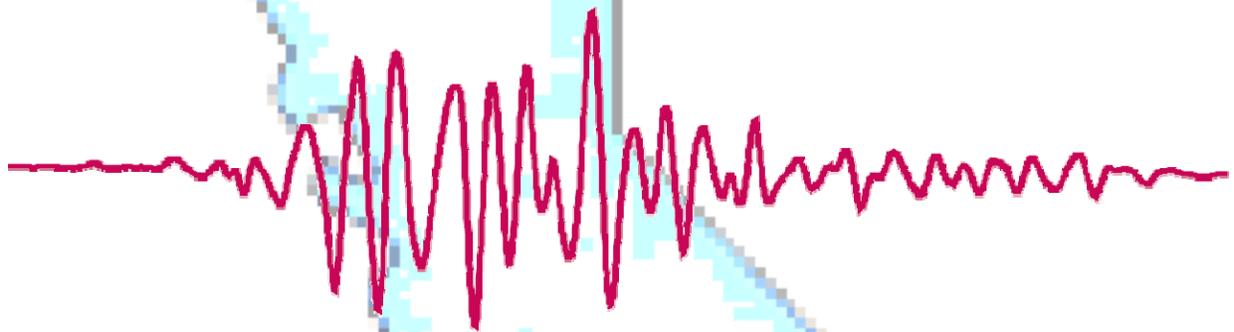


# Home & Family

# Earthquake

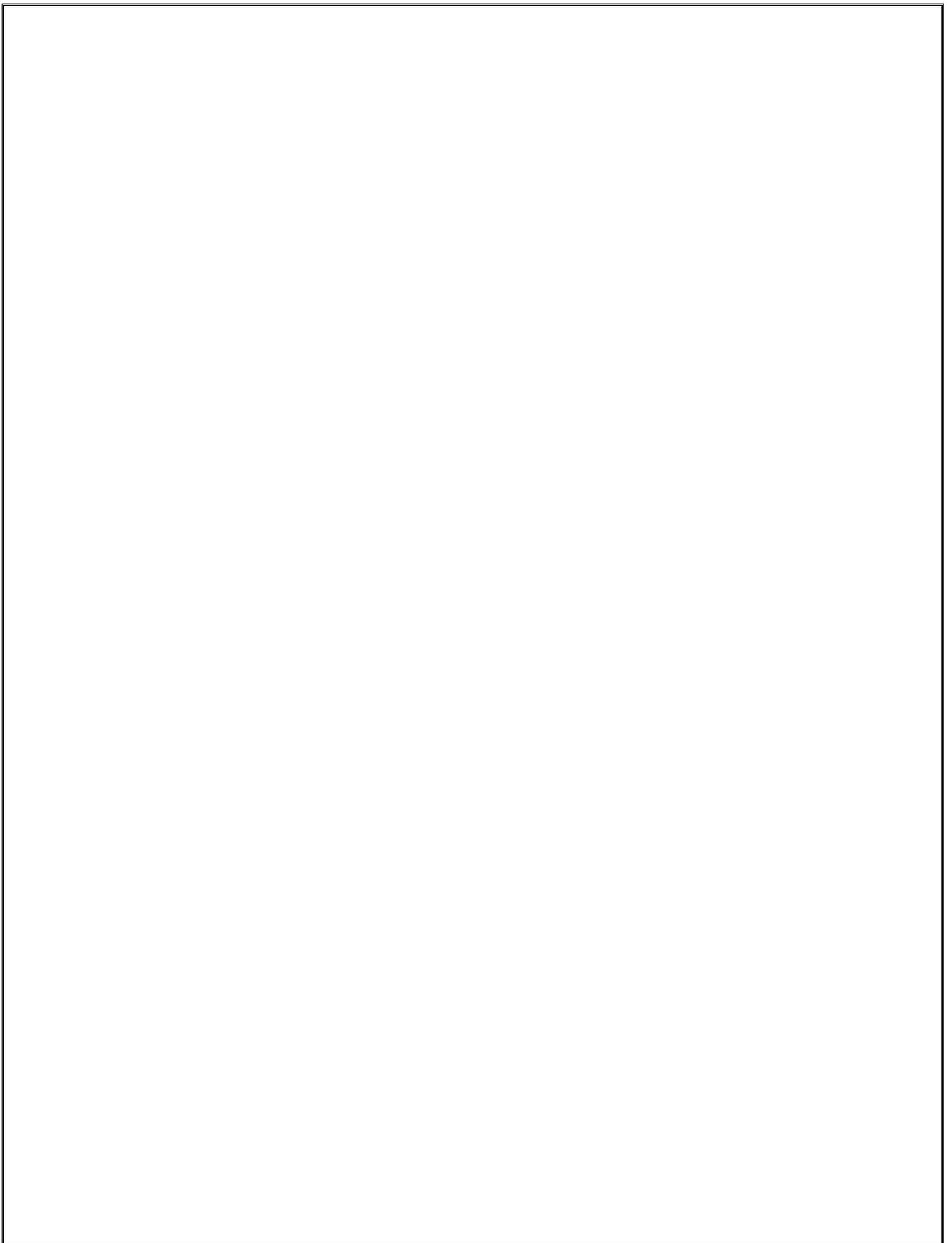


# Preparedness

# Booklet

**(How to Survive an Earthquake)**

June 2008



# Introduction

## **Team Members:**

**Are You Ready? An earthquake can strike at any time, day or night and wreak havoc for thousands of people. The time to take action is now! Being prepared to cope with the effects of a major or catastrophic earthquake can be minimized if you take the time to conduct earthquake preparedness for you and your family before an event.**

**As a Federal response agency, the U.S. Army Corps of Engineers will be a primary responder to mission taskings by the Federal Emergency Management Agency (FEMA) in support of State and local Governments.**

**As a team member of the South Pacific Division, you may be called upon to serve as a responder or support our disaster response and recovery efforts. Should this be the case, you want to know that you've done your homework in preparing your family and your home as best as possible to deal with the effects of this type of disaster or circumstances.**

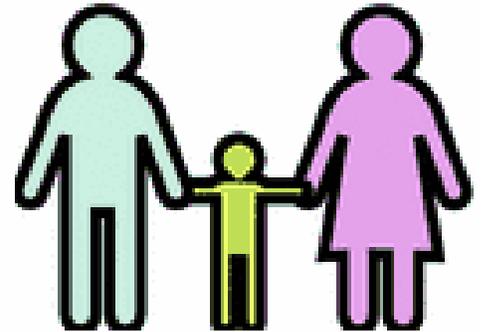
**This booklet is divided into three (3) primary sections: What to Do Before A Quake, What To Do During A Quake, and What To Do After a Quake.**

**A listing of other earthquake preparedness resources and websites is provided on the last page.**

**DON'T DELAY, ACT NOW!!! It could mean saving your life or that of a loved one.**

# What to do BEFORE the Quake

## Family Reunion Plans



Disasters, such as an earthquake have a good chance of occurring when your family is not all together. The kids may be at school. You may be at work, the shopping center or the theater.

To prepare for these possible separations take a few minutes and develop a reunion plan. This plan will help you get back together, or if that is not possible, to let each other know you are okay.

If you have children in school, review the school's plan for Earthquake Procedures should an earthquake occurs during school hours.

