



Table of Contents

Introduction.....	5
Your Escape Plan	7
Mapping Your Escape Plan	7
Practice Makes Perfect	9
Preparing a Survival Kit.....	11
Water.....	11
Food.....	12
Food & Water Rotation	14
First Aid Supplies	15
Survival Supplies.....	17
Toiletries, Clothing and Bedding	18
Documents	19
Survival Kit Maintenance	19
Preparing Your Family	21
First Aid and CPR	22
Emergency Plans for Kids	22
Emergency Plans for the Elderly or Disabled.....	23
Emergency Plans for Pets.....	24
Communicating after the Quake.....	26
Community Earthquake Plans.....	27
Earthquake Mitigation.....	29
Shelving and Large Furniture.....	29
Interior Decorating	29
Windows.....	30

Breakable and Hazardous Items.....	30
Guns/Weapons	31
Structural Considerations	31
Reinforcing Your Foundation	31
Flexible Gas Lines	31
Automatic Gas Shutoff Valves.....	32
Fireproofing Your House	32
Home Maintenance.....	32
Early Warning Systems	34
Earthquake Early Warning Apps and Software	34
Online Earthquake Warnings.....	34
What to Do in an Earthquake - Inside Buildings	36
When the Shaking Stops.....	36
Earthquakes in High Rise Buildings	37
The Safest Parts of the House	37
The Most Dangerous Parts of the House	38
What to Do in an Earthquake - Outside.....	39
While Driving.....	40
Outside Dangers	40
Earthquakes and Tsunamis	41
Helping Family to Safety	43
What to Do in an Earthquake with Small Children	43
Helping the Elderly and Disabled	43
Evacuating with Pets.....	44
Fire Safety	46

Fire Extinguishers	46
Flashover.....	46
Stop, Drop and Roll.....	47
Aftershocks – Going Home and Moving On.....	48
Post-Quake Survival	50
Long-Term Shelter.....	50
Cooking and Eating	50
Drinking Water.....	51
Sanitation and Waste	52
Dealing with Dead Bodies	53
Emotional Survival – Coping with the Quake.....	54
The Emotional Effects of Earthquakes	54
Disaster-Related Stress	55
Earthquakes and Children	55
Recovering Financially.....	57
Insurance Claims.....	57
Financial Help after a Quake	57
Cash and Financial Records	58
Conclusion – Surviving and Moving on	59

Introduction

Without warning, the ground beneath your feet begins to shake. Light fixtures swing, items slide off shelves, and the house creaks and groans. You jump under a table, cover your head, and hang onto a table leg for dear life.

In a matter of seconds, the shaking has stopped. The house is a mess, but it's eerily still and quiet. You know there will be aftershocks, so you head out quickly with your family, stopping by the back door for your survival kit. Everyone meets outside in the designated spot. They're all calm but shaken – but best of all, they're all accounted for and uninjured.

An earthquake can strike anytime and anywhere. Although some areas have more seismic activity than others, anywhere on the planet there can be a shift in the tectonic plates, as recent earthquake activity on the American east coast has shown.

There are about one million earthquakes around the world each year. Most are too small to be felt. Many are nothing more than a few seconds of light shaking and then they're over.

According to the US Geological Survey, each year there is an average of 17 large earthquakes that measure 7.0 to 7.9. Each year there's one 'great quake' of over 8.0. These large quakes can be catastrophic.

The USGS says that large-scale earthquakes are on an upward trend. While the number of yearly earthquakes hasn't changed significantly over the last century, the last ten years have seen a sharp increase in quakes of over 5.0. In 2000, the USGS reported 1,500 large earthquakes. In 2009, the number was over 2,000.

Few people die during an actual earthquake, but the aftereffects of the shaking can be deadly. Bridges can collapse, power lines can come down, and large debris from buildings can fall. Gas mains break causing explosions and fires. An earthquake can touch off landslides or tsunamis.

In countries where the infrastructure is poor, the death count is high. But even in a modern country with full-scale rescue operations and communications, a major earthquake can be deadly. Japan's Great Tohoku Earthquake of 2011 unleashed a massive tsunami that killed over 15,000 people and left more than 3,000 missing, and also touched off the world's second-largest nuclear disaster. Nowhere on earth is completely safe from earthquakes.

You can survive a massive earthquake and most people do. The way to survive is to be prepared. You can't predict when an earthquake can strike, but if you're always ready for it, you can mitigate the damage it does to you, your home and your family.

In this book you'll learn how to prepare for an earthquake. You'll learn exactly what to do when it hits and how to get your family to safety. You'll also learn how to recover and get your life back to normal.

Your Escape Plan

You could be anywhere when an earthquake strikes – at home, at work, in your car, or walking outside. Wherever you are, you should seek the safest spot, and duck and cover. Once the shaking stops, it's important to get everyone outside in case there's falling debris, ruptured gas lines, or other hazards. There will also be aftershocks.

Your escape plan is what gets you out of the house and keeps everyone together. You should have an escape plan for each place where you spend a great deal of time – your house, your school, your workplace, etc.

Mapping Your Escape Plan

Start by drawing a map of your house. It doesn't need to be perfectly to scale or completely detailed, but it needs certain features. It should include every room in the house and major features such as doors and windows. Large furniture and anything you think could be a hazard, such as a swinging light fixture, should be identified.

I know what you are thinking.

“I'll never look at this map during an earthquake.”

You are right. However, going through the thought processes is extremely valuable in creating a mindset for survival.

On your map, identify:

- At least two escape routes out of each room. You need multiple exits in case one is blocked. Even if the secondary route is a window, include it as an option.
- The safest part of each room. This would be under something like a bed, table or large desk, or against a solid inside wall.

- Each room's danger areas during the earthquake are the windows, large bookcases, light fixtures, and anything that swings, tips over or can fall to the floor during the tremors.
- Fire extinguishers
- Smoke detectors
- Gas and electric shut-off
- Your survival kit. Someone will need to grab this on the way out.

Designate two meeting places outside of the house. One should be an easy place to get to near the home. The other should be outside the neighborhood. Your family will go to this place if the damage is extensive or there are any dangers near your home.

Cases where houses are totally destroyed are rare. However, it may not be safe to reenter your home immediately after an earthquake. As part of your plan, decide where you'll stay in case your home is damaged significantly. This can be with a relative or friend, or at a nearby hotel or motel.

In the United States, some people move to a campground after a natural disaster. If that sounds appealing to you, be sure to have ready access to your camping equipment. You may want to store the critical camping items in a vehicle.

Survivalists pack up a collection of equipment, tools, food and water. You may hear this referred to as a [Bug Out Bag](#) or Go-Bag. The idea behind the Bug Out Bag (BOB) is to have one or more collections of critical survival items collected and ready for a disaster. Some people create several BOBs and stow them away in different locations. Usually they setup each bag with a subset of inventory found in the main bag.

Practice Makes Perfect

Now that you've identified danger and safe areas, it's time to review escape and survival strategies with your family. Start simply by asking questions and discussing their responses.

Here are some conversation starters.

- Do you know what an earthquake is?
- If an earthquake struck right now, what should each of us do immediately?
- Where is the safest spot in this room? What about in your bedroom? The kitchen...bathroom and so on.
- If we are cooking in the kitchen when the quake hits, what should we try to do as we seek cover? {The suggestion here is to try to turn off the oven or stove, but not to take priority over ducking for cover.}
- What are 2 ways to escape the kitchen and repeat for each room in the house?
- What are our meet-up places for each of these situations?
 - outside our home (choose a spot away from the buildings)
 - when the children are at school (follow teacher's instructions)
 - when children are at a friend's home or some other location (consider a neutral zone such as a church, community center, or school)

Earthquake Drills

Your entire family should conduct practice drills at least twice yearly. There are three components to an earthquake practice drill – taking cover, exiting, and shutting off the gas.

Start by walking through each room and discussing the escape routes with your family. Make sure they understand what to do before the drill starts. Choose a day and tell them this day, but don't set a time. If you take them by surprise, it makes it more realistic and they have to think on their feet in just the same way as they would in a real earthquake.

Start the quake with a pre-set alarm or by blowing a whistle. Once they hear the signal, they should duck and cover. A second signal will tell them that the shaking is over (or this could be indicated by the alarm stopping), at which point they need to leave the house. To make it more realistic, you can set obstructions in their way.

As part of the drill, have one adult get your survival kit on the way out. Someone should also turn off the gas and the electricity. During the drill, don't actually shut off the gas because you may need the utility company to turn it back on again.

However, you can simulate gas shut-off. Tell your children what you are doing. For example, "I'm turning off the gas to the house by turning this switch here." Or, "I'm shutting off gas to the water heater here."

