

Disaster Preparedness Basics

*How to Prepare for
Natural Disasters
& Emergencies*

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**HOW TO PREPARE FOR NATURAL DISASTERS AND
EMERGENCIES**

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Electronic Perceptions
Tucson, Arizona

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Introduction

Natural disasters happen... sometimes every single day somewhere in the world. Some events are so severe that people are still recovering from them years later. Some last just a few days or weeks, then life goes back to what most of us consider normal.

Have you ever considered how you might take care of yourself or your loved ones if a disaster strikes in your area? Do you know whether you would have food or even clean water to drink when it's desperately needed?

That's what this book is about.

If you've watched even a few minutes of the news on TV in the past couple of years, or briefly browsed any newspaper online or in print, you've probably seen or heard about one disaster after another. As the final touches are being put into place for this book, Japan has suffered one of the worst earthquakes in

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recorded history, followed by one of the worst known Tsunami waves that literally wiped out entire towns. If those two events weren't bad enough, they caused another that's even scarier: Potential nuclear crisis.

You may not live near a nuclear plant and you may be so far from the sea that you cannot imagine ever experiencing a Tsunami wave of destruction. Chances are though; the area you do live in is prone to some other type of nature-made event. In the United States alone we have areas of the country that are terrorized by tornadoes multiple times a year. Some parts of the country get so much snowfall that people can't leave their house for a full week. Sometimes freezing weather seizes pumps at a gas or water plant, knocking out service to hundreds of thousands of people. There are areas of the country that live with wildfire risks, and areas that are known for getting earthquakes regularly. No portion of the country seems 100 percent immune to nature's events.

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And that means no family should ever be caught unprepared.

You can't plan for every single potential crisis or emergency that might ever arise in your life, but you can definitely make basic preparations. Some events you already know are likely to happen again because they're common in your area. Florida gets hit by a hurricane almost every year and Kansas or Oklahoma usually sees at least one tornado. Basic preparations make sure you can take care of yourself and your loved ones when the next big event happens. And sometimes those basic preparations help for the surprise, unexpected events too.

This book is designed to help you get started. It is not all encompassing and does not try to help you prepare for anything and everything that may come your way. It is also not designed to scare you into buying things. Instead, it gets you started by giving you practical, affordable ways to take care of your family in an emergency.

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The first section of this book teaches you the very basics. The minimum you need to do to ensure you and your family are taken care of for a few days immediately following any major disaster or natural event. The second section of this book addresses common natural disasters that happen in various parts of the world, and gives you the basic steps to prepare for or survive safely through each one. The last section of this book goes into more advanced personal emergency planning techniques and addresses ways to acquire supplies in hand for longer-term events.

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Emergency

Preparedness

Basics

The very basic level of preparedness is to have at least three days' worth of food and water for each member of your family, including each pet. Since none of us knows just when or how an emergency will strike, experts agree that having an emergency kit in both your home and your everyday vehicle is the best approach. Having a grab and go bag that's ready to pick up at a moment's notice is usually enough, but it doesn't help if you find yourself stranded in a snowstorm on the way home, or having dinner with friends when an earthquake hits.

Food

The type of food you choose to set aside for emergencies can be similar to what you already eat or it can be convenience items that store well and provide solid energy. Don't store anything you've never eaten before because you could be

allergic to it.

Some people prefer to store ready-made items at home and in the car because if the electricity, gas and water goes off it may be difficult to cook regular meals. What you choose to store is your personal decision based on what other resources you have on hand and what your family will eat.

Here are a couple of comparison lists to help get you started...

Grab and Go Foods:

• Peanut butter and crackers

• Crackers and cheese

• Protein or meal replacement bars

• Trail mix

• Nuts and Dried Fruits

• Granola mix or bars

• Candy, cookies and chips

Heat and Eat Foods

• Canned soups and stews

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- Canned tuna, chicken or other meat
- Canned pasta meals such as Spaghettios
- Microwave meal cups
- Shelf stable fruit cups
- Dry cereal
- Dry pasta

The heat and eat meal list includes many items that can simply be eaten directly from the can or container without heating first. Dry goods that you simply add water to can be handy as well, because they store on the shelf for a year or more without spoiling. Having some to cook meals such as microwave meal cups or dried pasta mixes gives you more variety if you have the ability to cook.

Only store the types of food you know you can and will eat. If you've never tried a specific type of food, you have no way of knowing whether you or someone in your family is allergic to the food or an additive in it. The last time to find out

about a new allergy is when you are in the midst of a crisis and have nothing else to eat.

You also need to be sure you're storing things you know you will eat. If you can't tolerate eating canned Spam for example, but you store it for an emergency, you will have a major problem if you're not able to force yourself to choke it down during an emergency.

Stocking and Storing Emergency Food:

An excellent way to be sure your family has at least three days' worth of food available in the event of an emergency, is to simply not let yourself run completely out before you go back to the grocery store.

Generally you will find two separate camps of opinion on the best, or easiest, way to store emergency food: Continuous Stocking or Stock and Stash. Each approach has its own benefits.

Continuous Stocking:

The continuous stocking approach takes care of many issues all at once because you're

consistently shopping for more groceries before your kitchen cabinets are completely empty. All you do is buy the normal meals, foods and ingredients you use for cooking every day... you just buy a slight bit more in the beginning until you have no less than three full extra days of food available. Once you have the extra food in your house, you continue your normal grocery shopping and cooking schedule.

If for example, you normally plan seven days' worth of meals and shop for everything you need once each week, you just continue that same shopping schedule after you have purchased an extra three days of food.

If you have enough extra money to buy a full three days' worth of extra food in one trip, you can easily get stocked up by just adding three days to your regular seven day meal planning list. Then you continue with your regular seven day planning and shopping each week.

The extra food you buy should be more of the

things you already buy, because you know your family likes and will eat those meals, and you already know that no one is allergic to anything in them. This extra food is cooked and eaten just as your normal weekly food is, so it will be replaced regularly just like your normal food already is. This makes it easy to ensure the food is always fresh, and nothing is spoiled or wasted.

If you're unable to purchase a full three days' worth of extra food at once, do it a little at a time based on what your finances can handle. Buy one extra day's worth of meals for the next three weeks for example, or buy just \$5 worth of extra meal ingredients for however many weeks it takes for you to get the extra three days of meals into your kitchen cabinets.

Once you have the extra food there, you just continue your normal shopping and cooking schedules to ensure you will always have an extra three days of food on hand.

Stock and Stash:

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Some people prefer the stock and stash approach because they just have to buy things once and set them aside. By setting the food aside, away from normal eating and cooking areas, it feels like the food is "safer" because it will not get eaten in the course of everyday life. Stocking and stashing food is similar to having emergency money in a cookie jar: You put the food somewhere safe where it will not be eaten or used unless an emergency arises.

When you want to stash away your food for emergencies only, place the extra food in a different location, separate from your everyday food. The goal is to stock up on a set number of items and leave them stored until they're needed.

The risk with the stock and stash approach is that food can expire or spoil without you realizing it. You have to keep a strict routine of inspecting the food, checking expiration dates, and replacing items at least once or twice each

year. You can't just put the food away on a shelf and trust that it will be of decent quality if you need it ten years later.

Most food expiration dates are not set in stone mind you. A can of tuna can be stamped with an expiration date that passed a month ago, but that does not mean the tuna is bad or unsafe to eat. It is not uncommon for food to taste just as good--and contain all of its nutritional value--a year or two after the stamped expiration date.

WARNING: Never eat canned food if the can is bloated, swollen, rusted, oozing fluids, or otherwise nasty looking. Swollen and bloated cans are a sign of bacteria growth inside, and rust or oozing on the outside of the can usually means the inside contents are contaminated.

Most canned food loses nutrition as it is stored. The longer a can of food goes past its stamped expiration date, the more it loses taste, texture, vitamins and minerals. Because of this nutrition loss, you must replace older canned foods in

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your emergency food storage stash; otherwise it may get so old that it is unable to provide adequate sustenance for you and your family in an emergency.

Taking the stock and store approach is admittedly easy. All you have to do is buy a minimum of three days' worth of food and put it aside somewhere dark and cool. Then check the food every six to 12 months based on what you have stored.

If you have boxes of dry cereal and meal mixes such as flavored rice, you may find they become stale after three to six months — or they become infested with bugs or chewed on by rodents. Storing metal canned goods is the safest way to ensure against most pest problems, and putting dry goods into glass jars or heavy plastic storage bins helps as well.

As noted earlier, finances can hinder emergency planning efforts. If you are not able to purchase a full three days' worth of food to store away,

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then build up to it a little at a time. Purchase one full day's worth of extra food, or purchase one full meal. If money is super tight then simply allocate \$5 of your grocery money towards purchasing emergency food supplies.

Since you're storing this extra food and not using it, you'll need to adjust items over time based on the changing needs of your family. If you have a newborn in the family and you store extra formula, chances are in about two to three years you won't need to store more formula because the baby has grown past that stage.

Even though in an emergency you can use older food, the best approach is to keep your stored items fresh. To do this, simply replace items as they near their stamped expiration date. Put the older previously stored items into the kitchen pantry for use in the next couple of weeks, or donate the older items to a local food pantry.

How To Plan Your Emergency Food Supply:

Make a list of the meals you normally eat for breakfast, lunch and supper. Whittle the list down to meals that have ingredients which don't spoil easily. If one of your common weekly meals is taco salad for example, it's not a good candidate for the emergency food list because the salad ingredients cannot easily be stored for long periods of time.