If something happens which prevents the family from uniting at home, list three places you can meet. Possibilities include: neighbors', or nearby relatives' homes, church or community center. Be sure everyone in the family knows the plan.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Choose a relative or friend who lives at least 100 miles away who can be contacted by phone by all family members if it becomes impossible to reach the reunion locations. You can report to them where you are and how you are, and learn where and how other family members are as well. Often, you can reach a distant area by phone easier than you can an area near by.

Name: \_\_\_\_\_

Phone: \_\_\_\_\_

# FILL OUT INFORMATION, CUT OUT AND CARRY IN YOUR WALLET

<b>EMERGENCY OUT-OF-STATE CONTACT</b>		
NAME	PRIMARY CONTACT	PHONE
	( )	
NAME	ALTERNATE CONTACT	PHONE
	( )	
ADDRESS		
CITY	STATE	ZIP

<b>EMERGENCY OUT-OF-STATE CONTACT</b>		
NAME	PRIMARY CONTACT	PHONE
	( )	
NAME	ALTERNATE CONTACT	PHONE
	( )	
ADDRESS		
CITY	STATE	ZIP

<b>EMERGENCY OUT-OF-STATE CONTACT</b>		
NAME	PRIMARY CONTACT	PHONE
	( )	
NAME	ALTERNATE CONTACT	PHONE
	( )	
ADDRESS		
CITY	STATE	ZIP

<b>EMERGENCY OUT-OF-STATE CONTACT</b>		
NAME	PRIMARY CONTACT	PHONE
	( )	
NAME	ALTERNATE CONTACT	PHONE
	( )	
ADDRESS		
CITY	STATE	ZIP

<b>EMERGENCY OUT-OF-STATE CONTACT</b>		
NAME	PRIMARY CONTACT	PHONE
	( )	
NAME	ALTERNATE CONTACT	PHONE
	( )	
ADDRESS		
CITY	STATE	ZIP

<b>EMERGENCY OUT-OF-STATE CONTACT</b>		
NAME	PRIMARY CONTACT	PHONE
	( )	
NAME	ALTERNATE CONTACT	PHONE
	( )	
ADDRESS		
CITY	STATE	ZIP

<b>EMERGENCY OUT-OF-STATE CONTACT</b>		
NAME	PRIMARY CONTACT	PHONE
	( )	
NAME	ALTERNATE CONTACT	PHONE
	( )	
ADDRESS		
CITY	STATE	ZIP

**(Page Left Intentionally Blank)**

# Individual Family Evacuation Plans

In an event of major devastation or threat to your home, you will need to be prepared to evacuate quickly and efficiently. By planning and practicing what to do before you need to, you will help yourself and your family to react correctly and instinctively at the first sign of danger.

## If You Must Evacuate Your Home

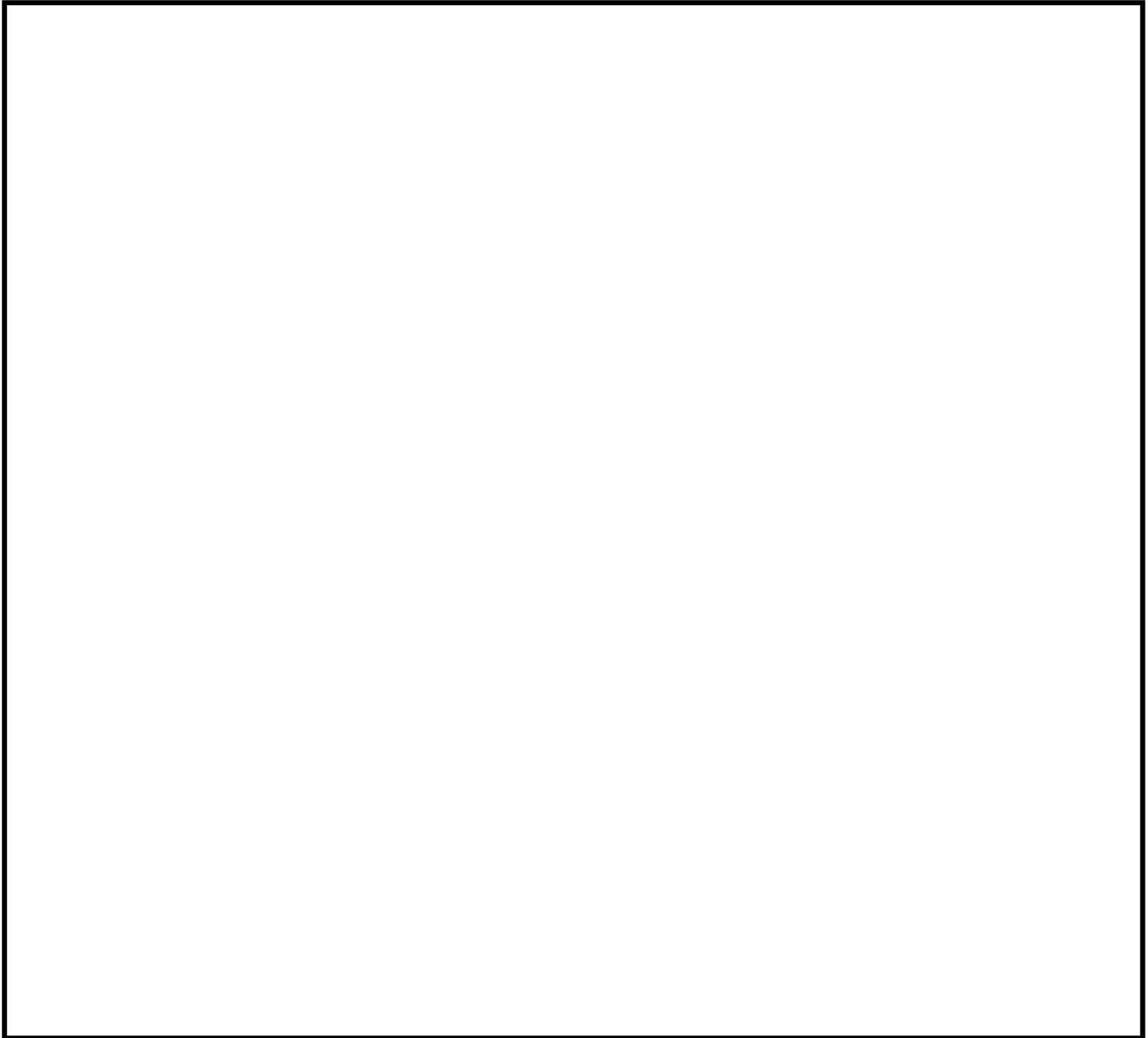
- Post a message on the front door or entry way clearly visible, indicating where you have gone.
- Take vital documents. Emergency supplies and equipment, and extra medication with you. Take cash, in the event that ATM or bank services are disrupted.
- Take cash, in the event that ATM or bank services are disrupted.
- Always keep a full tank of gas in case you need to evacuate.
- Don't forget about your PETS! If you must be relocated to a shelter (pets not allowed), then confine them in a garage, or bathroom and make sure they have plenty of water.