Also have family members shut off lights, electrical appliances, and water as quickly as possible as they leave. Except for toddlers and infants, everyone in your family should be able to point out or describe where the water and gas turn-off switches are located.

Your family members should meet at the appointed place outside the home and review the responsibilities of each person after the quake. This is also a good time to reflect on how well the drill went.

Earthquake drills don't have to be deadly serious. If you have kids, you can make them fun. What's important is that they understand what to do. After giving them instructions, quiz them to make sure they understand.

Summary

- Draw a map of your home and discuss two escape routes for each room. Indicate safe areas and danger areas.
- Show the map to your family and make sure they understand what they are to do during and immediately after an earthquake.
- Conduct practice drills twice a year where the entire family leaves the house as if it were a real earthquake.

Preparing a Survival Kit

As part of earthquake survival, you need a survival kit. This is a container or bag that has the most critical items needed to survive in case the damage to your home is severe and you can't return immediately after the disaster.

Both FEMA and the Red Cross recommend that your survival kit contain everything you and your family will need to survive for at least three days. Of course, it doesn't hurt to plan for longer. A good survival kit will include water, food, first aid supplies, prescription medication, tools, emergency supplies, sanitation, clothing and bedding.

A family survival kit is any re-sealable container which is easily packed stowed away in an area which may hold up under earthquake conditions. It can be a plastic storage bin with a lid or a large duffel bag or backpack. In addition to your main survival kit at home, it's good to have a smaller one at your workplace, at your school, in your car, or anywhere else you spend a great deal of time.

Water

Although it wouldn't be much fun, you can survive for weeks without food. Water, however, is another story. A human can only live a few days without adequate water and following an earthquake or other major disaster, it may be impossible to find potable water. This is probably the most important part of your survival kit.

Most reasonably active people need around two quarts of water each day, but it's good to plan for a gallon per person per day. This gives you some extra in case you need it and it also includes water for cooking. This means that your survival kit should have three gallons of water per person. If you have pets, include extra.

Plan on using a combination of the strategies discussed below.

1. **Store water.** The best way to store water is to keep it in water-safe, opaque containers, out of the light, and away from any chemicals (e.g., gasoline, paint, etc.). If you do this, water will typically remain safe for 6 months to a year. There are a number of different water storage solutions. A few of the

popular systems include 55 gallon [barrel drums](#), [plastic water bricks](#), [water containment systems](#) that fit into a bathtub and pods which are very similar to the water brick solution. The plastic water brick holds only 3.5 gallons and you can move it about or stack it with other bricks. The drum and bathtub systems hold a large volume of water, but you won't be moving these around until they are empty.

- 2. Purify water.** Potable (safe to consume) water is priceless during disasters. If you have a large water storage system such as the 55-gallon drum, you are going to have a hard time refilling it. Yes, you can capture rain water, but even that is questionable. If you refill from uncertified supplies you need to use [water purification tablets](#), drops or systems to make the water safe to drink. [Personal water purification systems](#) are small, lightweight devices typically used for camping in rugged terrain. The adapter base attaches directly to water bottles or an output hose can be used to fill larger containers. If you have access to a fire or portable cook stove, you can also boil water to kill organic contaminants. Boiling is the surest method to make water safer to drink by killing disease-causing organisms, including viruses, bacteria, and parasites.
- 3. Carry Water.** You may have hundreds of gallons of potable water available, but if you don't drink it, you will die. Unfortunately, purification chemicals leave an aftertaste in the water that most people don't like. Adding something like powdered Gatorade, Kool-Aid or Crystal Light improves the taste making it easier to consume. Everyone in the family needs a way to keep water readily available. Canteens, water bladders and [Camelbak hydration systems](#) are ideal for keeping water close at hand.

Food

Pack food items that are light, compact, and non-perishable (meaning they don't decay or go bad). Examples of good food items include:

- Ready to eat canned foods
- Dehydrated milk, soup or juice where you only need to add water

- Energy foods like trail mix, granola bars, jerky, peanut butter, and dried fruits
- Staples like sugar, salt, and pepper (these are the first to go at your local supermarket)
- Baby food and pet food if you need it
- Vitamin supplements to round out your nutritional needs
- Survival foods

You must drink water to live, but you and the family will quickly grow weary of canned soup and breakfast bars. The only highlight of the day may be when you all sit down and give thanks for what you have left: each other and a decent meal.

Survival foods are specialty products available through online sources as well as at most high-end camping or survival goods store. The Mountain House brand offers a variety of meals all packed into a easy-to-store/transport bucket. The [“Just In Case”](#) product includes:

- 12 pouches per bucket - 29 meals
 - 2 - Beef Stroganoff
 - 2- Chicken Teriyaki
 - 2- Beef Stew
 - 2- Lasagna w/meat
 - 2- Noodles and Chicken
 - 2- Granola w/Blueberries

To prepare, just mix the contents of the pouch with boiling water, let it rest a few minutes and the serve. Unopened, the shelf-life is 25 years. Oh, it’s made in the USA if that matters to you.

The Wise Company [“Grab and Go Food Kit”](#) is another option to add in a bit of variety. Each Grab and Go Food Kit contains 2 servings per day (entrees only) for 1 adult for 1 month or 4 adults for 1 week – 60 servings.

Be advised, the calorie count for each serving is 200 – 300 calories. Most people need 1,500 – 2,500 calories for basic weight maintenance. Do the math and you'll find that each person will require more than 2 pouches a day.

The meals are:

- Savory Stroganoff
- Chili Macaroni
- Pasta Alfredo
- Creamy Pasta and Vegetable Rotini
- Teriyaki and Rice
- Cheesy Lasagna
- Creamy Ala King and Rice
- Creamy Tomato Basil
- Savory Stroganoff (8 Servings)
- Chili Macaroni
- Pasta Alfredo

Even though these meals offered by Wise and Mountain House don't qualify for a Thanksgiving venue, they are considered comfort food. There's a great deal of stress and emotional trauma following any type of disaster especially when kids are involved, and you'll need the cheering up.

Don't forget to also pack the supplies you'll need for preparing and eating your food. This includes paper cups, plastic utensils, and paper towels. A [small propane camping stove](#) or can of Sterno should be packed for heating purposes, and don't forget a can opener.

Food & Water Rotation

Look at longevity promise offered by the merchant. Needless to say, you may not want to hold onto your "Grab and Go" for 25 years. On the other hand, you probably don't want to replace them every year. One option is to prepare a survival meal for the family once a month. Another is to take a set along camping and try

them out. This will give you a good idea how to prepare the meals and just how many you need to stave off hunger during an active day.

Water is another story. The [Center for Disease Control and Prevention](#) recommends replacing water every 6 months.

First Aid Supplies

You need a good first aid kit in your survival gear. You can buy a ready-made [first aid kit](#) and they come in all shapes and sizes. Of course, the bigger and more comprehensive it is the better. You can also put together your own.

There are a lot of items you could include in your first aid kit and there's no such thing as too many, but first of all here are the basics:

- Sterile adhesive bandages of various sizes for cuts and scrapes
- Butterfly bandages and narrow adhesive strips to hold a cut together for proper healing
- Plasters in a variety of shapes and sizes
- Gauze dressings of various sizes
- Scissors for cutting gauze (although they can also be used for cutting clothing or virtually anything else)
- Adhesive tape for securing gauze, making splints, and other related uses
- A roll of absorbent cotton for padding for a splint
- At least two sterile gauze eye dressings
- Antiseptic wash
- Cotton-tipped swabs
- A thermometer, preferably digital
- Safety pins
- Tweezers
- Disposable sterile gloves
- Over the counter painkillers
- Small bottled water for cleaning wounds, drinking with medication, or other first aid related needs

- Face mask
- Chemical ice packs
- A clean towel which can be used as a pillow or a wrap for ice
- Emergency phone numbers of doctors, poison control, or nearby hospitals
- A first aid handbook

What you've just read is the *short* list of the very basics. It never hurts to include more first aid supplies. Here are some items you might want to include in the case of long-term evacuation:

- Antibiotic ointment or gel
- A box of baking soda
- Hand sanitizer that's at least 60 percent alcohol
- Contact lens solution
- A dental repair kit (which can be found in most pharmacies)
- Lip balm
- Petroleum jelly
- Moisturizing hand lotion
- Moleskin for blisters on the feet
- Anti-itch lotion or cream for insect bites or other skin irritations
- Eye drops
- Syrup of ipecac for inducing vomiting (only if instructed by poison control or a doctor)
- Plastic bags for waste or other uses
- Small flashlight and batteries in case you need to deal with injuries in the dark

If any of these items are unfamiliar to you, practice using them so that when you need to, you'll know how.