Storable foods are generally dry goods and canned goods. Box meals such as hamburger helper or macaroni and cheese are good examples of storable meals, as is dry spaghetti and canned or jarred spaghetti sauce. Macaroni and cheese can be made with water instead of milk in a pinch, or you can store canned or dry milk to use in emergencies instead.

Once you have a list with at least three days of storable meals you normally eat, break the meals down into individual ingredients and amounts. If your family normally eats one full box of dry cereal every day, then write down three boxes of

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cereal. These are extra boxes on top of the normal seven you buy each week.

After your list of ingredients and the amounts is finished, start buying one or more items from that list each time you go to the grocery store. If you can afford to buy the entire extra at once that's best, because you'll have a three day's emergency supply of extra food from the start. Once you have a full three days extra, simply continue using and buying your groceries on your normal schedule. Add the new items to the back of the cabinet so that you're using the oldest food first. This means your original "emergency supply" of food will be eaten the second week after it was purchased, and it will be replaced with the newest version of the same item.

An Easy Approach to Emergency Food:

One of the easiest approaches to stocking up on food for emergencies is to simply buy a bunch of canned goods. This works particularly well for

the stock and stash approach.

Canned soups, stews and pasta meals can be opened and eaten directly without warming them up and you don't have to worry about having extra water or other food ingredients to make the meal.

If you take the easy canned goods approach, try to mix in variety. Canned meats such as tuna, spam or corned beef hash are excellent sources of protein, but your kids might not be willing to eat them as a snack or for breakfast. Canned fruits and pie fillings can serve as both breakfast and snacks in a pinch, and canned spaghetti with meatballs or chicken noodle soup are easy solutions for lunches.

An Ultra Cheap Approach to Emergency Food:

When you start researching emergency food storage options, you will quickly find references to beans and rice. That's because dry beans and dry white rice are ultra-cheap, and they don't

have to be rotated. Dried beans and rice will keep their nutrition, taste and texture for 20 years if they're stored properly. A pound of each is generally less than one dollar in most parts of the United States, and combined they can filling-ly feed a family of five people.

Dry beans and white rice are extremely bland and boring. But they are undeniably cheap. As long as you have a source of water to cook them, you can easily stock up three days' worth of emergency food for about five bucks.

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If you're concerned about having enough water to cook beans and rice, or having enough fuel to cook them in an emergency, a moderately inexpensive option is to purchase canned beans and instant rice: both of which come in various flavors to help combat the boring blandness.

If you choose to purchase canned beans and instant rice, they will not store 20 years. You will need to rotate them every one to two years depending upon how you have them packaged

and stored.

Simple and Expensive:

The simplest way to keep emergency food on hand is to purchase ready-made survival food packages. These packages are expensive, but they give you a level of security very quickly, and they're hassle free for 20 years or more

Ready-made food packages generally include Meals Read to Eat (MRE) or large cans of freeze dried meal mixes that you just add water to.

All shelf stable foods keep best in cool, dark place. Generally this means the temperature should be around 60 to 70 degrees at all times, and sunlight is not able to shine on the foods. If your kitchen or other food storage areas do not meet these requirements exactly, don't panic or give up. These are the ideal storage conditions, but they're not critical requirements. If your food is subjected to extreme heat fluctuations then you just need to rotate it more frequently.

If you plan to store canned food as part of your

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emergency supply, be sure to buy a good quality hand can opener so that you can open the food even when the electricity is out.

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Water

Storing water is critical to surviving even the smallest crisis. A human being will die if they go without water for as little as three days. The U.S. government and other emergency relief organizations advise us to keep a minimum of one gallon per person per day on hand. To cover a three day emergency for four people and one dog, you would need a minimum of 15 gallons of water stored.

The one gallon per person per day is the minimum needed to cover basic hydration and limited cooking needs. If you ration the water well enough you may have small amounts left for minimal hygiene requirements such as rinsing your hands. The amount of water each person drinks will vary based on weather conditions and health. Hot or windy days will dry you out faster and you'll need to drink more water. Salty foods will also dehydrate you, so keep this in mind if you store a lot of canned goods. Pregnant or

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nursing women and anyone with certain medical conditions will require more water as well.

How you choose to store your water depends a lot on personal preferences, convenience and space. Most families find it easy to simply buy bottled water in individual drinking bottles, and stack the cases in a closet or out of the way space. Alternatively you can wash used soda and juice bottles, then fill them with clean water for storage. Do not use empty milk containers however, because the material those are made with can leach milk by products back into your stored water.

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Another option is to purchase empty water jugs in one, five or seven gallon sizes, then fill them from your own tap and store them out of the way in various corners of your house. Larger families who have the storage space might consider buying a food grade 55 gallon barrel and filling it from the tap. Fifty-five gallons of water could sustain up to 18 people or animals for three

days, or give a family of five or six people plenty of wiggle room for cooking, cleaning and hygiene.

Like food, it helps to keep water rotated so it stays fresh. If possible, empty and clean your water storage containers every six to 12 months, and refill with fresh water. As long as the water is stored away from sunlight however -- because sunlight encourages algae and bacteria growth -- you can generally use water that has been stored for a long time. To be on the safe side, you may want to consider learning how to sterilize the water with a few drops of bleach, or purchase a water filter to use in the case an emergency. If you have the ability to cook during the emergency however, you can easily sterilize your drinking water by boiling it for a full 10 minutes.

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Medical Supplies

Aside from water and food, you should also keep a basic supply of first aid materials on hand. Having rubbing alcohol or peroxide and Band-Aids will go a long way towards taking care of minor cuts and scrapes. The most basic ready-made first aid kit is better than having nothing, but you may want to add personal extras based on your family's needs.

- Band aids of various sizes

• Alcohol

• Peroxide

- Sterile gauze
- Medical tape
- Ace bandage
- Pain relievers such as Aspirin and Tylenol
- Cotton swabs
- Tweezers
- Antibiotic ointment or cream

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- Diarrhea medicine
- Vomiting medicine

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Beyond The Basics

The United States government and the Federal Emergency Management Agency (FEMA) recommend that you have a minimum of three days' worth of food and water stored just in case an emergency arises. In some cases they're now even suggesting that a two week's supply of essentials might be prudent. Aside from the basics of food, water and medical supplies however, there are several other items you may want to think about: The ability to cook, the ability to keep warm and the ability to have shelter from the elements.

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Clothing

In most parts of the United States, there is a good argument for having emergency clothing on hand. Having extra clothing is particularly important when you're traveling in a vehicle, and it could come in handy at home as well.

If a major snowstorm takes out the electricity to your home, having warm clothing to layer on and bundle up in could save your life. If you're traveling and the car breaks down, you have an accident or you're caught in a surprise storm, having clothing on hand to protect you from the cold can also save your life. So extra clothing -- warm clothing -- is a critical item to have on hand in colder areas. Believe it or not though, warm clothing is also essential in desert areas such as Arizona and Nevada. Even if the daytime temperatures are above 100 degrees, the night time can drop into the 40's and 50's. This can seem quite cold in contrast to the blistering hot days, and it's made even worse if you have

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gotten sunburned or you work up a sweat from walking or other exertions.

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Shelter

A basic form of shelter can be critical in an emergency situation. Depending upon the particular emergency, you'll hopefully be able to stay inside your safe and secure home that provides all of your basic shelter needs. Some nature events can't be predicted though, so having basic shelter on hand as a backup can come in handy.

If your electricity goes off due to a winter storm as in the previous example, you can erect a tent inside a room in the center of your home to help contain your body heat and prevent you from freezing. If your home is unsafe due to structural damage from a hurricane or earthquake, you can use a tent as rudimentary shelter outside in the yard away from dangerous structures.

If you are away from home when a disaster event happens, having a quick tent or shelter of some sort on hand can help determine how well you weather the event.

Granted you can't carry a small tent or other type of basic shelter with you if you travel regularly by train, bus or other public transportation systems, but you can make primary and secondary backup plans about where you will take shelter in the event of an emergency. When making your plans, be sure to determine whether you need different plans for different types of disasters. A major flood or tsunami might require you to go to higher ground for example, or the third floor of a building, whereas a tornado or hurricane is better sheltered from by going underground or to an interior room of a strong building.

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Cooking

If you find yourself in the midst of an emergency that requires you to stay put and take care of yourself for several days or more, you will find it much easier to cope if you have a way to at least warm up food. If you are unable to cook anything, you have to make sure all of your emergency food supplies can be eaten as is, or just with a little water mixed in. If you store dry goods, dehydrated foods, or packaged items that need to be cooked then you may find yourself unable to eat because you don't have a way to cook anything.

Some disasters take much longer to recover from than just a few days. In March 2011, over one million people in Japan were still without running water a full week after the 9.0 earthquake and tsunami devastated large areas of the country, and almost 300,000 had no electricity. In the United States, most people use electricity to cook their food. If you do not have

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enough ready-to-eat food to last one to two weeks or more, you may find yourself and your family waiting in line for hours at an emergency soup kitchen.

Storing a method for emergency cooking is a smart move. The method you choose is up to you and will vary a bit based on where you live. Some people have a fireplace or wood stove and access to enough firewood that they can use to cook meals. Other people have natural gas or propane cook stoves and ovens already in their home, and still others have a barbecue grill in the backyard. All of these are viable emergency cooking alternatives, as long as you have the supplies for them on hand.

Keep an extra supply of firewood, charcoal or propane on hand at all times so you'll have them if an emergency ever arises. If you use the fuel throughout the year, simply replace it as you go so there's always extra.