Example

**WE ARE OKAY. WE ARE RELOCATING  
TO AUNT MAYS HOME IN LITTLETON,  
ABOUT 220 MILES FROM HERE.**

**TEL NO: (312) 456-7890**

## Evacuate Route



- Sketch the floor plan of the place where you live in the space above.
- Show a second way to exit from each room.
- Mark where flashlights, fire extinguishers, and emergency supplies are kept.
- Mark where utilities (gas, water, and electric) turn-off valves are located.
- Indicate the location of your family's emergency outdoor meeting place.

**BE SURE THAT EVERYONE IN THE FAMILY KNOWS THE PLAN!**

# Evacuation Priority List

If you are told that you need to evacuate immediately, you will have little time to think about what to do. To help you be prepared to respond before the disaster strikes, take a few minutes to complete this list. (Photographs are often the most cherished possessions. However, you can make copies of your favorite and store them on a CD/DVD, USB or give them to an out of area friend or relative (for safe keeping).

List the MOST important items to be taken with you, and ONLY those that can be hand carried.

---

---

---

List other items in order of importance.

---

---

---

List items to be removed by car or truck, if one is available.

---

---

---

Make a list of things to do if time permits. For example: locking the doors and windows, turning off utilities, etc.

---

---

# Vital Documents and Important Family Information

After a major disaster, such as an earthquake, you may need financial assistance and will want to document any property loss for insurance and income tax purposes. Having ready access to these documents necessary for completing applications forms, as well as those which could be difficult to replace, will eliminate undue delay and frustration.

Take time NOW and record this vital family information. Make **two** copies. Keep one safe in a safe place in your home-fire-resistant if possible (watertight plastic bag in the freezer). Keep another off the premises in a safe deposit box or at a relatives or friends house outside the area.

- Deeds, titles, and other ownership records (home, autos, RVs, etc)
- Wills or trust documents
- Power of attorney (including health-care powers of attorney)
- Tax records (minimum past 3 years)
- Birth certificates
- Marriage license/divorce papers/child custody
- Passports and driver's licenses
- Social security cards
- Naturalization papers and residency documents
- Military/veteran's papers
- Critical medical information
- Certificates for stocks, bonds and other investments
- Bank statements
- Credit card numbers/telephone number of credit card companies
- Phone numbers for financial institutions where you have accounts
- Insurance policies
- An inventory of household possessions
- Appraisal of valuable jewelry, art, antiques, and heirlooms
- Home improvement records
- A backup of critical files on your computer
- A list of names, phone numbers and e-mail addresses

Take photographs of all valuables for documentation for insurance claims.

If you have a computer, store this information on CDs or USBs in different locations.

Other Information To Have Readily Accessible:

1. Name and social security number of all family members:

\_\_\_\_\_ SSN: \_\_\_\_\_ \ \_\_\_\_\_ \ \_\_\_\_\_

2. School Information:

Child's name: \_\_\_\_\_ School: \_\_\_\_\_

School Address: \_\_\_\_\_ Phone: \_\_\_\_\_

School policy is to hold/release child (circle one).

Child's name: \_\_\_\_\_ School: \_\_\_\_\_

School Address: \_\_\_\_\_ Phone: \_\_\_\_\_

School policy is to hold/release child (circle one).

Child's name: \_\_\_\_\_ School: \_\_\_\_\_

School Address: \_\_\_\_\_ Phone: \_\_\_\_\_

School policy is to hold/release child (circle one).

3. Name, address, and phone number of:

Father's name: \_\_\_\_\_ Employer: \_\_\_\_\_  
Address: \_\_\_\_\_ Phone: \_\_\_\_\_

Mother's name: \_\_\_\_\_ Employer: \_\_\_\_\_  
Address: \_\_\_\_\_ Phone: \_\_\_\_\_

Name: \_\_\_\_\_ Employer: \_\_\_\_\_  
Address: \_\_\_\_\_ Phone: \_\_\_\_\_

4. Name, address, and phone numbers of:

Attorney: \_\_\_\_\_  
Address: \_\_\_\_\_ Phone: \_\_\_\_\_

Doctor: \_\_\_\_\_ Employer: \_\_\_\_\_  
Address: \_\_\_\_\_ Phone: \_\_\_\_\_

Doctor: \_\_\_\_\_ Employer: \_\_\_\_\_  
Address: \_\_\_\_\_ Phone: \_\_\_\_\_

5. Health Plan numbers:

Name: \_\_\_\_\_ # \_\_\_\_\_  
Name: \_\_\_\_\_ # \_\_\_\_\_  
Name: \_\_\_\_\_ # \_\_\_\_\_  
Name: \_\_\_\_\_ # \_\_\_\_\_

Pertinent medical information:

*Allergies*

Name: \_\_\_\_\_ Type: \_\_\_\_\_  
Name: \_\_\_\_\_ Type: \_\_\_\_\_  
Name: \_\_\_\_\_ Type: \_\_\_\_\_

*Regular medication:*

Name: \_\_\_\_\_ Type: \_\_\_\_\_  
Name: \_\_\_\_\_ Type: \_\_\_\_\_  
Name: \_\_\_\_\_ Type: \_\_\_\_\_

# Emergency Supplies

## Emergency Food

A disaster can dramatically disrupt the food supply at any time, so plan to maintain at least a 3 to 5 day supply of food beyond your normal requirements. Choose foods that:

- Your family will enjoy, especially the kids. It is best to serve familiar foods in stressful times.
- Require little or no cooking or refrigeration in case the utilities are disrupted.
- Come in cans or packages that contain portions small enough for one meal so the food will not be wasted.
- Need little or no water for preparation in case water service is disrupted.
- Will not increase thirst.
- Will meet the needs of family members who are on special diets.

## How to Use Emergency Food

- Use perishable food in your refrigerator or freezer before using food in your emergency kit. Be sure any food that has been stored for long periods of time is safe. Discard cans that bulge at the end or are leaking.

## How to Store Emergency Food

- The ideal location is a cool, dry, dark place. The best temperature is 40 to 60 degrees Fahrenheit.
- Keep food away from petroleum products. Some food products absorb the smell.

- Protect food from rodents and insects. Items stored in boxes or in paper cartons will keep longer if they are heavily wrapped or stored in metal containers.
- Keep your earthquake food supply in one place so that it is easily accessible. Check it twice a year and rotate items. For instance, New Year's Day and the 4<sup>th</sup> of July are easy to remember.
- Other items to store
  - Paper plates and cups
  - Plastic eating utensils
  - A manual can opener and bottle opener

### **Sample Earthquake Shopping List- For One Person for Three Days**

You may substitute foods you prefer if they are in the same group. For instance, if you don't like tunas, but you like chicken, choose chicken. Choose small cans because there will not be any refrigeration to keep open food. Choose food you like! Having something to look forward to will help you through the crisis. And remember, if you use something out of your supplies, replace it.

- 3 cans of tuna, chicken or turkey
- 3 cans of soup which are ready to eat (no water required)
- 1 packet of 6 cans of juice (vegetable or fruit juice)
- 3 small cans of fruit or vegetables (mandarin oranges, corn, beans)
- 1 small box dry milk
- 1 tin of crackers (save a tin box and put mixture of crackers in it)
- 1 jar of dry jam or jelly
- A treat of some kind: hard candy
- Can opener

## **Emergency Water**

Water is one of the most important survival necessities after an earthquake or other major disaster. A person can survive weeks without food, but only a few days without water.