Aside from painkillers, here are other medicines you may consider including:

- Antacid

- Anti-diarrhea medication
- Cough medicine
- Decongestants
- Antihistamines
- Laxative
- Vitamin supplements (especially zinc, which boosts the immune system)

Survival Supplies

There are survival kits you can purchase which provide an assortment of supplies that will be invaluable during an emergency. This 4-person [survival pack](#) even includes emergency rations of food and water as well as radio/flashlight (no batteries required), firestarter kit, ponchos, and reflective sleeping bags.

You can also pull together your own survival kit using items you may already have at hand. There are a number of essential survival supplies that your kit should contain. Of course, you can add to this list if there's another particular item you feel you should have. Start with:

LED flashlights or lanterns. LED is preferable to using a lighter, gas lamp or fire because you don't want any open flames. Earthquakes often rupture gas lines and the fire hazard is high. [LED flashlights](#) also have a long usage. You won't light up the night sky, but they provide enough light to read instructions, a map and find stuff in your emergency kit.

Battery operated radio with extra batteries. You need to keep in touch with what's going on and although you may be able to use the Internet on your smartphone, there's nothing more reliable than a good old-fashioned radio. There are models that provide a hand-crank so you can [generate enough electricity](#) to power the radio to conserve battery power.

Flashlight with extra batteries. Power outages are common and if you must evacuate your home, you may not be able to reenter until after dark. If the grid is down, there'll be no light anywhere.

Whistle. A [survival whistle](#) helps you call for help. Its tone is high-pitched so it can cut through other noise and travel well. It's better than yelling because you can lose your voice.

Battery-powered alarm clock. In case you lose power, it's good to have a backup to your cell phone's alarm.

Phone charger. Make sure you have a way to charge your phone. Have one to plug into an electrical outlet and another that works when plugged into the AC outlet in your car.

Small canister fire extinguisher. A [small canister](#)-type fire extinguisher is lighter than a regular canister size and can be used just as effectively on small-scale fires.

Heavy gloves, goggles, and dust masks. These are for reentering your home in case there's rubble and extensive damage.

Local map with area shelters. Make sure you have a map showing where all of your local shelters are located.

Extra glasses or contact lenses if you wear them. Stuff breaks or is lost during emergencies. If you can't see without your specs you are crippled.

Small hand tools and a utility knife. These are for various uses, the most important of which is turning off the house's emergency gas shutoff.

Toiletries, Clothing and Bedding

Stock your emergency survival kit with common toiletries such as:

- Toilet paper
- Zipper seal bags for trash
- Soap
- Shampoo
- Toothbrushes and toothpaste
- Feminine hygiene supplies (pads come in handy for all types of situations)

- Baby wipes

If you need to evacuate for a long period of time, you'll probably have a chance to rescue some clothing and bedding from your home before you leave. However, if you need to spend a night or two outside before rescue workers arrive, it's good to have some light bedding.

Pack bedding materials and extra clothing that's light and water resistant. Include a lightweight poncho in case it's raining. A good item to carry in your survival kit is a [Mylar blanket](#). The Mylar keeps in the heat, making it more efficient. Its reflective surface can also be used as a signal to help rescuers find you.

Documents

Along with all of your food, water and supplies, you'll also want to stock your kit with important documents. In a safe metal box keep family members' names and pictures. Include phone numbers and addresses for guardians, close relatives, children's schools, doctors, nearby hospitals and anyone else that may need to be contacted.

You should also keep \$100 in cash in small bills. Consider dividing it up between family members and stress that it should only be used when absolutely necessary. This ensures everyone has a little cash and losing one emergency kit doesn't mean losing \$100 in cash too!

Survival Kit Maintenance

Every six months, check all items in your survival kit to make sure they're up to date. Do it as a family so that everyone will know exactly what's inside. Your documents should be updated as soon as possible whenever there's any change. Whenever you put new items in your kit, write down the dates of purchase so you'll know how old they are.

In addition to what's in your kit, stock food, water and survival supplies in other parts of the house as well. Grocery stores will run out of stock on essential items in as little as three days, so be prepared with everything you'll need if they're closed.

If you live in a particularly earthquake prone area or there have been quakes recently, you might consider keeping a bag next to your bed with a pair of shoes, a pair of gloves, a flashlight, and a battery operated radio so that you can grab it quickly if an earthquake strikes in the middle of the night. The voice of experience.

Summary

Each survival kit requires:

- 3 gallons of water per person
- Light, compact, non-perishable foods
- A first aid kit
- Your essential survival and emergency supplies
- Toiletries, clothing and bedding
- A safe metal box containing personal documents
- \$100 in small bills
- Update your survival kit every six months and the personal documents in it whenever there's a change

Creating smaller individual subsets of the larger emergency kit is a good way to keep items with everyone or to prevent total loss of the family kit should it be buried under tons of debris.

Preparing Your Family

You have an escape plan and a survival kit prepared. Now, make sure your family knows exactly what to do and how to get out of the house. In addition to your family, include hired help, babysitters, and anyone else who spends a great deal of time at your home in your earthquake planning.

Adults should handle important tasks such as shutting off the gas and getting the survival kit so that all kids need to do is get out. Adults should assist the kids to make sure they can get outside after the quake.

Educate your family and especially kids about earthquakes. Earthquakes are frightening but most last only a matter of seconds. A long earthquake may last up to a minute but that's rare.

Your family needs to understand the real dangers of earthquakes. The ground doesn't open up and swallow people. The real danger is from objects or building materials falling from above or large furniture such as bookcases toppling over. They need to understand that there's little chance of the earthquake itself killing anyone, but it can cause injuries. Even more serious dangers are leaking gas mains and their attendant fires.

Make sure they also understand that large earthquakes have aftershocks, which can be almost as large as the quake itself, especially in an earthquake over magnitude 8.0. They should expect these. Aftershocks can come anywhere from minutes to weeks after a quake, but they're less intense. Since buildings are compromised from the original tremor, more structural failure occurs with aftershocks. So be alert to bricks, signs, and windows – anything – that may topple from above. Be prepared to move quickly.

Show your family how to use emergency whistles and teach them to tap three times if trapped. This is a universal sign that rescue workers recognize.

First Aid and CPR

During a natural disaster, you become the first responder. It's essential that you understand basic first aid and CPR (Cardio Pulmonary Resuscitation). There may be injuries or illnesses that require more than a Band-Aid or an aspirin. It can be a matter of life and death and if you're unable to save the life of a loved one, it's something you'll regret the rest of your life.

There are online first aid courses and information resources but they're no substitute for real hands-on training. You can find classes in your area at community centers, colleges, fire departments, hospitals, libraries and in some workplaces. Many non-profit organizations offer this training for free.

The Red Cross offers many certification courses including [CPR courses](#). Once you complete the training you'll be competent and confident in providing CPR to adults, infants and children.

The Red Cross also offers specialty training that can be invaluable during an earthquake or any natural disaster.

- Family First Aide
- Responding to Emergencies (First aid and CPR certification)
- Wilderness and Remote First Aid Course
- Pet First Aid Course

These courses teach you how to manage an emergency scene, assess victims, deal with a wide range of infections, deal with a number of serious injuries, and know exactly when to call for help. Most courses take only one day to complete. Find out more details at the [Red Cross](#).

Emergency Plans for Kids

As part of your escape plan, you need to figure out how you're going to get the kids out of the house. If you have babies or small children, you'll have to go to their rooms and get them. Prepare a stroller to take outside with you in order to transport the children.

Kids should have their own [emergency bags](#) kept near the bed where they can grab them on their way out. Their bags should include coloring books and games, a flashlight, an extra set of clothes, bottled water, high calorie snacks you know they'll eat, and cards that identify them and their family members in case you get separated from them.

Children shouldn't be shutting off the house's gas, but they should know what gas smells like. Instruct them to tell an adult if they smell gas immediately.

Make sure your children understand what's going on when an earthquake hits and what they need to do. This clears up a great deal of the stress and trauma that a child may experience during an earthquake. If they understand what's happening and know how to react they feel safer and confident.

If your children are infants or toddlers, they aren't going to be walking very far. There are backpacks suitable for carrying children. Using a carrier also [keeps your hands free](#) – important to have when stumbling through earthquake rubble. Using toddler or infant [carrier](#) is far more efficient and less tiring, too.

Emergency Plans for the Elderly or Disabled

Evacuating and living out of a survival kit is especially hard for the elderly and disabled. It's a grim fact that disasters take the lives of far more of these individuals than others. For them, it's even harder to move around and get the supplies they need. However, if special preparations are made, tragedies can be avoided.