If you do not already have an alternative cooking

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source, consider purchasing a small propane camping stove, a propane barbecue grill or a cheap charcoal grill. You cannot safely cook on a charcoal grill indoors because the carbon dioxide will kill you, but you can put the grill outside on a patio, balcony or porch.

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Heating

Regardless of where you live, having a way to keep yourself and your family warm is critical during a crisis. There are a few areas in the United States that rarely go below 30 or 40 degrees in the coldest part of the year, but even those balmy areas have had their records broken with 15 degree lows and several inches of unexpected snowfall. In fact, the winter of late 2010 to early 2011 brought many weather surprises to most of the continental United States: Record snowfalls, ice storms, record low temperatures, blizzards and more swathed the country. And with that weather came power outages because of utility lines being down, rolling blackouts in Texas because there wasn't enough power to handle the demand, and even natural gas and water outages in southern Arizona because of pumps freezing in the cold.

The lesson is this: Always have sources of heat, no matter where you live.

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If you can't have a source of heat, the extra clothing we talked about earlier will at least help. Heat is extremely important though and if there is any way for you to do so, you should put something aside in this area to help if an emergency arises.

Like cooking, the type of emergency heat source you have depends a lot on where you live but there are fewer options. If you have a fireplace, simply stock up on enough extra wood. If your furnace runs on electricity but your stove uses natural gas, you can use the stove carefully if the electricity goes out. Likewise if your stove runs on gas and the gas is out but the electricity isn't, you can use electric space heaters.

If your home is all electric then you are more vulnerable to utility outages. One way to prepare for an emergency in this case is to purchase camping heaters that run on small bottles of propane, and keep enough propane on hand to last for several days.

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Stay or Go?

When disaster strikes, there are usually two courses of action: Stay or Go. Staying at home might mean you're stuck there for several days, a week or more. Leaving means you may find yourself without adequate shelter, or sleeping with hundreds of other people in an emergency relief shelter. Sometimes the specific disaster makes the choice for you. It's impossible to try staying at home if your home succumbs to wildfires for example, and it may be impossible to leave if the immediate area around your home gets washed out in a flood. Since disasters of these sorts can rarely be predicted ahead of time, it's best to prepare for either option.

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Bugging Out

"Bugging out" means you're leaving your current location. If your home were to catch on fire or be in the path of raging wildfires as previously mentioned, you would immediately grab your family and start trying to get as far away as you needed to for full safety.

The best way to prepare for an immediate evacuation situation is to have key supplies packed and ready to grab. An excellent way to do this is to create a "bug out bag" for each member of your family. Creating a bug out bag and positioning it in a location where you can grab it as you're heading out the door saves valuable time in an emergency. You don't have to scramble around the house looking for clothing or important papers before you leave.

While you can create one general bug out bag to serve your entire family, it's safest to create one for each person. This way, if you are split up for any reason, everyone has immediate access to

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their own emergency supplies.

Opinions vary about what should be in a general bug out bag, and this is partly due to the difference in climate and circumstances everyone faces. Someone in California is more at risk of encountering a major earthquake for example, while someone in Florida faces hurricanes more often. A family in New York may have to worry about blizzard conditions while a family in Nevada has to contend with extreme heat and dehydration.

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At a minimum, your bug out bags should have supplies for at least three days. Generally, supplies include clothing, food, water, basic medical and personal necessities, and copies of your important papers.

Since a bug out bag is rarely larger than a backpack, the emergency food supplies are usually light weight grab and go types of things such as protein bars, crackers, nuts and dried fruit. Focus on packing light-weight foods that

provide high nutrition and energy just in case you find yourself having to walk a long way to find help, or struggle through debris.

Pack protective clothing such as long pants and long sleeve shirts in addition to light weight cooler clothing such as t-shirts. If you have to leave quickly during the heat of the summer the lighter clothing will be preferred if your arms and legs don't need protection, and if you're in a cold season the extra clothing can be layered to help protect you against the elements. Be sure to add a spare pair of socks and sturdy shoes to your bug out bag in case you have to walk a long distance.

Medical and personal necessities include basic band aids and alcohol wipes, sunscreen and lip balm, soap or hand sanitizer, feminine supplies and diapers.

Make copies of important papers such as your birth certificate, insurance information and emergency contact numbers and keep these

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copies in your bug out bag so you'll have them if they're needed. You might also want to consider stashing a small amount of cash in the bag just in case. If the emergency situation that causes you to leave quickly takes out the electricity in the immediate area, bank ATMs and automatic payment systems will not work, so you may be unable to purchase gasoline, food or other supplies without cash.

Make a list of the items you should have in your personal bug out bag. Feel free to add to the suggested items above and personalize the bag to your specific area, lifestyle and needs. Some people like to add flashlights and emergency radios to the list, while others feel a pocket knife or handgun would be more useful.

Keep weight and bulk in mind when planning your bug out bag. There is a limit to how much one person can carry and how far they can carry it. If you load your pack up with 100 pounds of stuff and then find yourself needing to hike 20

miles through the desert you may have a big problem.

Pack your bug out bag and put it in a place that will make it easy to grab as you head out the door. Don't bury it at the back of a fully loaded storage closet or stick it away in the crawlspace under the house. You need to be able to pick it up on your way out the door -- preferably without even breaking stride.

Review and update your bug out bag every six to 12 months. Rotate clothing according to seasons if need be, trade older food for fresh, and add or remove items if circumstances have changed.

Consider placing a second, general bug out bag into each vehicle you own. Having a general bug out bag in your vehicle will help if you find yourself out and about when an emergency strikes. If you're not able to go home to pick up your emergency bags, having something already in the car is a better alternative than having nothing at all.

Bugging In

Bugging in, or staying put, is simply the act of staying right where you are when an emergency strikes. Most people hope they're at home in this case, particularly if they have food and emergency supplies set aside.

Preparing to stay in place is a simple matter of making sure you have extra food, water, blankets, clothing and misc. everyday supplies on hand.

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If you need to stay here and not go anywhere for two full weeks, what would you run out of? Toilet paper is a common item, as are feminine supplies and baby diapers. Would you have enough soap and shampoo to stay clean? Enough laundry detergent to wash your clothing? What if you have extra people in your home because they were visiting and couldn't leave after the disaster struck, do you have extra blankets?

Look around your home and note down the

areas you're weak in, then start buying one or two extra each time you go the store.

Consider keeping some of your old clothing if it's in good shape, just in case you need to create layers and stay warm someday. It doesn't have to be a lot, just a few extra sets of pants, extra socks and a few sweaters.

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Preparing For Both

Since there is no way to foretell when, where or how a disaster will strike, it's best to try and be as prepared as you can. That means you need to stock up on everyday items such as food and water in case you must stay home and fend for yourself for a while, but you should also pack a bug out bag that you can grab and go with. Pack a vehicle kit too, just in case you're away from home and an emergency comes up.

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Making a Family Plan

Sit down with all of the immediate members of your family and make a solid plan about how you want to deal with different scenarios that might arise in your area.

If you have three children in three different schools and an earthquake hits, plan what you will do, what your spouse should do, and what each child should do. Depending on your specific limitations and scenarios, you may have Plan A or Plan B. Plan A might require you to pick up the youngest two children and your spouse will pick up the oldest. Plan B or a completely different scenario might require that your oldest two children goes to the location of the youngest and waits for your spouse to pick all of them up at once.

Let every family member have a say in the planning stages and ideas. Once a full plan for different scenarios is decided upon, write down the steps for each and make a copy for each person in the family. Carry those written plans

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as reference points so that everyone is clear on what should happen, by who, and when if a given event occurs.

By planning out step by step actions for each member of the family, making sure everyone knows what the exact plan is when X event happens, and ensuring everyone has emergency contact information with them at all times, you can be sure you're preparing and protecting your family as fully as possible.

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Emergency Contact Info

Create lists or laminated cards with emergency contact names, addresses and phone numbers. Make a copy for every member of the family to carry with them at all times, and make backup copies to put into your bug out bags.

Meeting Places

Plan for things to go wrong in your plans. Since it's difficult to account for every possibility that might ever arise, make plans for everyone to meet up in specific places if specific criteria is met. In the previous example of children in school for example, you might plan for everyone to head towards the school of your youngest child in the event that there are no specific plans of action for an event that happens, or if the event causes more destruction than you had originally planned for.

If a surprise flood occurs while everyone is away from home and it washes away your

neighborhood, you won't be able to follow an original plan that said to meet back up at the house. For this type of event you need a fallback meeting place, or Plan B, defined with a specific alternate meeting place for everyone to head for.

Maps and Escape Routes

Since different events can change your plans dramatically, it's critical to have multiple responses pre-planned. With multiple ways to respond to an event, you also need to know multiple ways to get to or away from a given place. If Mom is responsible for picking up the daughter who is in Kindergarten, Mom needs to know as many possible ways to and from the school as she possibly can. The normal route from home or work to the school may be impassible.

Teach yourself and as many members of your family alternate routes to and from important places. Not everyone will be able to memorize every potential route and every potential detail,

but some residual memory will help more than not having any idea.

The best approach is to keep maps of your local area on hand. Put them into each vehicle that you drive regularly, and put them into your emergency kits and bug out bags. If desired, you can even prioritize each route option as a family, and mark them on each map as part of your household emergency plans.