## **Amount**

One gallon per person per day. While it is good to store enough for a week, it is essential that you prepare for at least three days.

## **Water Storage**

Water should be stored in sturdy plastic bottles, preferable opaque. Chlorine beach bottles work well. Plastic juice and milk containers are less desirable as they tend to crack or leak more readily. Water that you bottle yourself should be changed every 6 months. Water you bottle yourself must be treated with chlorine when you use it. (see chart). If you buy bottled water, it will last at least one year.

NOTE: Avoid placing water containers in areas where toxic substances, such as gasoline and pesticides, are present. These vapors penetrate the plastic after time.

## **Existing Water Sources in the Home**

- Water drained from the hot water heater may be used provided the hot water heater remains upright. (Water will drain easier if the faucet in the home is turned on.)
- Water dipped from the flush tank of the toilet. Purify the water before using. Use the bowl water for pets. Do not use chemically "blue" water.
- Melted ice cubes.
- Canned fruit, vegetable juices, and liquids from other canned goods.
- Water from swimming pool, hot tubs. Use this water only after other sources of pure water are exhausted.

Do Not Use Water From: Hot water boilers. Home heating systems, radiators, or water beds.

## **Purification of Water**

Strain out any sediment or particles from the water by pouring through several layers of cheesecloth or coffee filters. Then use one of the following purification methods:

- Boil for 5 minutes
- Add liquid bleach with 5.25% sodium hypochlorite (chlorine bleach) in these amounts:

Water Amount	Chlorine Bleach if Water is Cloudy	Chlorine Bleach if Water is Clear
1 quart	4 drops	2 drops
1 gallon	16 drops	8 drops
5 gallons	1 teaspoon	½ teaspoon

Let water stand for 30 minutes. There should be chlorine scent after treating. If not, repeat dosage and let stand for another 15 minutes.

**PURCHASE AN EYE DROPPER TO ADD BLEACH. KEEP IT FOR THIS PURPOSE ONLY**

Purification tablets may be used, but are NOT recommended because of their short shelf life.

## First Aid



### Information

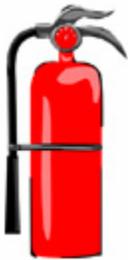
- Take a disaster First Aid course.
- Buy first aid book. An excellent choice is Standard First Aid and Personal Safety, from the Red Cross.
- Review Section b (First Aid and Survival Guide) at the front of the white pages of the phone book.

## First Aid Supplies

- Buy a first aid kit from the American Red Cross or other source.
- Add one week of your own prescriptive medications and rotate it.

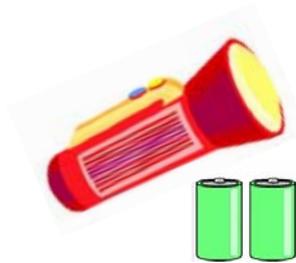
- Place an older pair of glasses with the first aid kit in case your glasses break in the quake.
- Add useful non-prescription items such as aspirin, antacids, diarrhea medicine, laxatives.
- Do not skimp on first aid supplies; get as large a kit as you can afford. You may go in with your neighbors to collect first aid items such as crutches, splints, etc.
- You may wish to make up your own kit. Refer to the first aid manual for a list of items you should include.

## Fire Extinguishers



- Place your fire extinguisher where they are very accessible.
- An A-B-C type is effective for all three classes of fire:
  - A-fires involving ordinary combustibles such as wood, paper, cloth
  - B- Fires from oil, grease, and gasoline
  - C-fires in electrical equipment and appliances
- Extinguishers should be checked periodically charged and ready for use.
- Never use water to put out an electrical (type C) or oil, grease, or gas (type B) fire
- It is better to have several smaller extinguishers well distributed throughout the house (kitchen, garage, etc)

## Lighting



- Flashlights are safe for use immediately after an earthquake. Have flashlights in several places, next to the bed, etc.
- Store extra batteries and bulbs. (Batteries will stay fresh longer if stored in the refrigerator.)
- Light sticks are short-term safety lights. They need no source of ignition, and are safe for children.

- Camping lanterns provide an excellent source of light. Remember; do not use them until you are sure that there are no gas leaks.

## Cooking Devices



- Camp stoves, barbeques, and hibachis are useful. Never burn charcoal indoors.
- Any inadequate ventilated site may cause carbon monoxide poisoning.

## Sanitary Supplies

Solid wastes (feces) are the main health problem, and must be dealt with carefully. Whenever possible, dispose of feces by burial. Urine is sterile (germ free), so it is less a health problem than an odor problem.

Latrine: Dig a latrine (rectangular pit) 2 feet long, 6 inches wide, and as deep as possible (minimum 2 feet)

Provide toilet paper, a coop, and powdered household chlorine bleach or powdered agricultural lime (available in garden supply stores) in a covered container. After each use of the latrine, sprinkle a small amount of the powder over the feces, and then sprinkle a small amount of dirt over the powder. Wash hands.

Portable camp toilets, sturdy buckets, or small trash cans with tight-fitting lids can be used as emergency toilets. Store a supply of plastic bag liners, twist ties, toilet paper, and disinfectant in them.

To use: Line a bucket or other container with a tight cover with 2 heavy-duty plastic garbage bags. Put absorbent material (kitty litter, shredded newspaper) into inner bag. Cover container when not in use. Until the waste can be disposed of, keep them away from human activity.

## Other Supplies

- Shelter: water-proof tarp, tent, sleeping bags, blankets
- Clean-Up Tools: axe, shovel, broom, heavy gloves, crow bar.
- Personal care items: wipes, bar soap, tissues, safety pins, etc.

## Storage Suggestions

Locate your supplies with care. They will do you little good if you cannot get to them or they are destroyed or damaged during a disaster. One suggested method of storing emergency supplies is to place them in a large, covered trash container, which can be stored outside in a cool, sheltered location. Put the contents inside moisture proof bags before placing them in the can. The diagram offers some suggestions on what and how to store your supplies in such a storage container.

Paper towels Toilet paper Sanitary napkins	First aid supplies and first aid book	Portable Radio Books Paper & Pencils
Tooth paste Tooth brushes Bar soap Shampoo Sponge Liquid cleaner 2 gallons liquid bleach	Knife Razor blades Can opener (non-electric) Scissors Heavy gloves	Flashlight Batteries Candles Matches
Blankets 2-4 towels	Change of clothes Sweaters	Canned meats & tuna Canned vegetables Canned fruits Warm drinks & juices Peanut butter Candy, nuts & raisins Vitamin pills Dried beans & rice Soups
Camping stove/hibachi Charcoal Cooking pots Utensils Aluminum foil String Plastic dishes Aluminum dish Large & small garbage bags		
		Water At least one gallon/person

## Car/Work Mini-Survival Kit

Most people spend many hours in their cars and at work each week. A major earthquake could force you to rely on your car for short-term shelter and survival. Many of us stand a 33% chance of being at work when an earthquake strikes. A mini-survival kit could make the hours until you get home more comfortable and safe.

