.
- Do not try to run out of the structure during strong shaking. Most earthquake injuries are caused by being hit by falling objects while trying to walk or run during the trembling.
- If you are downtown, it is safer to remain inside a building after an earthquake unless there is a fire or gas leak. There are no open areas far enough from glass or other falling debris to be considered safe refuge sites. Glass from high-rise buildings does not always fall straight down; it can catch a wind current and travel great distances.
- If you are in bed, stay there and cover your head with a pillow.
- Do not use elevators.
- If you use a wheelchair, lock the wheels and cover your head.

If you are outdoors when shaking starts:

- Move to a clear area if you can safely walk. Avoid power lines, buildings and trees.
- If you're driving, pull to the side of the road and stop. Avoid stopping under overhead hazards. When you proceed, watch for breaks in the road, fallen power lines, and other potential dangers.
- If you are on the beach, move to higher ground. An earthquake can cause a [tsunami](#).

After the Earthquake

- Be prepared for aftershocks.
- Check for injuries. Administer first aid if necessary.
- Avoid broken glass.
- Check for fire. Take appropriate action.
- Check gas, water and electric lines. If damage has occurred shut off the service. If there is a gas leak, don't use matches, flashlights, candles, appliances or electric switches. Open windows and report the leak to the gas company. [Turn off the gas](#) only if you smell gas.
- Replace all telephone receivers and use the phone for emergency calls only.
- Watch or listen to emergency broadcast stations on battery-powered radios or televisions. Listen for bulletins.
- Stay away from damaged buildings.
- Check yourself and the people around you for injuries; provide first aid. Do not move seriously injured persons unless they are in immediate danger.
- Check around you for dangerous conditions, such as fires, downed power lines and structure damage.

- Protect yourself from further danger by putting on long pants, a long-sleeved shirt, sturdy shoes, and work gloves. This will protect you from further injury by broken objects.
- Clean up spilled medicines, bleaches, gasoline, or other flammable liquids immediately.
- Open closet and cabinet doors cautiously. Contents may have shifted during the shaking of an earthquake and could fall, creating further damage or injury.
- Aftershocks following earthquakes can cause further damage to unstable buildings. If your home has experienced damage, get out before aftershocks happen.
- Help neighbors who may require special assistance. Elderly people and people with disabilities may require additional assistance. People who care for them or who have large families may need additional assistance in emergency situations.
- Inspect the entire length of chimneys carefully for damage. Unnoticed damage could lead to fire or injury from falling debris during an aftershock. Cracks in chimneys can be the cause of a fire years later.
- Take pictures of the damage, both to the house and its contents, for insurance claims.
- Avoid smoking inside buildings. Smoking in confined areas can cause fires.
- When entering buildings, use extreme caution. Building damage may have occurred where you least expect it. Carefully watch every step you take.
 - Examine walls, floor, doors, staircases, and windows to make sure that the building is not in danger of collapsing.
 - Check for gas leaks. If you smell gas or hear a blowing or hissing noise, open a window and quickly leave the building. Turn off the gas, using 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, it must be turned back on by a professional.
 - Look for electrical system damage. If you see sparks or broken or frayed wires, or if you smell burning 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 line 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 from undamaged water heaters or by melting ice cubes.
 - Watch for loose plaster, drywall, and ceilings that could fall.
- Watch animals closely. Leash dogs and place them in a fenced yard. The behavior of pets may change dramatically after an earthquake. Normally quiet and friendly cats and dogs may become aggressive or defensive.
- If you are trapped in debris: Move as little as possible so that you don't kick up dust. Cover your nose and mouth with a handkerchief or clothing. Tap on a pipe or wall so that rescuers can hear where you are. Use a whistle if one is available.
- Don't fall into a survivor nut mentality. Survival works best in communities.

Sources:

http://www.mygreathome.com/safety/earthquake_preparedness/index.htm

<http://www.amerrescue.org/quakprep.htm>

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http://www.redcross.org/services/disaster/0,1082,0_568_,00.html

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