Scenario Checklists

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Create a list of the likely natural disasters and emergencies that could arise in the area you live, and then rank the list according to risk. If you live on a major fault line, you have a higher chance of having to deal with earthquakes than a tornado for example, whereas a family living in the heart of tornado alley probably has that listed as a higher risk for them than a hurricane.

Once you have your list created and ranked according to risk, create checklists for each

scenario that determines each step you'll take in the event of a specific disaster happening.

If a tornado warning is in effect, your checklist may include taking emergency bags, flashlights and extra water into the basement. If a wildfire is heading your way from the north however, your checklist may include loading kids and pets into the car and driving south.

Create a checklist for each scenario. Go over the checklists and steps of action with each member of the family to ensure everyone knows the plan, and nothing has been overlooked. Write down the steps you will discuss to take for each potential event, then create copies for each member of the family to put into their emergency bags.

When emergencies occur things can get very confusing and scary. Having a checklist to look at gives you something to focus on and lets you start taking control of the situation. You don't have to stop and think in the midst of the crisis

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and you don't have to worry about what you may have forgotten.

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Natural Disasters to Know

About

Information about specific natural disasters and appropriate responses from the U.S. Federal Emergency Management Agency (FEMA).

Floods

Floods are one of the most common hazards in the United States. Flood effects can be local, impacting a neighborhood or community, or very large, affecting entire river basins and multiple states.

However, all floods are not alike. Some floods develop slowly, sometimes over a period of days. But flash floods can develop quickly, sometimes in just a few minutes and without any visible signs of rain. Flash floods often have a dangerous wall of roaring water that carries rocks, mud, and other debris and can sweep away most things in its path. Overland flooding

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occurs outside a defined river or stream, such as when a levee is breached, but still can be destructive. Flooding can also occur when a dam breaks, producing effects similar to flash floods.

Be aware of flood hazards no matter where you live, but especially if you live in a low-lying area, near water or downstream from a dam. Even very small streams, gullies, creeks, culverts, dry streambeds, or low-lying ground that appear harmless in dry weather can flood. Every state is at risk from this hazard.

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What Would You Do?

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You and your family moved from a city neighborhood in San Francisco, CA, to a suburb of Phoenix, AZ. Since earthquakes were a threat in your area, you always kept some extra food, water, and other supplies on hand and maintained an earthquake insurance policy, just in case something happened. You think this kind of preparation is no longer necessary based on what your neighbors have told you. According to

them, the biggest threat they face is lack of water caused by the very dry weather. You continue to see public service announcements from the federal government about flood insurance and the need to protect yourself from flood damage. Surely, there would be no need for flood insurance where you live with its bare hills, deep canyons, and dry land.

You can mitigate the chance of flood damage by following these tips:

- Avoid building in a floodplain unless you elevate and reinforce your home.
- Elevate the furnace, water heater, and electric panel if susceptible to flooding.
- Install "check valves" in sewer traps to prevent flood water from backing up into the drains of your home.
- Construct barriers (levees, beams, floodwalls) to stop floodwater from entering the building.
- Seal walls in basements with

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waterproofing compounds to avoid seepage.

If a flood is likely in your area, you should:

- Listen to the radio or television for information.
- Be aware that flash flooding can occur. If there is any possibility of a flash flood, move immediately to higher ground. Do not wait for instructions to move.

Be aware of streets, drainage channels, canyons, and other areas known to flood suddenly. Flash floods can occur in these areas with or without such typical warnings as rain clouds or heavy rain.

If you must prepare to evacuate, you should do the following:

- Secure your home. If you have time, bring in outdoor furniture. Move essential items to an upper floor.

- Turn off utilities at the main switches or valves if instructed to do so. Disconnect electrical appliances. Do not touch electrical equipment if you are wet or standing in water.

If you have to leave your home, remember these evacuation tips:

- Do not walk through moving water. Six inches of moving water can make you fall. If you have to walk in water, walk where the water is not moving. Use a stick to check the firmness of the ground in front of you.

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- Do not drive into flooded areas. If floodwaters rise around your car, abandon the car and move to higher ground if you can do so safely. You and the vehicle can be quickly swept away.

Driving in Flooded Areas: The following are important points to remember when driving in flood conditions:

- Six inches of water will reach the bottom

of most passenger cars causing loss of control and possible stalling.

- A foot of water will float many vehicles.
- Two feet of rushing water can carry away most vehicles including sport utility vehicles (SUV's) and pick-ups.

After a Flood:

- Listen for news reports to learn whether the community's water supply is safe to drink.

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- Avoid floodwaters, water may be contaminated by oil, gasoline, or raw sewage. Water may also be electrically charged from underground or downed power lines.

- Avoid moving water.
- Be aware of areas where floodwaters have receded. Roads may have weakened and could collapse under the weight of a car.
- Stay away from downed power lines, and

report them to the power company.

- Return home only when authorities indicate it is safe.
- Stay out of any building if it is surrounded by floodwaters.
- Use extreme caution when entering buildings; there may be hidden damage, particularly in foundations.
- Service damaged septic tanks, cesspools, pits, and leaching systems as soon as possible. Damaged sewage systems are serious health hazards.
- Clean and disinfect everything that got wet. Mud left from floodwater can contain sewage and chemicals.

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Tornados

Tornadoes are nature's most violent storms. Spawned from powerful thunderstorms, tornadoes can cause fatalities and devastate a neighborhood in seconds. A tornado appears as a rotating, funnel-shaped cloud that extends from a thunderstorm to the ground with whirling winds that can reach 300 miles per hour. Damage paths can be in excess of one mile wide and 50 miles long. Every state is at some risk from this hazard.

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Some tornadoes are clearly visible, while rain or nearby low-hanging clouds obscure others. Occasionally, tornadoes develop so rapidly that little, if any, advance warning is possible.

Before a tornado hits, the wind may die down and the air may become very still. A cloud of debris can mark the location of a tornado even if a funnel is not visible. Tornadoes generally occur near the trailing edge of a thunderstorm. It is not uncommon to see clear, sunlit skies behind a

tornado.

Facts about tornadoes:

- They may strike quickly, with little or no warning.
- They may appear nearly transparent until dust and debris are picked up or a cloud forms in the funnel.
- The average tornado moves Southwest to Northeast, but tornadoes have been known to move in any direction.

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- The average forward speed of a tornado is 30 MPH, but may vary from stationary to 70 MPH.

- Tornadoes can accompany tropical storms and hurricanes as they move onto land.
- Waterspouts are tornadoes that form over water.
- Tornadoes are most frequently reported east of the Rocky Mountains during spring and summer months.

- Peak tornado season in the southern states is March through May; in the northern states, it is late spring through early summer.
- Tornadoes are most likely to occur between 3 p.m. and 9 p.m., but can occur at any time.

Before a Tornado: Be alert to changing weather conditions.

- Listen to NOAA Weather Radio or to commercial radio or television newscasts for the latest information.

- Look for approaching storms.
- Look for the following danger signs:
 - Dark, often greenish sky
 - Large hail
 - A large, dark, low-lying cloud (particularly if rotating)
 - Loud roar, similar to a freight train.

If you see approaching storms or any of the

danger signs, be prepared to take shelter immediately.

During a Tornado

If you are under a tornado WARNING, seek shelter immediately!

If you are in:

A structure (e.g. residence, small building, school, nursing home, hospital, factory, shopping center, high-rise building)

Then:

Go to a pre-designated shelter area such as a safe room, basement, storm cellar, or the lowest building level. If there is no basement, go to the center of an interior room on the lowest level (closet, interior hallway) away from corners, windows, doors, and outside walls. Put as many walls as possible between you and the outside. Get under a sturdy table and use your arms to protect your head and neck. Do not open windows.

If you are in:

A vehicle, trailer, or mobile home

Then:

Get out immediately and go to the lowest floor of a sturdy, nearby building or a storm shelter. Mobile homes, even if tied down, offer little protection from tornadoes.

If you are in:

The outside with no shelter

Then:

Lie flat in a nearby ditch or depression and cover your head with your hands. Be aware of the potential for flooding.

Do not get under an overpass or bridge. You are safer in a low, flat location.

Never try to outrun a tornado in urban or congested areas in a car or truck. Instead, leave the vehicle immediately for safe shelter.

Watch out for flying debris. Flying debris from tornadoes causes most fatalities and injuries.

Preparing a Safe Room

Extreme windstorms in many parts of the country pose a serious threat to buildings and their occupants. Your residence may be built "to code," but that does not mean it can withstand winds from extreme events such as tornadoes and major hurricanes. The purpose of a safe room or a wind shelter is to provide a space where you and your family can seek refuge that provides a high level of protection. You can build a safe room in one of several places in your home.

- Your basement.
- Atop a concrete slab-on-grade foundation or garage floor.
- An interior room on the first floor.

Safe rooms built below ground level provide the greatest protection, but a safe room built in a

first-floor interior room also can provide the necessary protection. Below-ground safe rooms must be designed to avoid accumulating water during the heavy rains that often accompany severe windstorms.

To protect its occupants, a safe room must be built to withstand high winds and flying debris, even if the rest of the residence is severely damaged or destroyed. Consider the following when building a safe room:

- The safe room must be adequately anchored to resist overturning and uplift.
- The walls, ceiling, and floor of the shelter must withstand wind pressure and resist penetration by windborne objects and falling debris.
- The connections between all parts of the safe room must be strong enough to resist the wind.
- Sections of either interior or exterior residence walls that are used as walls of the

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safe room, must be separated from the structure of the residence so that damage to the residence will not cause damage to the safe room.