The following items are essential materials and supplies to have in an emergency kit. You can order ready-made kits, but you can put them together yourself at considerable savings. You may wish to get together with your neighbors to buy supplies in quantity. Bulk food, liquids, batteries, flashlights and first aid kits are available at buying clubs such as COSTCO and Sam's Club. Survival kits are available, both retail and mail order. If you look at ready-made kits, they are available at Berkeley Ace Hardware, REI and Whole Earth Access. (Listing of specific merchants is not an endorsement. You may also check the Yellow Pages under "Earthquake" or "Safety Supplies")

Items you will want to include in a kit if you make it yourself include:

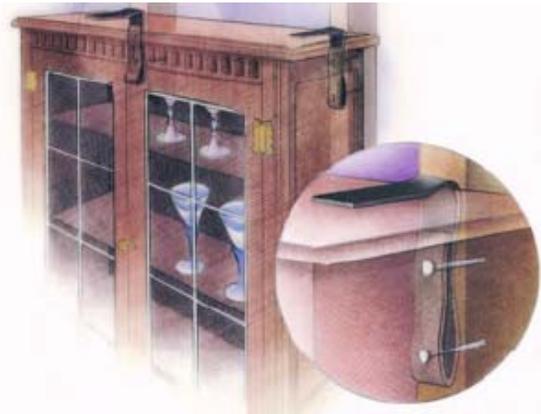
- Snack type food (dried fruits, jerky, nutrition bars, crackers, etc)
- Bottled Water
- Small first aid kit with essential medication
- Blanket or fleece
- Flashlights and extra batteries
- Whistle to signal for help
- Battery operated AM radio
- Comfortable walking shoes
- Extra clothing
- Ziploc bags, toilet tissue and hygiene items
- Pair of heavy work gloves
- Pocket knife
- Candles and matches in a jar
- Maps of local or travelled areas
- Cash
- Good book or playing cards

# Non-Structural Hazards

There are many hazards inside the house which could cause you serious injury as well as wreck havoc to the interior. It is estimated that one-third of the total damages cost will be due to no structural damage to furniture, equipment, supplies, etc. Do a walk through your home and identify hazards and solutions. Set aside a few weekends to attend to correcting non-structural hazards and protecting your belongings.

## Tall or Top-Heavy Furniture

- Attach furniture to the wall using "L" brackets, corner brackets or anodized aluminum molding.
- Attach a wooden or metal guardrail on open shelves to keep items from sliding or falling off.
- Fishing line can be used as a less visible means of securing an item.



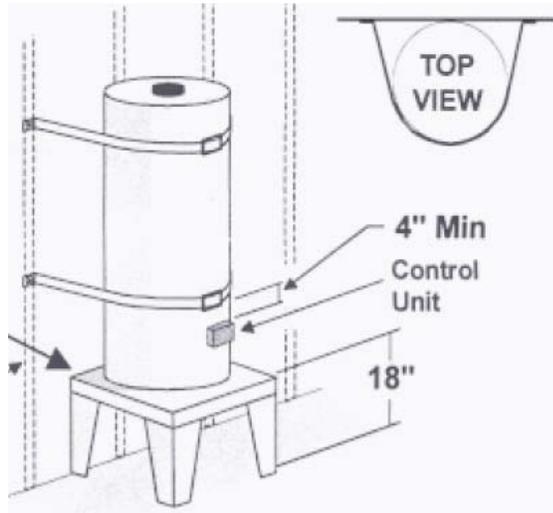
## Pictures, Mirrors, and Hanging Objects

- When a major earthquake strikes, you may be severely injured by falling and flying objects. Consider removing heavily framed pictures and mirrors from above beds, couches and chairs. Determine whether the full swing of your hanging plants and lamps will strike a window, and if they will, consider moving them.
- Secure pictures and/or mirrors by placing angle screws on sides, the top, and the bottom. Then screw these into the studs.
- Attach industrial strength Velcro to the perimeter of frames to hold pictures to the wall.

## Appliances

- Secure your large appliances with flexible cable, braided wire, or strapping.
- Install flexible gas connectors on all gas appliances.
- Attach monitors, printers, stereos and other small appliances with industrial Velcro.

# How to Secure Your Water Heater



- Wrap steel plumber's tape around the entire heater at least twice. Then secure the tape to two different wall studs with big two inch or longer large screws. Place blocking between the heater and the wall to prevent movement.
- Install flexible gas and water connectors.

Have a plumber drain the heater every year, or learn how to do it yourself. The water in the tank can be used to drink in an emergency.

## Toxic Substances

Keep only those chemicals you need on hand. Dispose of old or unwanted chemicals by taking them to an appropriate recycling center.

### To store toxic substances:

- Store ammonia and bleach in different locations. If these liquids mix, they create toxic fumes.
- Place pesticides, gasoline, paint thinners, etc., on the floor, or on a lower shelf, or in a locked cabinet that is securely fastened to the wall.
- If placed on a shelf, install a guardrail to prevent the bottles or containers from slipping off the shelf and breaking or spilling onto the floor.
- Close lids tightly on all containers.
- Store gasoline in vapor-proof containers.

# Conduct an Earthquake Hazard Inspection

Walk through you home together to:

- Search for hazards using the guide on no-structural hazards.
- Discuss where and how you can protect yourself in each room. Practice by physically placing yourself in these locations.

1. Check your water heater. Securely fasten to the wall studs with screws and plumber's tape. DATE TO DO \_\_\_\_\_

Identify top-heavy, free standing furniture that could topple in an earthquake, such as bookcases and china cabinets. Secure to wall.  
DATE TO DO \_\_\_\_\_

3. Identify heavy or breakable objects on high shelves or in cabinets. Securely fasten or move. DATE TO DO \_\_\_\_\_

4. Identify electronic equipment (stereos, computers, etc.) and appliances (microwaves, toasters, etc) that might slide off their cabinet. Secure with industrial strength Velcro or provide a restraining edge on the cabinet or shelf. DATE TO DO \_\_\_\_\_

5. Identify hanging plants, especially those in heavy baskets, and hanging lights that are near windows. Secure, move or fasten down.  
DATE TO DO \_\_\_\_\_

6. Identify mirrors, heavily framed pictures, etc. that are placed over beds, couches, and chairs. Relocate or securely mount them.  
DATE TO DO \_\_\_\_\_

7. Identify appliances that could move enough to rupture gas or electrical connections. Securely fasten these objects. DATE TO DO \_\_\_\_\_

8. Check appliances and the water heater to make sure they are connected to the fuel source with flexible lines. Install flexible connectors on all gas appliances and the water heater. DATE TO DO \_\_\_\_\_

9. Identify latches on kitchen and bathroom cabinets that will not hold the door closed during heavy shaking. Install more secure latches or hooks. DATE TO DO \_\_\_\_\_

10. Inspect the foundation of our house. If your house is not securely bolted, and shear walled, contact a resource person. DATE TO DO \_\_\_\_\_

11. Check your chimney and roof for loose tiles and bricks. If there is work to do, contact resource person. DATE TO DO \_\_\_\_\_

12. Identify poisons, toxics, or solvents in breakable containers that are located in high or dangerous locations. Dispose of and/rearrange. DATE TO DO \_\_\_\_\_

# Structural Preparation

Next to loss of life, the loss of your home will be the greatest catastrophe to occur in an earthquake. Engineers learn more about how to build and reinforce existing buildings after every earthquake. Even though your home was built to seismic specifications, there may be things which you should do now to strengthen it. If you had retrofitting done several years ago, you should check current standards and update the work.