Start by considering each member of your household who is elderly or disabled and do an honest assessment of their limitations, needs and capabilities. Imagine what they will need once the shaking starts. This may be extra assistance getting out of the house or extra supplies to pack in your survival kit.

Elderly or disabled family members with special needs should wear a medical alert bracelet or necklace at all times. This will tell rescue workers the exact nature of their disability so they'll know how to respond.

If a member of your family is in a wheelchair, make sure there are at least two suitable exits out of the house for them. During the earthquake, they should go to a safe spot, lock their wheels, and cover their head. If they're not in their chair or they are unable to move, they should stay still and cover their head as well as possible. You may want to have access to a [manual wheelchair](#) or mobility device in case there are electrical problems with a powered chair.

If a member of your family has special hospital needs such as a dialysis machine, know more than one facility in your local area where they can go. If they are dependent on an electrical medical device, prepare a backup power source such as a battery pack or generator in case you have no power.

In your survival kit, pack any extra supplies and medications they need. At least three days of medications should be prepared.

Find out what community plans are available for the elderly and disabled. In many areas, they can register with the local fire department or emergency services. If there's an earthquake, these services will make sure they're accounted for. You should also reach out to neighbors and make sure they understand that a member of your family is elderly and disabled. In case of an emergency, they can check up to see if they're okay.

Pregnant women are technically considered disabled. Make sure they have assistance and the supplies they need prepared for an earthquake.

If anyone in your family doesn't speak English, write a card for them with their name and other personal information in English. Make sure they carry this card with them at all times.

Emergency Plans for Pets

Pets are part of the family and it's truly tragic to lose one to an earthquake. This is why it's critical that you not leave pets assuming they'll survive on their own.

Prepare a secure pet carrier, leash or harness for them and put one adult family

member in charge of gathering them and getting them out of the house. If you can't get to the carrier get the animal on a leash of some type.

Cats can be a real challenge. They will climb or hide. If possible, get your cat contained as quickly as possible. This [emergency cat carrier](#) provides good ideas on what to pack in an emergency only carrier. Smaller animals can even be secured in a pillow case to keep them from taking off. Birds and small caged animals should not be left behind. Do your best to take them with you. Caged animals don't have any escape options.

With the important phone numbers in your safe metal documents box, include the number of your local animal shelter. Make sure your pets' tags are fully up to date and include your contact information. Carry a photo of your pets in your wallet to show rescue workers or animal shelters if you're separated from them.

Put rescue alert stickers by your home's door or on windows that tell rescue workers there's a pet inside. The stickers should also include the name and number of your veterinarian and local animal shelter. When they see the sticker, rescue workers will enter the house if possible to find your pets. If you've evacuated with your pet, write on the sticker 'evacuated' so they know not to look for them.

It's wise to leave a key to your home with a trustworthy neighbor or relative who lives nearby. This is especially helpful if you are away from your home during an earthquake. If you're not home when the earthquake hits, you can contact this person to have them check on the pets as well as give you a damage report on your home and the neighborhood in general.

Not all Red Cross centers accept pets, so ask your vet for a list of local shelters where yours can stay if they can't return home. You can also scout out hotels and motels that accept pets.

Communicating after the Quake

There's always the possibility that after a quake, you may be separated from your family members. For this reason, you need a communication plan so that everyone knows where everyone else is and that they are safe.

Don't expect to be able to use phones or internet service after an earthquake. There is a possibility that all systems may be down. Stress to your family members the importance of being at your designated meeting point. Tell them not to assume they can just call you.

Choose one relative or family friend outside of the area for everyone to contact. Once you are in an area with phone service you need to contact this person. If you become separated, everyone knows to call them and check in. They can then relay the information to each member that calls or contacts them. It's good to choose someone outside the area in case the entire area has no phone service.

Keep conversations with your out-of-area contacts short and sweet. Tell them everyone's condition and anything else they need to know, and say goodbye. The phone system can go out at any time and someone else may be trying to contact them.

In your cell phone address book, write '**ICE**' next to phone numbers of emergency contacts. This stands for **In Case of Emergency** and rescue workers recognize it. If they find your cell phone, they can contact these numbers.

Everyone in your family should know all emergency numbers. This should include local emergency services, area hospitals and the American Red Cross. Make sure they know how to dial these numbers and get help.

Teach your kids and elderly family members how to use text messaging. Often after an earthquake the phone lines are jammed but text messages can go through.

Community Earthquake Plans

Most communities have community earthquake plans, especially in areas that commonly have seismic activity. You can find out about the plan in your area by calling your local Red Cross or Office of Emergency Services. They'll tell you about plans, escape routes, and shelters. In the event of an emergency, temporary medical centers are set up and they'll tell you about these as well.

Make sure you know the location of the nearest police department and fire station. You should also know where your neighborhood's evacuation shelter is located. In case you become separated, your family members should also know where these places are.

There are several good reasons why you should get to know your neighbors. As mentioned previously, they can help you with elderly or disabled people in your family and pets. You can do the same for them as well. Another reason it's good to know your neighbors is that they may have skills you don't and vice versa. It could take days for rescue workers to reach you if the damage is bad, and you may have to rely on each other for certain things.

If your neighborhood doesn't have an earthquake plan, you can create one. Work together with your neighbors to create a training program to teach first aid, fire suppression, and search and rescue. You can also create a neighborhood communication system. In many areas, residents hang a white flag on their front porch to tell others that everyone inside is safe and uninjured. You can devise another color that indicates you need help.

There may be community volunteer programs you can sign up for. If there's a major disaster, this group of volunteers helps with a variety of services before rescuers can get to the area. If you belong to any kind of local organization, ask them if they have an earthquake plan you can participate in.

Summary

Getting Your Family Prepared

- Talk to your family about earthquakes and make sure they know what to do
- Learn first aid and CPR
- Make emergency plans for your children, elderly family members, disabled family members, and pets

Communication Plan

- Choose an out of town friend or relative for everyone to contact
- Write ICE next to emergency contacts in your phone book
- Make sure family members know all emergency numbers
- Teach family members how to text

Community Plans

- Find out about community earthquake plans

Earthquake Mitigation

'Mitigation' is a term used in earthquake preparation that means doing everything you can do to minimize the potential for damage. There are a number of ways you can prepare your home in order to mitigate the damage and danger when an earthquake strikes.

Shelving and Large Furniture

All shelves should be securely fastened to walls. A good way to do this is by attaching shelving, wall units or other tall furniture to the wall studs. Steel 'L' brackets and corner brackets are easy to install and can be done in minutes. Nylon fasteners can also be used. You can also use nylon cord. There are [furniture strapping accessories](#) available for just about any type of furniture, wall hanging and appliance.

If you have large items on your shelves, put them on the lower shelves. This will prevent them from falling on someone's head in the event of an earthquake. The less distance an object has to fall, the less damage it can do. You may also consider installing guardrails on all of your shelving units to keep things from sliding off. Stringing fishing line across the shelf opening also works.

Place any heavy furniture on non-slip mats so that it won't move around during the earthquake.

Interior Decorating

Avoid hanging anything heavy near places where people might be sitting. Items to avoid hanging include heavy pictures, light fixtures, and mirrors. They should be kept away from sofas, chairs, tables, couches and beds. You can secure pictures with heavy cord or special hooks from art stores (regular picture hooks won't be strong enough). Brace overhead light fixtures and ceiling fans so they won't fall. You can buy braces at your local hardware store.

If you have a baby or small child, secure their crib. Don't place it near a window and make sure there's nothing hanging overhead. Install bumper pads in the crib in case there's serious shaking.

In general, keep hallways and doorways clear. These are very important areas during an earthquake. A hallway is one of the safest places to be and you'll need them clear in order to get out of the house easily. If someone in your home is in a wheelchair, keep these areas especially clear so they can get through.

Windows

During an earthquake it's not uncommon for windows to shatter, spreading broken glass over floors and presenting a serious safety risk. You can mitigate this threat by installing shatter-safe window films. These are [polyester films](#) that can be applied to windows. They're used for airplanes, trains, and public buildings.

A simpler and more economical way to prevent window glass from breaking is to put masking tape in a diagonal 'X' on each window. This should only be done temporarily or when in a pinch until you can apply shatter-proof window films.

Breakable and Hazardous Items

All breakable items should be kept in closed cabinets that are latched shut. Make sure the cabinet doors can't fly open. For anything that's not kept inside a latched cabinet, use poster tack to secure it to the shelf or surface. There are putty products available that are extra strength and meant to withstand the shaking of an earthquake.