Additional information about Safe Rooms available from FEMA:

Taking Shelter from the Storm: Building a Safe Room Inside Your House. FEMA-320. Manual with detailed information about how to build a wind-safe room to withstand tornado, hurricane, and other high winds.

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Hurricanes

On Aug. 28, 2005 while in the Gulf of Mexico, Hurricane Katrina reached Category 5 status with maximum sustained winds near 175 mph. Katrina made landfall on Aug. 29 as a Category 3 storm with maximum winds estimated near 125 mph to the east of the center. -National Oceanic & Atmospheric Administration (NOAA)



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A hurricane is a type of tropical cyclone, the generic term for a low pressure system that generally forms in the tropics. A typical cyclone

is accompanied by thunderstorms, and in the Northern Hemisphere, a counterclockwise circulation of winds near the earth's surface.

All Atlantic and Gulf of Mexico coastal areas are subject to hurricanes or tropical storms. Parts of the Southwest United States and the Pacific Coast experience heavy rains and floods each year from hurricanes spawned off Mexico. The Atlantic hurricane season lasts from June to November, with the peak season from mid-August to late October.

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Hurricanes can cause catastrophic damage to coastlines and several hundred miles inland. Winds can exceed 155 miles per hour. Hurricanes and tropical storms can also spawn tornadoes and microbursts, create storm surges along the coast, and cause extensive damage from heavy rainfall.

Hurricanes are classified into five categories based on their wind speed, central pressure, and damage potential (see chart). Category Three

and higher hurricanes are considered major hurricanes, though Categories One and Two are still extremely dangerous and warrant your full attention.

Saffir-Simpson Hurricane Scale:

Scale Number(Category): 1

Sustained Winds(MPH): 74-95

Damage: Minimal: Unanchored mobile homes, vegetation and signs.

Storm Surge: 4-5 feet

Scale Number(Category): 2

Sustained Winds(MPH): 96-110

Damage: Moderate: All mobile homes, roofs, small crafts, flooding.

Storm Surge: 6-8 feet

Scale Number(Category): 3

Sustained Winds(MPH): 111-130

Damage: Extensive: Small buildings, low-lying roads cut off.

Storm Surge: 9-12 feet

Scale Number(Category): 4

Sustained Winds(MPH): 131-155

Damage: Extreme: Roofs destroyed, trees down, roads cut off, mobile homes destroyed. Beach homes flooded.

Storm Surge: 13-18 feet

Scale Number(Category): 5

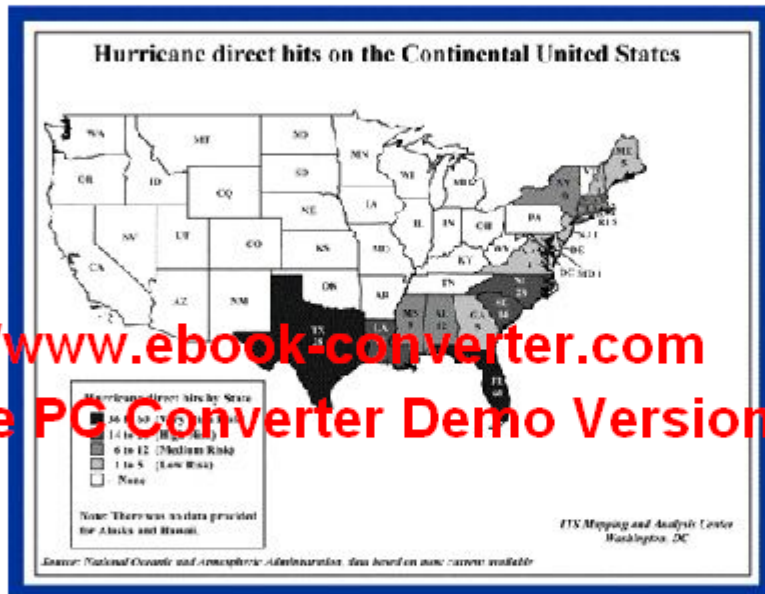
Sustained Winds(MPH): More than 155

Damage: Catastrophic: Most buildings destroyed. Vegetation destroyed. Major roads cut off. Homes flooded.

Storm Surge: Greater than 18 feet

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Hurricanes can produce widespread torrential rains. Floods are the deadly and destructive result. Slow moving storms and tropical storms moving into mountainous regions tend to produce especially heavy rain. Excessive rain can trigger landslides or mud slides, especially in mountainous regions. Flash flooding can occur due to intense rainfall. Flooding on rivers and streams may persist for several days or more after the storm.

Between 1970 and 1999, more people lost their lives from freshwater inland flooding associated with land falling tropical cyclones than from any other weather hazard related to tropical cyclones.



Map of hurricane direct hits on the continental United States (FEMA)

Naming the Hurricanes

Since 1953, Atlantic tropical storms have been named from lists originated by the National

Hurricane Center and now maintained and updated by an international committee of the World Meteorological Organization. The lists featured only women's names until 1979. After that, men's and women's names were alternated. Six lists are used in rotation. Thus, the 2001 lists will be used again in 2007.

The only time there is a change in the list is if a storm is so deadly or costly that the continued use of the name would be inappropriate for reasons of sensitivity. When this occurs, the name is stricken from the list and another name is selected to replace it. Hurricane Katrina for example, was retired in 2005.

Sometimes names are changed. Lorenzo replaced Luis and Michelle replaced Marilyn. The complete lists can be found at www.nhc.noaa.gov under "Storm Names."

Know the Terms

Familiarize yourself with these terms to help identify a hurricane hazard:

Tropical Depression: An organized system of clouds and thunderstorms with a defined surface circulation and maximum sustained winds of 38 MPH (33 knots) or less. Sustained winds are defined as one-minute average wind measured at about 33 ft (10 meters) above the surface.

Tropical Storm: An organized system of strong thunderstorms with a defined surface circulation and maximum sustained winds of 39–73 MPH (34–63 knots).

Hurricane: An intense tropical weather system with a well-defined surface circulation and maximum sustained winds of 74 MPH (64 knots) or higher.

Storm Surge: A dome of water pushed onshore by hurricane and tropical storm winds. Storm surges can reach 25 feet high and be 50–1000 miles wide.

Storm Tide: A combination of storm surge and the normal tide (i.e., a 15-foot storm surge

combined with a 2-foot normal high tide over the mean sea level created a 17-foot storm tide).

Hurricane/Tropical Storm Watch:
Hurricane/tropical storm conditions are possible in the specified area, usually within 36 hours. Tune in to NOAA Weather Radio, commercial radio, or television for information.

Hurricane/Tropical Storm Warning:
Hurricane/tropical storm conditions are expected in the specified area, usually within 24 hours.

Short Term Watches and Warnings: These warnings provide detailed information about specific hurricane threats, such as flash floods and tornadoes.

Take Protective Measures Before a Hurricane

To prepare for a hurricane, you should take the following measures:

- Make plans to secure your property. Permanent storm shutters offer the best

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protection for windows. A second option is to board up windows with 5/8" marine plywood, cut to fit and ready to install. Tape does not prevent windows from breaking.

- Install straps or additional clips to securely fasten your roof to the frame structure. This will reduce roof damage.
- Be sure trees and shrubs around your home are well trimmed.
- Clear loose and clogged rain gutters and downspouts.
- Determine how and where to secure your boat.
- Consider building a safe room.

During a Hurricane: If a hurricane is likely in your area, you should:

- Listen to the radio or TV for information.
- Secure your home, close storm shutters, and secure outdoor objects or bring them

indoors.

- Turn off utilities if instructed to do so. Otherwise, turn the refrigerator thermostat to its coldest setting and keep its doors closed.
- Turn off propane tanks.· Avoid using the phone, except for serious emergencies.
- Moor your boat if time permits.
- Ensure a supply of water for sanitary purposes such as cleaning and flushing toilets. Fill the bathtub and other large containers with water.

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You should evacuate under the following conditions:

- If you are directed by local authorities to do so. Be sure to follow their instructions.
- If you live in a mobile home or temporary structure -- such shelters are particularly hazardous during hurricanes no matter how well fastened to the ground.

- If you live in a high-rise building -- hurricane winds are stronger at higher elevations.
- If you live on the coast, on a floodplain, near a river, or on an inland waterway.
- If you feel you are in danger.

If you are unable to evacuate, go to your wind-safe room. If you do not have one, follow these guidelines:

- Stay indoors during the hurricane and away from windows and glass doors.
- Close all interior doors -- secure and brace external doors.
- Keep curtains and blinds closed. Do not be fooled if there is a lull; it could be the eye of the storm -- winds will pick up again.
- Take refuge in a small interior room, closet, or hallway on the lowest level.
- Lie on the floor under a table or another sturdy object.