It is difficult to make suggestions which will be applicable to every situation. The best thing to do is to read this material, acquaint yourself with your building, and consult with a licensed engineer or contractor who specializes in earthquake retrofitting. Retrofitting costs vary a great deal depending on what needs to be done. However, the expense of retrofitting is nothing compared to repairing or replacing your house. One estimate is that the cost of picking up a house and setting it back on its foundation will be 23 times greater than the cost of preventive retrofitting!

The most important things you can do to mitigate the effects of an earthquake are (1) maintain your home and insure its structural integrity by having a regular inspection for pests and decay and (2) to improve the building resistance to earthquake damage by keeping the retrofitting up with seismic standards.

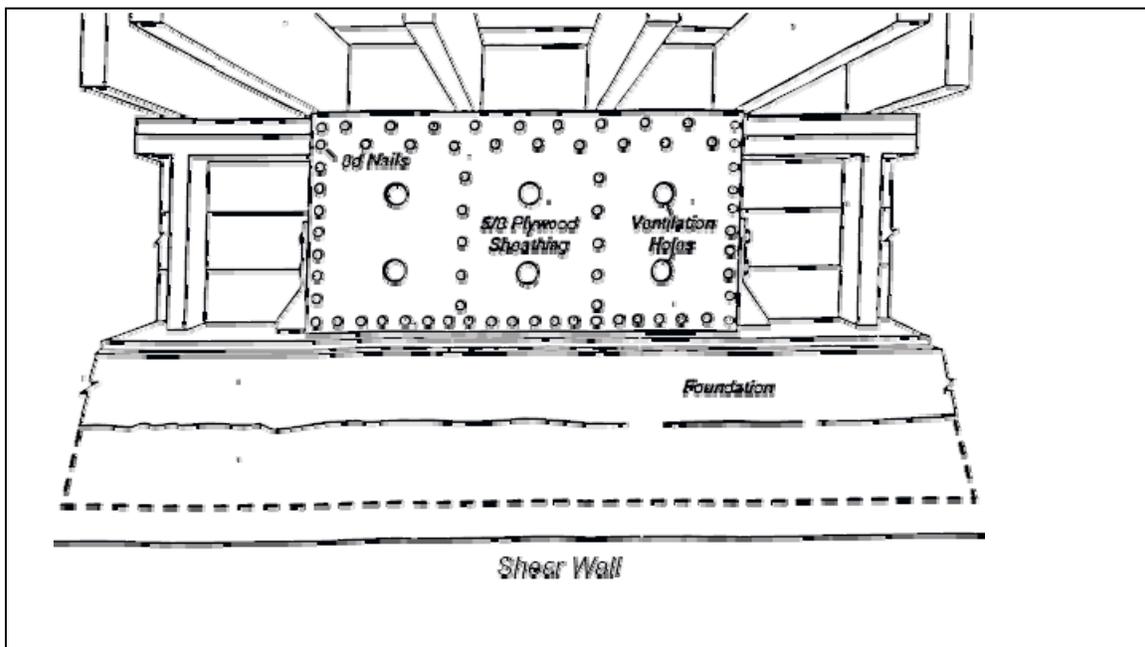
## Foundation

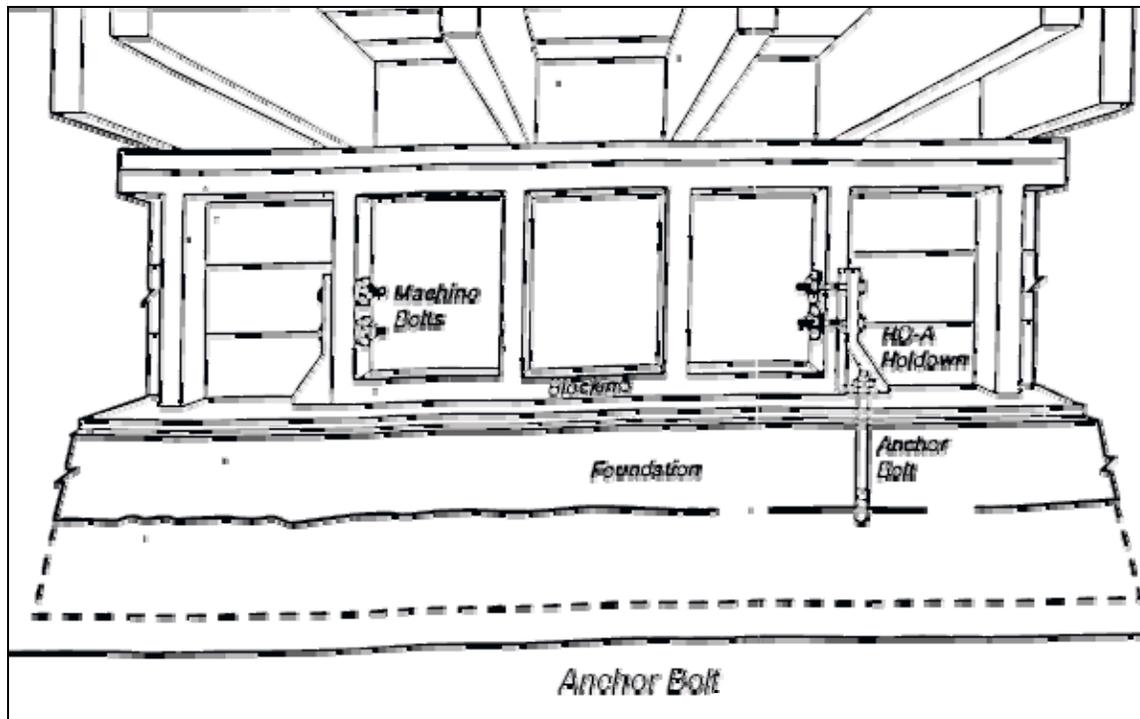
- Be sure you have a good strong foundation
- Check to see that the mudsill is not rotted
- If the house should be securely fastened to the foundation with expansion bolts. If your home was build before 1950, it probably does not have bolts securing the wood structure to the concrete foundation. There should be a bolt at each end of a section of mudsill and one every four feet between. (See diagram.)

# Cripple Wall

What are cripple walls? A cripple wall is simply a short stud wall that extends from the top of the perimeter foundation upward to carry the floor joists. The potential danger comes from the fact that these components are in the seismic load path, and are often inadequately braced. They can hinge over and collapse like dominos in a large earthquake.

Even if a foundation is bolted, it is possible for the house to collapse in this area if the connection is not made between the mudsill, studs and the plate. A shear wall braces the connection between mudsill, studs and plate.





## Chimney

Reinforce the ceiling surrounding the chimney with  $\frac{3}{4}$ " plywood nailed to ceiling joists.

Do not brace the chimney to the roof. Rods connecting the chimney to the roof cause the chimney to fall through the ceiling as a unit which is far more damaging than if the chimney merely cracks and falls in pieces.

Be sure to have the chimney checked, and repaired if needed, before using it after an earthquake.

You may need to do additional structural work to protect your house such as blocking between the joists, using additional hold downs on corners of the building, etc. Please consult with a structural engineer for specifics of your home.