Major appliances should be secured to the wall with wires, metal cables or strapping. Any appliances that are wheel mounted should blocks places in front of them to prevent them from rolling.

Flammable products or those that use gas should be stored in closed cabinets and secured. Fire hazards are particularly dangerous after an earthquake.

These are just the basics. Look at every area of your house and everything you own and ask yourself, 'What would this do if the house started shaking violently?' You can always ask at your local hardware store if you're not sure how to protect something.

Guns/Weapons

If you have guns or any type of weapon you don't want stolen or used for the wrong intent, then lock up everything in a [gun safe](#). The safe may hold up under earthquake damages and make the weapons inaccessible to trespassers, children and thugs.

Structural Considerations

It may not be enough to simply secure things inside the home. You may need to do some structural work on your house to make it earthquake-proof. Houses are designed to withstand the downward pull of gravity but not the side-to-side or up-and-down shaking of a major earthquake. Especially if your home was built more than ten years ago, it may need an upgrade.

Reinforcing Your Foundation

There are several ways you can strengthen your home's foundation. One is to install a continuous perimeter foundation (if it doesn't already have one). This means one solid foundation that's secured with bolts or plates, as opposed to a home that's built on stilts and piers as many older houses are. These older foundations will shake apart during a large earthquake.

Flexible Gas Lines

Traditional gas lines are rigid and can rupture in the event of an earthquake. This can cause fires or explosions. Flexible gas lines reduce this risk and are easy to replace if there is a rupture. They are installed between your appliances and their supply lines. This is a relatively easy repair job but still should be done by a licensed contractor.

Automatic Gas Shutoff Valves

Earthquake-activated [gas shutoff devices](#) can also be installed. When the shaking starts, these automatically stop the gas and greatly reduce the risk of fire or explosion. In fact, some states require this. These devices must be state certified and installed by a professional on the piping connecting your home's gas supply to the gas meter. Installation should be done by a licensed contractor.

Fireproofing Your House

Since fire is the biggest hazard after an earthquake, make your home as fireproof as possible. All smoke detectors should be checked regularly and you should have at least one [fire extinguisher](#) in the house.

The safest building materials for fires are brick, stone and metal. If you're building or renovating, use these materials as much as possible. You can buy fireproof carpeting and fireproof furniture for inside the house. There's also a fireproof gel that's commercially available which you can spray over any part of the house. If your home has any wood siding, cedar shakes, or other combustible material, spray it with gel or other fire retardant chemicals.

Hire a fire inspector to look at the house and let you know about any trouble areas.

Home Maintenance

While upgrading your home to prepare for earthquakes, this is a good time to inspect the house for repair issues. Inspect the ceiling and foundation for cracks and get them repaired immediately. Hire an expert to help you identify and repair any structural weaknesses in your home. Check out your electrical wiring, electrical appliances and gas connections. Remember that faulty fittings can be a serious fire hazard

Summary

Inside the House

- Shelves fastened to walls
- Large items off high shelves
- Cabinets closed and locked
- Other items secured with putty
- Non-slip mats placed under large furniture
- Heavy hanging objects away from high traffic areas
- Overhead fixtures braced
- Crib secured if small children
- Hallways and doorways clear
- Shatter-safe window films installed
- Major appliances secured to walls
- Flammable products stored and secured

Structural Considerations

- Continuous perimeter foundation
- Flexible gas lines
- Automatic gas shutoff valves
- Fireproofing
- Maintenance check

Early Warning Systems

There is no way to accurately predict an earthquake before it occurs. Government agencies all over the world are searching desperately for a way to predict quakes with certainty but no method has yet been found.

Migraines, strange animal behavior, temperature fluctuations and even a high rate of baby deliveries at hospitals have all been cited as earthquake predictors, but these are no more than urban legend.

While we can't predict a quake with certainty, there are early warning systems. Seconds or even minutes before an earthquake, these systems detect seismic activity and tell you. This doesn't give you a great deal of time, but it could be enough time to gather your survival kit and get out of the house before it hits.

Japan, Mexico, Taiwan, parts of Romania, and some areas in California in the United States have seismic warning systems. When motion is detected, they use high speed communications systems to send warnings which are then broadcast to the people. Find out if your city or local area has a seismic warning system.

Earthquake Early Warning Apps and Software

There are a number of earthquake apps that can be used on mobile devices. These give you real-time information about earthquakes around the world. You can set alerts for your local area. They allow you to choose a magnitude and when seismic activity is detected in your area, it will set off the alarm.

A few popular free apps include [Earthquake!](#) and [Earthquake Alert](#) for Android operating systems, [Yurekuru Call](#) and Quakes for iOS, and [Gempaloka](#) for Blackberry. There are other premium apps as well as software programs for PCs and laptops such as [Earth Alerts](#).

Online Earthquake Warnings

Information on earthquake activity around the world is available on the United States Geological Survey website at <http://earthquake.usgs.gov/>. On its website

you can sign up for alerts and receive them through your choice of RSS Feed or email.

There are Twitter bots that report on earthquake activity in real-time. There are too many to list here, but the list includes @earthquakeBot, @earthquake, @EQTW, @quakemonitor, @EQWatch, and @QuakeTweets. You can also find bots for certain areas such as @EarthquakesLA for the Los Angeles area and @EarthquakesSF for San Francisco.

Summary

- Find out if your area has early warning systems
- Get early warning apps for your smartphone
- Get early warning PC software or Twitter feeds

What to Do in an Earthquake - Inside Buildings

Earthquakes can hit suddenly with full force or start with slight shaking and build. When the shaking starts, duck and cover. Drop to the floor and look for a large piece of furniture like a steady desk or table to get under. Hold onto one of its legs if things are shaking badly.

If there isn't a table or desk near you, drop to the floor wherever you're standing and move toward an inside corner of the building. Make sure you're away from glass, anything hanging, or anything heavy that could fall on you. Cover your face and head with your arms and crouch there until the shaking stops.

If you're in bed when an earthquake hits, put a pillow gently over your face to protect yourself from falling debris.

In the past few decades, homes are built so that they'll withstand earthquakes, especially those located in earthquake zones. There may be damage, but it's extremely unlikely that the building will collapse. Wait until the shaking stops to try to get out of the house.

When the Shaking Stops...

Once the shaking stops, everyone should proceed along your designated escape routes, leave the house, and meet outside in your designated meeting place. Walk quickly but carefully. Don't run because running can result in an injury. Pay attention for broken glass or other debris on the floor and things that might fall on you.

Someone should grab the family survival bag on the way out. If each family member has a kit, then try to grab those, too. An adult should turn off the gas and electricity. If possible, everyone should turn off lights and electrical appliances as they go outside. If the damage is particularly bad or you smell gas, don't bother; just get out as quickly as possible.

Earthquakes in High Rise Buildings

Drop and cover in the same way as you would in a house. Stay away from windows and outside walls. If you live in a high rise building, don't use elevators. Realize that the sprinklers and fire alarms may go off. Windows may break and suspended ceilings may fall. This does not mean that the building is crashing down; it's perfectly natural and only minor damage.

As you go higher in a building, there will be more swaying. If you're at the top of a high-rise, objects may slide back and forth on the floor a great deal. Hang onto the desk or table you're under and don't panic. Almost all modern high-rises are built with earthquake protection in mind. They will sway but not collapse.

If you're in an elevator during an earthquake, most buildings are equipped with sensors that will stop at the nearest floor. If possible, force open the doors so you can exit the elevator. It may be stopped in between floors so use caution and help each other escape. Get off the elevator and seek cover.

It may not be the best idea to evacuate a high rise. In downtown areas with many large buildings, the street is usually a much worse place to be. The glass windows of the buildings' upper floors may rain down on the street below. This was the case in the recent 5.6 magnitude earthquake that hit New York City. It's best to wait inside the building and listen for evacuation announcements. There may be no need to leave.

Remember that there will probably be aftershocks. If the building starts to shake again as you're leaving, stay calm. They're never as violent as the initial quake.

The Safest Parts of the House

There's a common myth that the best place to be in an earthquake is in a doorway. A doorway is not necessarily safe. Not all doorways are structurally strong and they can be built with the same flimsy drywall as any wall of the house. The reason so many people believe this is from photos of collapsed buildings where only

doorways remain. While it's true that older buildings often have strong doorways, modern buildings don't.

The safest place to be is under something big and strong such as a large desk or table. If you can't get under something, the next best place is against a sturdy inside wall where there's nothing hanging over you. As part of your earthquake preparation, identify the strongest walls and door frames in the house and label them on your map.

The Most Dangerous Parts of the House

The biggest danger inside the house is broken glass. Stay away from mirrors, windows, glass cases, and anything else made of glass. It can shatter during the quake. Always keep your eye out for broken glass on the ground as well.