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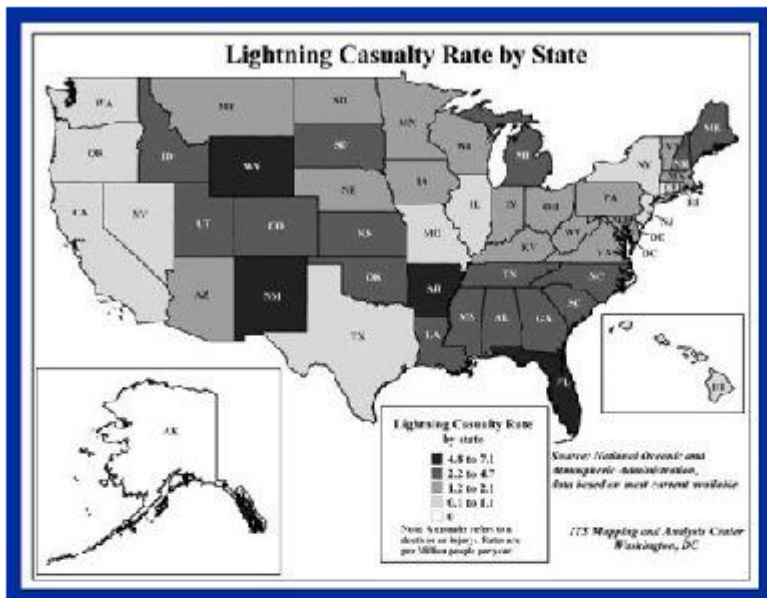
Thunderstorms and Lightning

All thunderstorms are dangerous. Every thunderstorm produces lightning. In the United States, an average of 300 people are injured and 80 people are killed each year by lightning. Although most lightning victims survive, people struck by lightning often report a variety of long-term, debilitating symptoms.

Other associated dangers of thunderstorms include tornadoes, strong winds, hail, and flash flooding. Flash flooding is responsible for more fatalities -- more than 140 annually -- than any other thunderstorm-associated hazard.

Dry thunderstorms that do not produce rain that reaches the ground are most prevalent in the western United States. Falling raindrops evaporate, but lightning can still reach the ground and can start wildfires.

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The following are facts about thunderstorms:

- They may occur singly, in clusters, or in lines.
- Some of the most severe occur when a single thunderstorm affects one location for an extended time.
- Thunderstorms typically produce heavy rain for a brief period, anywhere from 30

minutes to an hour.

- Warm, humid conditions are highly favorable for thunderstorm development.
- About 10 percent of thunderstorms are classified as severe -- one that produces hail at least three-quarters of an inch in diameter, has winds of 58 miles per hour or higher, or produces a tornado.

The following are facts about lightning:

- Lightning's unpredictability increases the risk to individuals and property.
- Lightning often strikes outside of heavy rain and may occur as far as 10 miles away from any rainfall.
- "Heat lightning" is actually lightning from a thunderstorm too far away for thunder to be heard. However, the storm may be moving in your direction!
- Most lightning deaths and injuries occur when people are caught outdoors in the

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summer months during the afternoon and evening.

- Your chances of being struck by lightning are estimated to be 1 in 600,000, but could be reduced even further by following safety precautions.
- Lightning strike victims carry no electrical charge and should be attended to immediately.

Know the Terms

Familiarize yourself with these terms to help identify a thunderstorm hazard:

Severe Thunderstorm Watch: Tells you when and where severe thunderstorms are likely to occur. Watch the sky and stay tuned to NOAA Weather Radio, commercial radio, or television for information.

Severe Thunderstorm Warning: Issued when severe weather has been reported by spotters or indicated by radar. Warnings indicate imminent danger to life and property to those in the path

of the storm.

Take Protective Measures Before Thunderstorms and Lightning

To prepare for a thunderstorm, you should do the following:

- Remove dead or rotting trees and branches that could fall and cause injury or damage during a severe thunderstorm.
- Remember the 30/30 lightning safety rule: Go indoors if, after seeing lightning, you cannot count to 30 before hearing thunder. Stay indoors for 30 minutes after hearing the last clap of thunder.

Thunderstorms: The following are guidelines for what you should do if a thunderstorm is likely in your area:

- Postpone outdoor activities.
- Get inside a home, building, or hard top automobile (not a convertible). Although you may be injured if lightning strikes your

car, you are much safer inside a vehicle than outside.

- Remember, rubber-soled shoes and rubber tires provide NO protection from lightning. However, the steel frame of a hard-topped vehicle provides increased protection if you are not touching metal.
- Secure outdoor objects that could blow away or cause damage.
- Shutter windows and secure outside doors. If shutters are not available, close window blinds, shades, or curtains.
- Avoid showering or bathing. Plumbing and bathroom fixtures can conduct electricity.
- Use a corded telephone only for emergencies. Cordless and cellular telephones are safe to use.
- Unplug appliances and other electrical items such as computers and turn off air conditioners. Power surges from lightning can cause serious damage.

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- Use your battery-operated NOAA Weather Radio for updates from local officials.

Avoid the following:

- Natural lightning rods such as a tall, isolated tree in an open area
- Hilltops, open fields, the beach, or a boat on the water
- Isolated sheds or other small structures in open areas

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- Anything metal -- tractors, farm equipment, motorcycles, golf carts, golf clubs, and bicycles

During a Thunderstorm

If you are: In a forest

Then: Seek shelter in a low area under a thick growth of small trees.

If you are: In an open area

Then: Go to a low place such as a ravine or

valley. Be alert for flash floods.

If you are: On open water

Then: Get to land and find shelter immediately.

If you are: Anywhere you feel your hair stand on end (which indicates that lightning is about to strike)

Then: Squat low to the ground on the balls of your feet. Place your hands over your ears and your head between your knees. Make yourself the smallest target possible and minimize your contact with the ground. DO NOT lie flat on the ground.

After a Thunderstorm: Call 9-1-1 for medical assistance as soon as possible.

The following are things you should check when you attempt to give aid to a victim of lightning:

- Breathing - if breathing has stopped, begin mouth-to-mouth resuscitation.

- Heartbeat - if the heart has stopped, administer CPR.
- Pulse - if the victim has a pulse and is breathing, look for other possible injuries. Check for burns where the lightning entered and left the body. Also be alert for nervous system damage, broken bones, and loss of hearing and eyesight.

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Winter Storms and Extreme Cold

Heavy snowfall and extreme cold can immobilize an entire region. Even areas that normally experience mild winters can be hit with a major snowstorm or extreme cold. Winter storms can result in flooding, storm surge, closed highways, blocked roads, downed power lines and hypothermia.

Know the Terms

Familiarize yourself with these terms to help identify a winter storm hazard:

Freezing Rain: Rain that freezes when it hits the ground, creating a coating of ice on roads, walkways, trees, and power lines.

Sleet: Rain that turns to ice pellets before reaching the ground. Sleet also causes moisture on roads to freeze and become slippery.

Winter Storm Watch: A winter storm is possible in your area. Tune in to NOAA Weather Radio, commercial radio, or television for more information.

Winter Storm Warning: A winter storm is occurring or will soon occur in your area.

Blizzard Warning: Sustained winds or frequent gusts to 35 miles per hour or greater and considerable amounts of falling or blowing snow (reducing visibility to less than a quarter mile) are expected to prevail for a period of three hours or longer.

Frost/Freeze Warning: Below freezing temperatures are expected.

Take Protective Measures Before Winter Storms and Extreme Cold

Include the following in your disaster supplies kit:

- Rock salt to melt ice on walkways
- Sand to improve traction
- Snow shovels and other snow removal equipment.

Prepare for possible isolation in your home by having sufficient heating fuel; regular fuel

sources may be cut off. For example, store a good supply of dry, seasoned wood for your fireplace or wood-burning stove.



Winter storm occurrences by state (FEMA)

Winterize your home to extend the life of your fuel supply by insulating walls and attics, caulking and weather-stripping doors and windows, and installing storm windows or covering windows with plastic.

To winterize your car, attend to the

following:

- Battery and ignition system should be in top condition and battery terminals clean.
- Ensure antifreeze levels are sufficient to avoid freezing.
- Ensure the heater and defroster work properly.
- Check and repair windshield wiper equipment; ensure proper washer fluid level.
- Ensure the alternator works properly.
- Check lights and flashing hazard lights for serviceability.
- Check for leaks and crimped pipes in the exhaust system; repair or replace as necessary. Carbon monoxide is deadly and usually gives no warning.
- Check breaks for wear and fluid levels.
- Check oil for level and weight. Heavier oils congeal more at low temperatures and do

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not lubricate as well.

- Consider snow tires, snow tires with studs, or chains.
- Replace fuel and air filters. Keep water out of the system by using additives and maintaining a full tank of gas.

Dress for the Weather

- Wear several layers of loose fitting, lightweight, warm clothing rather than one layer of heavy clothing. The outer garments should be tightly woven and water repellent.

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- Wear mittens, which are warmer than gloves.
- Wear a hat.
- Cover your mouth with a scarf to protect your lungs.

During a Winter Storm

The following are guidelines for what you should do during a winter storm or under conditions of

extreme cold:

- Listen to your radio, television, or NOAA Weather Radio for weather reports and emergency information.
- Eat regularly and drink ample fluids, but avoid caffeine and alcohol.
- Avoid overexertion when shoveling snow. Overexertion can bring on a heart attack -- a major cause of death in the winter. If you must shovel snow, stretch before going outside.
- Watch for signs of frostbite. These include loss of feeling and white or pale appearance in extremities such as fingers, toes, ear lobes, and the tip of the nose. If symptoms are detected, get medical help immediately.
- Watch for signs of hypothermia. These include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness, and apparent exhaustion. If symptoms of hypothermia

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are detected, get the victim to a warm location, remove wet clothing, warm the center of the body first, and give warm, non-alcoholic beverages if the victim is conscious. Get medical help as soon as possible.