## Plans for the Elderly and Disabled

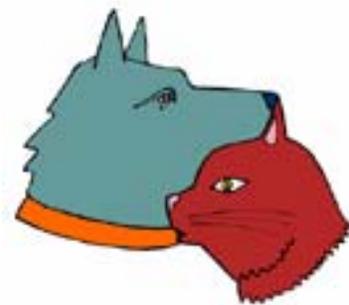
- Tell your neighbors now if you cannot move well or quickly in an emergency and make arrangements for someone to check on you.
- People who are blind should keep an extra cane at home and at work. After an earthquake, your Seeing Eye dog may be injured or too frightened to help you.
- Know where the safer places are in each room of your home, such as under a sturdy desk or table, or in the corner of an inside wall.
- Figure out how you can get out of each room if the doorway is blocked.

## Plans for Non-English Speaking Family Members

Prepare an emergency card written in English indicating that person's identification, address and any special needs such as medication or allergies. Tell the person to keep the card with him/her at all times.

## Plans for Pets

Be aware that shelters will only allow service animals. In a large-scale disaster, animal shelters will be set up when possible. Animal Care and Control's (ACC) facility at 15th and Harrison will be an animal sheltering resource.



- Keep your pet's ID tag up-to-date

If you must leave your pets behind:

- Inform animal rescue workers of your pets' status: On your front door or in a highly visible window, use chalk, paint or marker to write the number

and types of pets in your residence. Include their location in your home and the date that you evacuated.

- Leave plenty of water in a large, open container that cannot be tipped over.
- Leave plenty of food in timed feeders to prevent your pet from overeating. Do not tie up your pet in your home.
- Keep a collar, current license and up-to date ID tags on your pet at all times. Consider having your pet micro-chipped.
- Make sure your pet is comfortable being in a crate, box, cage, or carrier for transport.
- Keep an updated list of trusted neighbors who could assist your animals in case of an emergency.
- Tighten and secure latches on birdcages. Fasten down aquariums on low stands or tables.

### **Make a Go-bag for each pet. Include:**

- Sturdy leashes and pet carriers. A pillowcase is a good option for transporting cats and other small animals. Muzzles for dogs. Food, potable water and medicine for **at least one week**
- Non-spill bowls, manual can opener and plastic lid
- Plastic bags, litter box and litter
- Recent photo of each pet
- Names and phone numbers of your emergency contact, emergency veterinary hospitals and animal shelters
- Copy of your pet's vaccination history and any medical problems
- Portable fencing or baby gates

### **Response**

- Do not try to hold onto your pet during the shaking. Animals instinctively protect themselves and where they're safe.
- Remember that animals react differently under stress. Keep dogs securely leashed and transport cats in carriers or pillowcases.
- If your pet is lost, contact the nearest animal shelter to report your pet missing. When it is safe, return to your neighborhood to search and distribute "Lost Pet" posters; include a current picture of your pet.

# Neighborhood Preparedness

Neighborhoods need to be organized and able to function as a group, independent of any outside help, for at least three (3) days following a major disaster. That is how long it may be before police, fire, and ambulance services are able to respond. It may be longer before phone, gas, water, sewer and/or electrical services may be restored.

Organizing now as a neighborhood will save precious time immediately after the disaster. Experience shows that neighbors naturally come together to help each other out after a disaster but neighborhoods that are already organized will be prepared to act and will save precious time. With this time, they may save a life, reduce the severity of an injury, or lessen property damage.

Neighborhoods will also have a greater peace of mind in knowing that they are not alone after the disaster. They will know their neighborhood is prepared to check immediately and efficiently on the well-being of each other's homes and loved ones. This is especially helpful to those who are not home at the time to do it personally.

Neighbors should begin organizing by determining who will provide the following services:

- Neighborhood coordinator
- First aid
- Fire Suppression
- Light Search and Rescue
- Damage Assessment
- Communication coordination
- Child Care

# What to do **DURING** the Quake

## In a Building

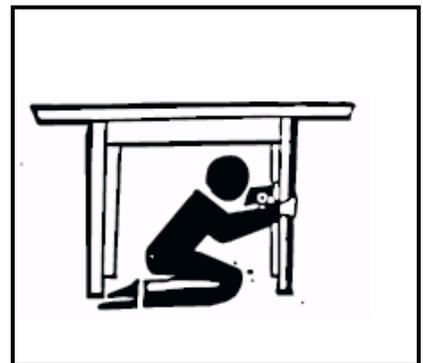
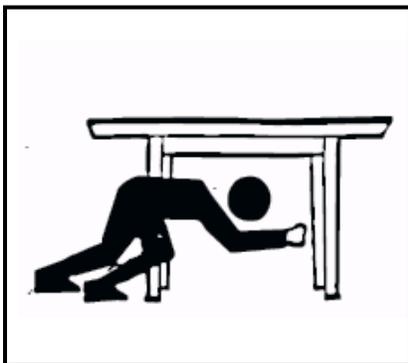
**STAY INDOORS.** Trying to leave a building is very risky and falling debris outside accounts for many injuries.

Avoid heavy standing objects such as bookcases, china cabinets, filing cabinets, etc. Don't try to hold things up, move away from them.

Move away from glass doors and windows which can shatter.

**DROP** to the ground; take **COVER** by getting underneath a sturdy object such as a kitchen table, a desk, even a chair and **HOLD** on until the shaking stops.

If there isn't a table or desk near you, cover your face and head with your arms and crouch in an inside corner of the building.



Be careful in choosing to stand in a doorway. Be sure there isn't a door which will slam shut.

If you are in bed, stay in bed and cover your head or roll onto the floor and pull the mattress over you.

## **In a Car**

- Stop as quickly as safety permits and stay in your car.
- Move to the shoulder of the highway and away from power lines and large buildings as quickly as is safe.
- If you are under an overpass, try to move from underneath it. If you are in front of an overpass, be aware of people behind you and give them room.
- Avoid roads, bridges, or ramps that might have been damaged by the earthquake.
- DO NOT drive through water.

## **Outdoors**

- Try to DROP, COVER and HOLD. Get under a picnic table, bus bench, etc.
- Move away from buildings, trees, telephone and electrical lines, overpasses or elevated expressways.

# What to do IMMEDIATELY AFTER the Quake

- Check for injuries and administer first aid.
- Check for fires. Put out small fires.
- If you smell gas, turn the gas off at the meter. Turn electricity off.
- Do not light a match, or turn on a light switch. Use a flashlight.
- Turn on battery-operated or car radio for emergency bulletins on these Bay Area radio stations.


- Check your home for structural damage. Evacuate if necessary.
- After you have reassured your family and secured your possessions, check on elderly neighbor or those needing help.
- **Be prepared for aftershocks**
- Do not use telephone, except in extreme emergencies
- Do change your voicemail message to say "I'm OK"
- If you are trapped inside, make as much noise as possible to attract attention to yourself.

# Check Utilities

A major earthquake will break gas pipes, electric lines and water lines. All of these can cause major problems. One of the most devastating results of an earthquake is a gas fed fire. Broken water pipes can cause water damage to your home. Sparks from electric lines can cause fires.

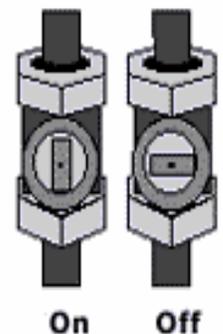
- Locate your gas, water and electric utilities. Make them on the sketch of your home which you made for evacuation. Show your neighbors where your meters are and make arrangements with them to turn off your utilities if you are not home.
- Know how to turn the utilities off.