Heavy furniture such as large cabinets, bookshelves, or wardrobes is particularly dangerous. A large shelf can fall on you with quite a bit of force and cause serious injury.

Don't stand directly below light fixtures or anything else that's hanging. Try to seek parts of the house where there is nothing above you that could fall.

Decorative masonry, brick or plaster is especially dangerous. One of the worst places to be during an earthquake is near a fireplace or chimney. Building materials such as this can topple and cause injuries.

The most dangerous room to be in during an earthquake is the kitchen. This is due to the hanging pots and pans and the fact that most kitchens have a great deal of glass. Appliances and bottles can easily get shaken off counters and fall to the floor. There are also drawers full of sharp cutlery that can be tossed around during a big quake.

The other most dangerous room is the garage. Again, there are many things hanging such as tools, saws, bicycles, and other items that can fall on you. Many people also store gasoline in the garage, which poses a serious fire threat. There's

also the risk that a garage may collapse, especially if there's a living space built above it. They tend to be built with narrow walls that must support a great deal of weight.

What to Do in an Earthquake - Outside

It's safest to be outside during an earthquake. If you're outside, the best place to be is in a wide open space such as a park. There are still major hazards that can injure you anywhere, so you need to proceed with the same caution as if you were inside a building. The same goes for those who have successfully evacuated a home or building.

Watch out for falling objects and debris and stay away from buildings. We often see pictures of collapsed buildings after an earthquake, but there is actually little risk of this. Today's buildings are built with disasters in mind and few if any collapse during even large quakes. However, they pose a risk of falling debris so it's best to stay away from them.

If you can, seek shelter under a strong structure. Make sure its roof is strong and that it has plenty of supports. Don't go under a structure that has a long open span with only supports on either end. Be aware of any weight it may be bearing. If in doubt, don't get under it.

Stay off of elevated roads. In both the Kobe and San Francisco earthquakes, many elevated roads collapsed. The same goes for elevated walkways over intersections or connecting buildings.

Avoid brick walls or other types of masonry. These are not structurally sound in an earthquake. Brick and mortar is used as a building material especially in areas where quakes are rare.

If you're outside during a quake, don't go inside. There's much greater risk of injury from falling objects, broken glass, or fire inside a house or building. There also could be aftershocks. You're safer staying outside.

If you're on filled land, water may begin oozing out of the ground, creating a quicksand-like effect. Although this poses little actual danger to you, it can cause instability for buildings, cars, and large structures. It's best to leave the area if possible.

Always stay calm and be aware of your surroundings. Don't run into the street or you may get hit with debris or by moving vehicles. Try to move around as little as possible.

Once the shaking has stopped, proceed to the nearest evacuation shelter. You are going to be tempted to stay on your property. Unless you can tell for certain that your home is sound, you may be putting your family in peril. Go to the shelter and start working with authorities to help others who may be in worse shape than you. Your efforts will be rewarded and remembered by the emergency staff and those with losses.

While Driving

If you're in a moving vehicle, you need to stop as quickly and safely as possible. Park the vehicle somewhere far away from buildings, trees, overpasses or power lines. Once the vehicle is stopped, stay inside until the shaking stops. You're actually quite safe there and there's little risk of car windows breaking.

It's alright to start driving once the shaking stops but be very careful. There may be serious road damage after an earthquake and some roads may be impassable. Be especially careful crossing bridges or driving on overpasses. Be prepared for aftershocks and when they hit, pull over again and wait until the shaking stops.

Outside Dangers

Try to get to a place with plenty of space. If you're outside during an earthquake, the earth won't open up and swallow you, but there is danger from above. Watch out for:

Power Lines. Power lines can break and fall, shooting off sparks as they flail to the ground. The sparks can also start fires, so it's best to be as clear of them as possible.

Street Lights. The same goes for street lights. Like power lines, they have juice going through them.

Buildings. One of the worst places to be during an earthquake is on a city street surrounded by skyscrapers. The reason is that broken glass and debris can fall on you from the buildings above. Get as far away from large buildings as possible.

Signs. Signs can easily fall during an earthquake so it's best to avoid them.

Trees. Even trees can present a hazard. During major earthquakes, they can be uprooted and fall.

Earthquakes and Tsunamis

If you're near the coast during an earthquake, get away quickly. A large earthquake with a magnitude of 8 or 9 can cause a tsunami. The entire west coast of the United States is one big subduction zone where tsunamis are a risk from Alaska all the way to Argentina.

During a tsunami, you'll see the water pull away dramatically, exposing the sea floor. This means that it's building up a giant wave that will come slamming back against the coast. Don't wait until you see this happening – get away from the ocean and seek higher ground just in case and help others do the same.

Remember also that tsunamis can travel up rivers. If you're on the side of a river that's near the coast, move away from the water.

Trapped!

Whether inside or outside, there's a chance that you'll become trapped. A heavy object may fall against the door and keep you from getting out. You can be trapped under large debris from buildings.

If you're trapped somewhere inside the house during the shaking, call out to others. The same goes if you're outside and you know others are nearby. If you don't hear others, don't continue shouting. You'll wear out your voice and you may inhale dust that's been kicked up by the shaking.

It's alright to call out periodically, especially if you hear someone, but it's better to make some other kind of noise. If you're inside a room, tap walls or pipes. Rescue workers know this means someone is trapped.

If you need light, use a flashlight, LED, or the light from your cell phone. Don't strike a match or cigarette lighter because there may be gas leaks. Stay as still as possible so that you won't kick up dust and if there's a great deal of dust, cover your mouth with a piece of clothing or the ear loop masks you packed in your survival bag!

Helping Family to Safety

What to Do in an Earthquake with Small Children

If your children are old enough, they'll understand your escape plan and what they are to do. They should know to duck and cover, avoid danger areas, leave when the shaking stops, and meet at the designated place. Help them and make sure they can seek shelter and evacuate safely.

For toddlers and babies, it's not so easy. Gather small children and find shelter in the house with them. When evacuating, carry them outside of the house and don't hurry. Walk slowly and carefully, paying close attention to debris on the floor and objects that might fall.

With all children, check for injuries immediately as soon as you get outside. Kids may be panicked and not know that they've been injured. Attend to any wounds using your [first aid kit](#).

Disasters are especially frightening for kids. Children are afraid of the unknown and they need safety and security. During an earthquake, kids look to you for guidance and calm. If you're scared, this will feed their fear and panic. It's very important that you stay calm so that they feel safe.

Helping the Elderly and Disabled

If the mobility of anyone in your family is compromised, they should stay where they are and cover themselves to the best of their ability. If they're near a window or heavy object, they should try to move away from it. If moving isn't an option, they should turn so that they're not facing the hazard.

With those of compromised mobility, it may be better not to evacuate the building. Evacuating may present more safety risk than staying put. If there is no gas smell, no fire, no spilled chemicals, and no major structural damage, it's alright to stay after the shaking stops. There will be aftershocks but they won't be as severe. When aftershocks hit, they should cover in the same way as they did during the initial quake.

If a large number of people are evacuating an apartment or office building and there's no imminent danger from gas leaks or fires, the elderly and disabled should wait and evacuate last. There is a heightened risk of injury for them in a situation where a crowd is rushing to get out. Once the halls and doorways are clear, accompany the elderly or disabled person out as slowly as they need to go. If there is a gas smell, fire, chemical spill or major structural damage, get them out with the crowd as soon as possible.

If you see someone in an evacuation who you believe needs help, ask them if they need help and what you can do for them. If you can't understand them or they can't understand you, ask them to write it down. It's difficult to know by looking at someone what kind of assistance they need and you shouldn't assume. Rushing to help someone without first asking could lead to an injury.

When evacuating with someone who uses a cane or walker, make sure that you remember to bring the cane or walker outside with you. A person in a wheelchair should be kept in the wheelchair if possible. If they need to be removed from the wheelchair, make sure to bring the chair as well.

Evacuating with Pets

When an earthquake hits, find your pets quickly and take them to a safe place away from windows and other hazards, preferably under something sturdy.

Animals will not know what to do during an earthquake or what areas of the house are most dangerous.

After the shaking stops, check for injuries. Move their limbs around slowly and gently to see if they flinch or cry out. Attend to cuts and other small injuries as soon as possible.

As part of your evacuation plan, prepare to evacuate with their crate or carrier. For many animals, the crate or carrier doesn't just keep them from running loose but also provides comfort and a feeling of security. It's their comfort zone. Disasters put

animals into strange and unfamiliar environments and the [crate or carrier](#) helps to calm them.