- Conserve fuel, if necessary, by keeping your residence cooler than normal. Temporarily close off heat to some rooms.
- Maintain ventilation when using kerosene heaters to avoid build-up of toxic fumes. Refuel kerosene heaters outside and keep them at least three feet from flammable objects.
- Drive only if it is absolutely necessary. If you must drive, consider the following:
 - Travel in the day, don't travel alone, and keep others informed of your schedule
 - Stay on main roads; avoid back road shortcuts

If a blizzard traps you in the car, keep these guidelines in mind:

- Pull off the highway. Turn on hazard lights and hang a distress flag from the radio antenna or window.
- Remain in your vehicle where rescuers are most likely to find you. Do not set out on foot unless you can see a building close by where you know you can take shelter. Be careful; distances are distorted by blowing snow. A building may seem close, but be too far to walk to in deep snow.
- Run the engine and heater about 10 minutes each hour to keep warm. When the engine is running, open an upwind window slightly for ventilation. This will protect you from possible carbon monoxide poisoning. Periodically clear snow from the exhaust pipe.
- Exercise to maintain body heat, but avoid overexertion. In extreme cold, use road

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maps, seat covers, and floor mats for insulation. Huddle with passengers and use your coat for a blanket.

- Take turns sleeping. One person should be awake at all times to look for rescue crews.
- Drink fluids to avoid dehydration.
- Be careful not to waste battery power. Balance electrical energy needs -- the use of lights, heat, and radio -- with supply.
- Turn on the inside light at night so work crews or rescuers can see you.

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- If stranded in a remote area, stomp large block letters in an open area spelling out HELP or SOS and line with rocks or tree limbs to attract the attention of rescue personnel who may be surveying the area by airplane.
- Leave the car and proceed on foot -- if necessary -- once the blizzard passes.

Extreme Heat

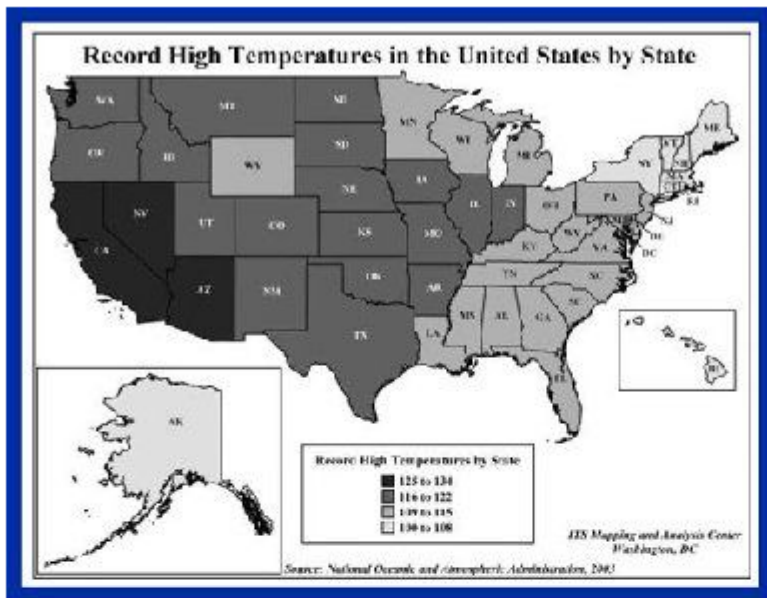
Heat kills by pushing the human body beyond its limits. In extreme heat and high humidity, evaporation is slowed and the body must work extra hard to maintain a normal temperature.

Most heat disorders occur because the victim has been overexposed to heat or has over-exercised for his or her age and physical condition. Older adults, young children, and those who are sick or overweight are more likely to succumb to extreme heat.

Conditions that can induce heat-related illnesses include stagnant atmospheric conditions and poor air quality. Consequently, people living in urban areas may be at greater risk from the effects of a prolonged heat wave than those living in rural areas. Also, asphalt and concrete store heat longer and gradually release heat at night, which can produce higher nighttime temperatures known as the "urban heat island effect."

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<http://www.ebookconverter.com> Map of record high temperature in the United

States by state (FEMA)
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Know the Terms

Familiarize yourself with these terms to help identify an extreme heat hazard:

Heat Wave: Prolonged period of excessive heat, often combined with excessive humidity.

Heat Index: A number in degrees Fahrenheit (F) that tells how hot it feels when relative humidity is added to the air temperature. Exposure to full

sunshine can increase the heat index by 15 degrees.

Heat Cramps: Muscular pains and spasms due to heavy exertion. Although heat cramps are the least severe, they are often the first signal that the body is having trouble with the heat.

Heat Exhaustion: Typically occurs when people exercise heavily or work in a hot, humid place where body fluids are lost through heavy sweating. Blood flow to the skin increases, causing blood flow to decrease to the vital organs. This results in a form of mild shock. If

not treated, the victim's condition will worsen. Body temperature will keep rising and the victim may suffer heat stroke.

Heat Stroke: A life-threatening condition. The victim's temperature control system, which produces sweating to cool the body, stops working. The body temperature can rise so high that brain damage and death may result if the body is not cooled quickly.

Sun Stroke: Another term for heat stroke.

Take Protective Measures Before Extreme Heat

To prepare for extreme heat, you should:

- Install window air conditioners snugly; insulate if necessary.
- Check air-conditioning ducts for proper insulation.
- Install temporary window reflectors (for use between windows and drapes), such as aluminum foil-covered cardboard, to reflect heat back outside.

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- Weather-strip doors and sills to keep cool air in.
- Cover windows that receive morning or afternoon sun with drapes, shades, awnings, or louvers. (Outdoor awnings or louvers can reduce the heat that enters a home by up to 80 percent.)
- Keep storm windows up all year.

During a Heat Emergency

The following are guidelines for what you should do if the weather is extremely hot:

- Stay indoors as much as possible and limit exposure to the sun.
- Stay on the lowest floor out of the sunshine if air conditioning is not available.
- Consider spending the warmest part of the day in public buildings such as libraries, schools, movie theaters, shopping malls, and other community facilities. Circulating air can cool the body by increasing the perspiration rate or evaporation.
- Eat well-balanced, light, and regular meals. Avoid using salt tablets unless directed to do so by a physician.
- Drink plenty of water. Persons who have epilepsy or heart, kidney, or liver disease; are on fluid-restricted diets; or have a problem with fluid retention should consult a doctor before increasing liquid intake.

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- Limit intake of alcoholic beverages.
- Dress in loose-fitting, lightweight, and light-colored clothes that cover as much skin as possible.
- Protect face and head by wearing a wide-brimmed hat.
- Check on family, friends, and neighbors who do not have air conditioning and who spend much of their time alone.
- Never leave children or pets alone in closed vehicles.
- Avoid strenuous work during the warmest part of the day. Use a buddy system when working in extreme heat, and take frequent breaks.

First Aid for Heat-Induced Illnesses

Extreme heat brings with it the possibility of heat-induced illnesses. The following lists these illnesses, their symptoms, and the first aid treatment.

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Condition: Sunburn

- **Symptoms:** Skin redness and pain, possible swelling, blisters, fever, headaches
 - **First Aid:**
 - Take a shower using soap to remove oils that may block pores, preventing the body from cooling naturally.
 - Apply dry, sterile dressings to any blisters, and get medical attention.
-

Condition: Heat Cramps

- **Symptoms:** Painful spasms, usually in leg and abdominal muscles; heavy sweating
- **First Aid:**
 - Get the victim to a cooler location.
 - Lightly stretch and gently massage affected muscles to relieve spasms.
 - Give sips of up to a half glass of cool water every 15 minutes. (Do not give liquids with caffeine or alcohol.)

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- Discontinue liquids, if victim is nauseated.
-

Condition: Heat Exhaustion

- **Symptoms:** Heavy sweating but skin may be cool, pale, or flushed. Weak pulse. Normal body temperature is possible, but temperature will likely rise. Fainting or dizziness, nausea, vomiting, exhaustion, and headaches are possible.

- **First Aid:**

- Get victim to lie down in a cool place.
- Loosen or remove clothing.
- Apply cool, wet clothes.
- Fan or move victim to air-conditioned place.
- Give sips of water if victim is conscious.
- Be sure water is consumed slowly.
- Give half glass of cool water every 15

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minutes.

- Discontinue water if victim is nauseated.
 - Seek immediate medical attention if vomiting occurs.
-

Condition: Heat Stroke(a severe medical emergency)

- **Symptoms:** High body temperature (105+); hot, red, dry skin; rapid, weak pulse; and rapid shallow breathing. Victim will probably not sweat unless victim was sweating from recent strenuous activity. Possible unconsciousness.

- **First Aid:**

- Call 9-1-1 or emergency medical services, or get the victim to a hospital immediately. Delay can be fatal.
- Move victim to a cooler environment.
- Removing clothing

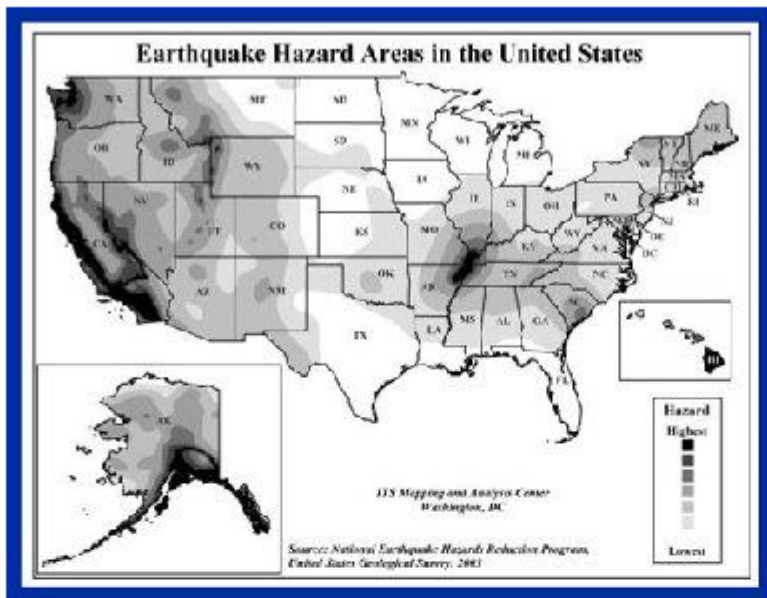
- Try a cool bath, sponging, or wet sheet to reduce body temperature.
- Watch for breathing problems.
- Use extreme caution.
- Use fans and air conditioners.