## Gas

- Attach an adjustable wrench, or special gas turn off bar to the gas meter. (You will not want to take time to find one after an earthquake).
- After a major disaster, shut off the gas immediately **ONLY IF** you smell the characteristic warning odor of gas or if you notice a large consumption of gas being registered on the gas meter.
- The main shut-off valve is located next to the meter on the inlet pipe. Use a wrench to turn the valve so that it is across the pipe. (See diagram.)



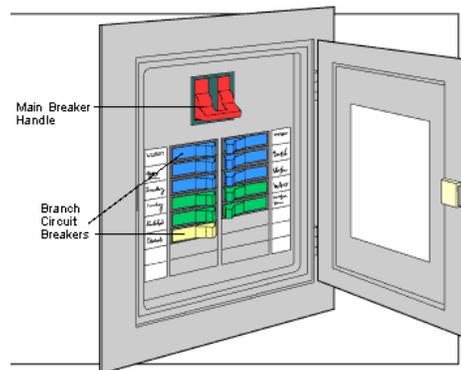
Close-up  
of a typical  
gas valve



- DO NOT USE matches, lighters, open flame appliances, or operate electrical switches until you are sure no gas leaks exist. Sparks from electrical switches could ignite gas, causing an explosion.
- If gas is turned off, do not turn it back on. Only PG&E can turn the gas back on! They will check for any broken pipes or leaks before turning it back on and be sure that it is safe.

## Electricity

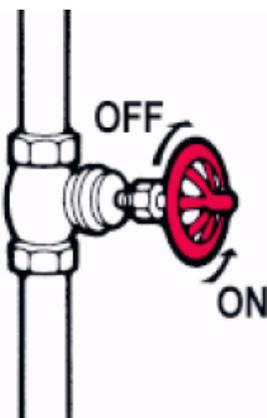
- After a major earthquake, shut-off the electricity at the circuit breaker, or pull-out cartridge fuses.
- Use battery operated flashlights until all danger of fire is over.



## Water

If the water pipe breaks there is a possibility of water damage to the house. If there is a major earthquake, turn the water off at the main meter or at the water main leading into the house.

Locate the water main leading into the house and attach a label to it for quick identification.



# Disaster Recovery

The recovery process following a major earthquake will require the concerted efforts of all members of the community. Individuals, families, and neighborhoods will need to assist each other, their local government, and voluntary agencies in restoring the community to normal.

## Individuals and Families

- Inventory home and list and photograph all and damages
- Maintain receipts for emergency repairs and the purchase of repair supplies and equipment
- Compile tax records, insurance policies, and photographs of damage for damage assistance applications and insurance claims.

## Psychological Considerations

Having just experienced the shock and pain of a disaster, you will be very busy for the next few days or weeks. Caring for your immediate needs, perhaps finding a new place to stay, planning for clean-up and repairs, and filing claim forms may occupy the majority of your time. As the immediate shock wears off, you will start to rebuild and put your life back together. These are some normal reactions we may all experience as a result of a disaster. Generally, these feelings don't last long, but it is common to feel let down and resentful many months after the event. Some feelings or responses may not appear until weeks or even months after the disaster.

Some common responses are:

- Irritability/Anger
- Fatigue
- Loss of appetite
- Inability to sleep
- Nightmares
- Sadness
- Headaches or nausea
- Hyperactivity
- Lack of concentration

- Increase in alcohol or drug consumption

Many victims of disaster will have at least one of these responses. Acknowledging your feelings and stress is the first step in feeling better.

### **Helpful Things To Do**

- Talk about your disaster experiences. Sharing your feelings, rather than holding them in, will help you feel better about what happened.
- Take time off from cares, worries and home repairs. Take time for recreation, relaxation or a favorite hobby. Getting away from home for a day or a few hours with close friends help.
- Pay attention to your health, to good diet and adequate sleep. Relaxation exercises may help if you have difficulty sleeping.
- Prepare for possible future emergencies to lessen feelings of helplessness and to bring to peace of mind.
- Rebuild personal relationships in addition to repairing other aspects of your life. Couples should make time to be alone together, both to talk and to have fun.
- If stress, anxiety, depression, or physical problems continue, you may wish to contact the post-disaster services provided by the local mental health center.

### **Helping Your Child After the Disaster**

Children may be especially upset and show feelings about the disaster. These reactions are normal and usually will not last long. Listed below are reactions you may see in your children:

- Excessive fear of darkness, separation, or being alone
- Clinging to parents, fears of strangers
- Worry
- Increase in immature behavior
- Not wanting to go to school
- Changes in eating/sleeping behaviors
- Increase in aggressive behavior or shyness
- Bedwetting or thumb sucking
- Persistent nightmares
- Stomachaches, headaches, or other physical complaints

# Helpful Things to Do

- Talk with your child about his/her feelings about the disaster. Share your feelings, too.
- Talk about what happened, give your child information he/she can understand. Reassure your child that you are safe and together. You may need to repeat this reassurance often.
- Hold and touch your child often.
- Spend extra time with your child at bedtime.
- Allow your child to mourn or grieve over the lost toy, a lost blanket, a lost home or pet.
- If you feel your child is having problems at school, talk to his/her teacher so you can work together to help your child.

## Neighborhoods

- Start clean-up and remove debris from streets.
- Determine the need for and sources of drinking water.
- Organize sanitation disposal.
- Advise individuals and families of the location of disaster application centers.

## Volunteers

- Contact the City's Office of Emergency Planning or Red Cross to volunteer your services.
- Amateur radio operators who are interested in participating in city-wide emergency radio network should contact the City's Office of Emergency Planning.

## EARTHQUAKE PREPAREDNESS RESOUCRE LINKS

### [The Next Big Quake in the Bay Area](#)

Newspaper article about the next big earthquake in the Bay area.

### [Putting Down Roots in Earthquake Country](#)

Northern California edition

### <http://www.abag.ca.gov/bayarea/eqmaps/eqmaps.html>

Association of Bay Area Government maps & information

### [http://www.redcross.org/services/disaster/0,1082,0\\_583\\_,00.html](http://www.redcross.org/services/disaster/0,1082,0_583_,00.html)

American Red Cross – Safety tips and disaster updates

### <http://www.fema.gov/hazard/earthquake/index.shtm>

Federal Emergency Management Agency –How to Protect Yourself in an Earthquake

### <http://www.sfgate.com/chronicle/special/quakes/>

SF chronicle

### <http://earthquake.usgs.gov/learning/>

U.S. Geological Survey educational tools

### <http://quakeinfo.org/>

Quake Information Organization

### [How You Can Strengthen Your Home for the Next Big Earthquake in the Los Angeles Area](#)

Easy Low-Cost Ways to Help Reduce the Risk of Damage to Your Home. (PDF)

### [Is Your Home Protected from Earthquake Disasters?](#)

Institute for Business and Home Safety, 1999. (PDF)

### [Strengthening Wood Frame Houses for Earthquake Safety](#)

California Office of Emergency Service

### [Coping with Childrens' Reactions to Earthquakes](#)

California Office of Emergency Service