There are spray pheromone products that you can use to help them stay calm. Products like [DAP](#) and [Feliway](#) are sprays that contain natural chemicals released by animals when they reassure each other. [Sentry collars](#) for cats is a newer homeopathic calming product getting a lot of positive reviews.

Stay with your pets after the quake. Simply being around you will help them stay calm. Like children, pets pick up on fear from their owners and other people around them. Try to stay calm yourself and this will have a calming effect on your pet.

For parents, caregivers and pet owners, it's especially important to protect yourself. Stay safe after an earthquake not just for your own sake but because others are depending on you.

Fire Safety

By far the biggest hazard to health and safety after an earthquake is fire. Gas mains break and this presents a serious fire hazard. Most of the people who perished during the world's largest earthquakes died in the fires that followed them. Practicing proper fire safety and knowing how to deal with fires can help you get out alive.

First and foremost, there should be no open flames after an earthquake. Use flashlights and other electric lighting. Lighters, matches, and candles should not be used.

Fire Extinguishers

Have a fire extinguisher in the home (certainly have one in the kitchen) and a smaller [portable](#) one in your survival kit. Long before a quake strikes, read the instructions so you know how to use it.

When using a fire extinguisher, remember the acronym PASS:

P – Pull the pin

A – Aim at the base of the fire

S – Squeeze the handle

S – Sweep the fire

Keep in mind as you use a fire extinguisher that most types can only be used for about ten seconds. This isn't much time so you need to aim well and sweep as much of the fire as possible.

Flashover

Fire in the home or in a building can change from a small flame to a raging inferno quickly. When a small fire is burning inside a building, it heats up the building materials in walls and ceilings. As it does this, the materials release vapors which

can be just as deadly as gas fumes. Once it reaches a certain temperature, it suddenly bursts into a raging fire. This is called flashover.

Never consider a fire too small. No fire is harmless. When there's a fire in a building, either extinguish it or get away quickly. Many people die in building fires because they don't realize how quickly flashover can occur.

Once a fire overtakes a room, it doesn't take long to sweep through the entire building. The same is true of a grass fire, which can spread from one tiny patch to an entire forest in just minutes. Don't try to put out large fires. Get away from them as quickly as possible.

Stop, Drop and Roll

If you happen to catch fire, the best method is the 'Stop, Drop and Roll' you learned in school.

Stop – When you run, this gives the fire oxygen for fuel. It's best to move as little as possible.

Drop – Fire spreads upward and thus it's dangerous to be vertical. When you drop, you become horizontal and it's much harder for the fire to spread.

Roll – Rolling smothers or at least reduces the flame by trapping it between your body and the floor.

If Stop, Drop and Roll doesn't work, grab whatever material is available and try to cover the flame. The idea is to smother the flames. Covering the victim with a blanket, sheet or even a coat can help extinguish the flames.

If trapped inside by a fire, close doors, windows and vents as much as possible. This gives the fire less oxygen to spread. Put some kind of large material such as a mattress against the door and make noise so that rescuers know you're there.

Aftershocks – Going Home and Moving On

The aftershocks of an earthquake may continue for days, weeks or months after the initial quake. In the same way, the aftereffects of a major disaster can persist for years. Things will get back to normal, but it can be a long and difficult process.

In most earthquakes, you can go home immediately after you meet your family at the designated place and make sure everyone is alright.

Before entering the house, thoroughly check outside around the building for damaged gas lines, fallen power lines, or major structural damage such as a collapsed roof or fireplace. If you see no evidence of damage, it's safe to reenter the home. If there has been a fire, don't reenter until told to do so by the authorities.

Once inside, check every area of the house for cracks or other damage. Slight damage such as a hairline crack in a wall can turn into more serious problems in the future, especially if there are large aftershocks. Look for loose boards, cracks, damage to ceilings and walls, and so on. Check all utility lines and appliances for damage since these present the biggest safety risk.

If you find anything damaged, get it repaired as soon as possible. Holes in walls and broken windows need to be patched up immediately.

If you have a chimney, this is an especially dangerous area. Brick and mortar structures can collapse easily after an earthquake. Check it from a distance and if there appears to be damage, hire a building inspector to come and look at it. Make sure your family knows to stay away.

Clean up immediately, especially if there are spills. When cleaning debris use work gloves and a dust mask. If there is water damage, clean and dry all materials to prevent mold infestation.

Document all damage by taking pictures for insurance purposes. Contact your insurance company soon after the quake. Keep all receipts for repairs and cleaning related to earthquake damage.

You should still avoid using any open flame while inside the house. Wait until everything has been thoroughly inspected and repaired. Make sure your family knows to always be on the lookout for gas smell.

If there's evidence of damage to gas lines, you need to stay somewhere else. If you can smell gas or hear hissing when you reenter the house, open a window and leave immediately. Gather only the most important belongings as quickly as possible and leave. Once you're away and somewhere safe, call a professional and ask them to take care of it.

After a large earthquake, you may have to live without electricity or water for a while. If there's damage to power lines, switch off the main fuse box or circuit breaker. If there's damage to water pipes, shut off the water supply at the main valve. Don't use toilets until you know the sewage lines are okay. If the water is running but it looks or smells funny, use water from your survival kit or storage. You can contact your local water authority to ask if the water is alright.

Use the phone sparingly. Communication systems may be down or only partially on-line. People may still need urgently to contact first responders. Minimize non-urgent calls. Only use the phone for emergencies or to check in with people to let them know you're alright.

In the event of a large earthquake, rescue workers may come to your area looking for people in need of help. If you hang something green, such as a piece of green construction paper or white paper with a large green X, this tells them that everyone inside is okay and they should move on. If someone needs help, hang something red. If you don't hang anything, they may take this to mean you need help.

Days and weeks after the earthquake, keep listening to the news. Even if everything seems alright, you need to know exactly what's going on.

Post-Quake Survival

Authorities will try to get everything back to normal as soon as possible. However, there is no guarantee and authorities may not be able to provide the help you need. Be prepared to make it on your own for a while.

Long-Term Shelter

If your home is no longer safe after an earthquake, you'll need to stay somewhere else. Options include long-term public shelters, hotels and motels, staying with friends and relatives, or renting a new home.

Whenever there is a serious disaster, the Red Cross and other organizations will set up shelters. This is usually done in area schools, government buildings and churches. They will provide what they can in terms of food, water, medicine and basic supplies, but you should bring your own if possible. If you're staying in a public shelter, don't leave until authorities say it's alright to do so.

Living in a shelter puts a strain on everyone. Be polite and considerate to others who are staying there and follow the directions of shelter management. The rules in place are there for the safety and health of the shelter's residents.

If you live in the United States and the president declares the earthquake a major disaster, the Federal Emergency Management Agency (FEMA) will provide assistance with housing. It may provide temporary housing, mortgage and rental assistance, help paying for repairs, and mobile homes or other prefabricated dwellings.

Cooking and Eating

Even if you can return home, you may be without electricity and gas. If so, you can cook on a camping stove or [portable burner](#). The portable stoves can be used indoors, but always allow for good ventilation. Open windows or crack open a door to allow air to flow. Remove the paper label and open it before heating.

Eat perishable foods first. Check each food item's expiration date and use common sense. Inspect everything before you eat it, checking for funny colors, signs of spoilage and bad smells. If in doubt, throw it out.

The refrigerator and freezer will keep the food items stored inside edible for a limited amount of time. Keep the doors closed as much as possible. If unopened, the cool air inside the refrigerator will last for about four hours. If well insulated, a freezer will keep its cold temperature for days. It also helps if it's well filled.

For freezer items, check for ice crystals. Ice crystals indicate that it's still frozen. If possible, put a block of ice inside the freezer to keep it colder longer. As part of your disaster preparation, you can also place frozen milk jugs of water inside the freezer. These will keep frozen items good longer and also help to fill up the space.

When cooking, try to save foods that require water to prepare (such as pasta) because this is also a precious resource.

Drinking Water

In an earthquake, water pipes will often twist and break. The water supply may be cut off or the water may be contaminated. It's important to make sure your water is clean and usable for drinking, cooking and washing. When in doubt, use [water purification tablets](#).

You can go for weeks without food but only a few days without water. You need to drink around two quarts of water or more each day. If you're a large person, you live in a dry climate, or you live at high altitude, you'll need more. Plan on storing one gallon per person per day and this will cover drinking, cooking, and personal hygiene. Keep in mind that your body loses water when you sweat, breathe, and urinate.

The symptoms of dehydration usually do not appear until you're already well dehydrated. One sign is the color of your urine. When you're dehydrated, it will be darker colored and will come out in smaller amounts.

Here are some ideas for minimizing water usage:

- **Wash dishes every other day if possible.** You may be tempted to use paper plates and cups, but this is garbage that begins to accumulate and attract bugs and rodents. If there isn't a garbage service available, you'll have to deal with the mess. Stick with regular plateware/silverware and wash them. However, don't use the automatic dishwasher. Instead use a 3 bucket system.

Bucket 1: Rinse residue

Bucket 2: Soap wash

Bucket 3: Rinse water

- **Drinking water.** Don't toss out water left in a glass. Drink it.
- **Brushing teeth.** Fill a small cup or glass half-full with potable water. Dunk your toothbrush in the water to get it wet. Brush your teeth. Use the water in the glass to rinse your teeth. Avoid running water unnecessarily from a faucet.
- **Toilet.** Don't flush after urinating. Instead, wait to flush until 2 or 3 potty breaks have passed. This only is recommended for liquid waste. More on this in the next section.

Preserve water as much as possible.

Sanitation and Waste

Water-related diseases can be deadly so you need a supply of clean water. If you don't have enough stored bottled water, there are easy ways to purify water. The simplest is to boil it. Boiling water kills most harmful bacteria and parasites. You can also buy water purification devices and tablets. These are good to store in your survival kit.

If water lines are disrupted, you won't be able to flush the toilet. Before using the toilet, line the bowl with a plastic bag. When finished, don't flush. Add a small

amount of disinfectant, take out the bag, seal it securely, and store as far away from people as possible. If the toilet is unusable, use a bucket and plastic bag.

Dealing with Dead Bodies

In a serious disaster situation it may be impossible for first responders to reach everyone. Survivors may have to deal with dead bodies. Although it's possible for dead bodies to spread disease, the risk is minimal when handled safely.

If there's any danger in recovering a body (for example, it's trapped under debris that could still fall), don't recover it. First responders will take care of it when they reach the area.

If you must move a body, use heavy work gloves and wear boots. Avoid wiping your face or touching any other part of your body while doing so. Afterwards, disinfect everything that has come into contact with the body thoroughly.

Write down where bodies were found and any information on identity to help first responders when they arrive.

Emotional Survival – Coping with the Quake

An earthquake can come suddenly from out of nowhere and the changes and disruptions it causes last years or even a lifetime. Losing a loved one or home is especially traumatic, but even when everyone is safe and damage is minimal, it can cause a great deal of emotional trauma. However, in even the biggest and most damaging earthquakes, people can and do recover and return to normal life.

The Emotional Effects of Earthquakes

The first emotion many people feel when an earthquake hits is shock and disbelief. You may not believe that it's actually happening. When some people experience this shock, it becomes difficult to make decisions. It may affect others by making them irrational. For example, a person may refuse to leave their home even when there's imminent danger.

Long-term emotional effects include:

- Depression
- Anxiety
- Crying for no reason
- Nightmares and trouble sleeping
- Changes in weight or appetite
- Feelings of guilt
- Feelings of isolation and social withdrawal
- An increase in domestic violence
- An increase in drug or alcohol abuse

Recovering emotionally from an earthquake is a natural grieving process and everyone handles it slightly differently. There will be bad feelings, fear and sadness. Many people feel they have to be strong after a disaster by burying these feelings, but this causes even more stress and anxiety.

It's best to talk to others about your feelings. Everyone has them. Share your fears, sadness and anxiety. When you talk with others and share sympathy, it relieves stress. It also helps you realize you're not on your own.

Disaster-Related Stress

Living with the changes brought by a disaster is unbelievably stressful. It's important to find ways to relieve this stress. As soon as possible, go back to your regular stress relievers. As much as possible, enjoy the leisure time activities you enjoyed before. It helps to have a diversion from the disaster.

Get as much rest as you can and take care of yourself. Amid all of the stress and upheaval, many people let themselves go and don't sleep or eat properly. It's also important to stay active. Exercise is one of the most proven ways to relieve disaster-related stress.

Many people suffer from posttraumatic stress disorder (PTSD) after a large earthquake. You may be suffering from PTSD and not be aware of it. Counselors can help you cope with this disorder and FEMA provides free counselor in the aftermath of a large-scale earthquake. Local charities and community groups may also offer free counseling.

Don't be afraid to ask for and accept help when people offer it.

Earthquakes and Children

Children need to feel safe and secure, and a massive earthquake shatters this feeling of security. As a result, kids can suffer badly in the aftermath. Emotional stress in children can manifest itself as:

- Bed wetting
- Thumb sucking
- Outbursts and tantrums
- Clinginess
- Refusal to go to school
- Social withdrawal

These symptoms may persist long after the earthquake and aftershocks are over.

If your children are having a hard time coping in the aftermath, don't get angry or frustrated. Engage them in conversation about the earthquake and let them express their feelings. One good idea is to ask your child to draw a picture of the earthquake. It's often easier for kids to express themselves artistically than in words.

Keep your family close together and make sure their needs are taken care of. Let your children know that they're loved and that you can keep them safe. Keep praising them and keep things positive. They need extra reassurance.

This reassurance is especially difficult for parents who are trying to cope themselves. It takes a great deal of strength, but it's essential that you stay calm and don't panic. If you cry, they'll cry. If you're scared, this will heighten their fear. Your stress will be contagious. It's something like what the airlines say before taking off: 'Secure your oxygen mask before helping others.' If you have things together (at least on the outside) this will help your kids cope.

The same goes for pets. Pets will often act strangely for a long time after an earthquake. Their odd behavior will diminish with time.

Recovering Financially

The financial damage wreaked by a large earthquake can be just as serious as the emotional and physical damage. In the case of a large earthquake, state and federal agencies may help. Then again, they may not. They have clearly established guidelines and criteria for eligibility, so there's no guarantee that you can rely on them for aid. It's best to prepare yourself financially just as you do with your escape plan and survival kit.

Insurance Claims

Document all damage made to your home and possessions. Make this documentation as clear and detailed as possible, describing how, when, and where the damage occurred. Don't clean up or repair until the claims adjuster has seen it (except in the case of an imminent threat such as spilled liquids).

When you go home, take inventory of your valuables. Don't throw away any damaged items if you plan to claim them until they're seen by an insurance agent. Determine the value of all things lost or damaged to the best of your ability using catalogs, Blue Books, want ads and any other records available.

Keep receipts on all earthquake-related expenses. This includes cleaning, repairs, supplies and lodging. Submit these to your claims adjuster.

Most homeowner insurance plans do not cover earthquakes. A separate earthquake insurance policy is required. However, all residential property insurance companies are required to offer this type of insurance. It's a good idea to have earthquake insurance, especially if you live near a major fault line.

Financial Help after a Quake

No matter how large or catastrophic an earthquake, you are still required by law to make payments on all debts and rent. However, there may be emergency assistance available.

In the United States, if the president declares the earthquake a major emergency, FEMA will provide mortgage and rental assistance programs for individuals and low interest loans and grants for businesses and farms.

If you lose your job because of an earthquake, there is help available. In the United States, you can contact FEMA's Disaster Unemployment Assistance (DUA) office at 1-800-621-FEMA. You can also check with your local unemployment office.

Once the dust has settled, talk to a tax expert about deductions that can be made. In many disaster situations, there are options.

Cash and Financial Records

Keep in mind that after an earthquake, banks may be closed. It may be impossible for you to use ATM cards or checks. This is why it's important to have cash on-hand in your survival kit. You may also not have access to your financial records.

If you own a small business, create a business earthquake survival plan so that you can recover financially afterwards. Back up all financial data so that it won't be lost.

Conclusion – Surviving and Moving on

We can't predict or control when earthquakes strike. They're a force of nature that's particularly terrifying because they strike unexpectedly. However, if you're well prepared for an earthquake, you can minimize the damage it will cause in your life. Even after a catastrophic quake, things will get back to normal if you have a good plan and faith in yourself to carry it out.

Important Phone Numbers (Print and put in your survival kit):

FEMA Disaster Line: 1-800-621-FEMA

For the hearing impaired: 1-800-462-7585

American Red Cross Disaster Hotline: 1-866-GET INFO

Nearest walk-in clinic: _____

Nearest hospital: _____

Family doctor: _____

Family
veterinarian: _____

Local Red
Cross: _____

Local Salvation
Army: _____

Other local disaster aid
group: _____

Gas: _____

Water: _____

Electric: _____

Emergency
contact: _____

Emergency
contact: _____

Emergency
contact: _____

Out-of-area

contact: _____

Neighbor: _____

Neighbor: _____

Neighbor: _____

Work

1: _____

Work

2: _____

School/daycare: _____

Insurance

company: _____