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Earthquakes

One of the most frightening and destructive phenomena of nature is a severe earthquake and its terrible aftereffects. An earthquake is a sudden movement of the earth, caused by the abrupt release of strain that has accumulated over a long time. For hundreds of millions of years, the forces of plate tectonics have shaped the earth, as the huge plates that form the earth's surface slowly move over, under, and past each other. Sometimes, the movement is gradual. At other times, the plates are locked together, unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free. If the earthquake occurs in a populated area, it may cause many deaths and injuries and extensive property damage.

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 Map of earthquake hazard areas in the United States (FEMA)

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Know the Terms

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

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

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

Fault: The fracture across which displacement has occurred during an earthquake. The slippage may range from less than an inch to more than 10 yards in a severe earthquake.

Epicenter: The place on the earth's surface directly above the point on the fault where the earthquake rupture began. Once fault slippage begins, it expands along the fault during the earthquake and can extend hundreds of miles before stopping.

Seismic Waves: Vibrations that travel outward from the earthquake fault at speeds of several miles per second. Although fault slippage directly under a structure can cause considerable damage, the vibrations of seismic waves cause most of the destruction during earthquakes.

Magnitude: The amount of energy released during an earthquake, which is computed from the amplitude of the seismic waves. A magnitude of 7.0 on the Richter Scale indicates an

extremely strong earthquake. Each whole number on the scale represents an increase of about 30 times more energy released than the previous whole number represents. Therefore, an earthquake measuring 6.0 is about 30 times more powerful than one measuring 5.0. Take Protective Measures

Before an Earthquake

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

- Repair defective electrical wiring, leaky gas lines, and inflexible utility connections. Get appropriate professional help. Do not work with gas or electrical lines yourself.
- Bolt down and secure to the wall studs your water heater, refrigerator, furnace, and gas appliances. If recommended by your gas company, have an automatic gas shut-off valve installed that is triggered by strong vibrations.

- Place large or heavy objects on lower shelves. Fasten shelves, mirrors, and large picture frames to walls. Brace high and top-heavy objects.
- Store bottled foods, glass, china, and other breakables on low shelves or in cabinets that fasten shut.
- Anchor overhead lighting fixtures.
- Be sure the residence is firmly anchored to its foundation.

• Install flexible pipe fittings to avoid gas or water leaks. Flexible fittings are more resistant to breakage.

- Locate safe spots in each room under a sturdy table or against an inside wall. Reinforce this information by moving to these places during each drill.
- Hold earthquake drills with your family members: Drop, cover, and hold on!

During an Earthquake

Minimize your movements during an earthquake to a few steps to a nearby safe place. Stay indoors until the shaking has stopped and you are sure exiting is safe.

If you are: Indoors

Then: Take cover under a sturdy desk, table, or bench or against an inside wall, and hold on. 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.

Stay away from glass, windows, outside doors and walls, and anything that could fall, such as lighting fixtures or furniture.

Stay in bed - if you are there when the earthquake strikes - hold on and protect your head with a pillow, unless you are under a heavy light fixture that could fall. In that case, move to the nearest safe place.

Use a doorway for shelter only if it is in close proximity to you and if you know it is a strongly supported, loadbearing doorway.

Stay inside until shaking stops and it is safe to go outside. Most injuries during earthquakes occur when people are hit by falling objects when entering into or exiting from buildings.

Be aware that the electricity may go out or the sprinkler systems or fire alarms may turn on.

DO NOT use the elevators.

If you are: Outdoors

Then: Stay there.

Move away from buildings, streetlights, and utility wires. In a moving vehicle Stop as quickly as safety permits and stay in the vehicle. Avoid stopping near or under buildings, trees, overpasses, and utility wires.

Proceed cautiously once the earthquake has stopped, watching for road and bridge damage. Trapped under debris Do not light a match. Do not move about or kick up dust.

Cover your mouth with a handkerchief or clothing.

Tap on a pipe or wall so rescuers can locate you. Use a whistle if one is available. Shout only as a last resort - shouting can cause you to inhale dangerous amounts of dust.

After an Earthquake

- Be prepared for aftershocks. These secondary shockwaves are usually less violent than the main quake but can be strong enough to do additional damage to weakened structures.

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- Open cabinets cautiously. Beware of objects that can fall off shelves.
- Stay away from damaged areas unless your assistance has been specifically requested by police, fire, or relief organizations.
- Be aware of possible tsunamis if you live in coastal areas. These are also known as seismic sea waves (mistakenly called "tidal waves"). When local authorities issue a

tsunami warning, assume that a series of dangerous waves is on the way. Stay away from the beach.

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Volcanoes

A volcano is a vent through which molten rock escapes to the earth's surface. When pressure from gases within the molten rock becomes too great, an eruption occurs. Eruptions can be quiet or explosive. There may be lava flows, flattened landscapes, poisonous gases, and flying rock and ash.

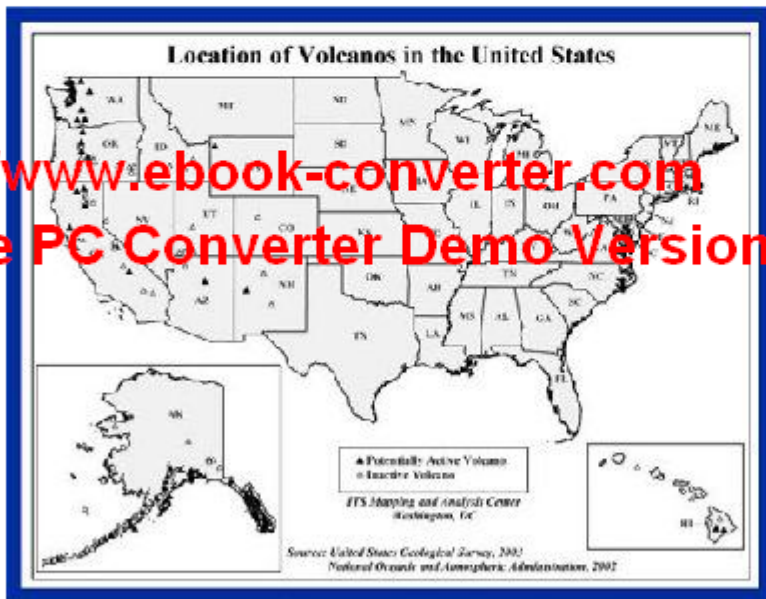
Because of their intense heat, lava flows are great fire hazards. Lava flows destroy everything in their path, but most move slowly enough that people can move out of the way.

Fresh volcanic ash, made of pulverized rock, can be abrasive, acidic, gritty, gassy, and odorous. While not immediately dangerous to most adults, the acidic gas and ash can cause lung damage to small infants, to older adults, and to those suffering from severe respiratory illnesses. Volcanic ash also can damage machinery, including engines and electrical equipment. Ash accumulations mixed with water become heavy

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and can collapse roofs.

Volcanic eruptions can be accompanied by other natural hazards, including earthquakes, mudflows and flash floods, rock falls and landslides, acid rain, fire, and (under special conditions) tsunamis. Active volcanoes in the U.S. are found mainly in Hawaii, Alaska, and the Pacific Northwest.



Map of volcano locations in the United States (FEMA)

Take Protective Measures: Before a Volcanic Eruption

- Add a pair of goggles and disposable breathing mask for each member of the family to your disaster supply kit.
- Stay away from active volcano sites.

During a Volcanic Eruption

The following are guidelines for what to do if a volcano erupts in your area:

- Evacuate immediately from the volcano area to avoid flying debris, hot gases, lateral blast, and lava flow.
- Be aware of mudflows. The danger from a mudflow increases near stream channels and with prolonged heavy rains. Mudflows can move faster than you can walk or run. Look upstream before crossing a bridge, and do not cross the bridge if mudflow is approaching.
- Avoid river valleys and low-lying areas.

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Protection from Falling Ash

- Wear long-sleeved shirts and long pants. Use goggles and wear eyeglasses instead of contact lenses.
- Use a dust mask or hold a damp cloth over your face to help with breathing.
- Stay away from areas downwind from the volcano to avoid volcanic ash.
- Stay indoors until the ash has settled unless there is a danger of the roof collapsing.
- Close doors, windows, and all ventilation in the house (chimney vents, furnaces, air conditioners, fans, and other vents).
- Clear heavy ash from flat or low-pitched roofs and rain gutters.
- Avoid running car or truck engines. Driving can stir up volcanic ash that can clog engines, damage moving parts, and stall vehicles.

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- Avoid driving in heavy ash fall unless absolutely required. If you have to drive, keep speed down to 35 MPH or slower.

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Mudslides and Debris

Landslides occur in all U.S. states and territories. In a landslide, masses of rock, earth, or debris move down a slope. Landslides may be small or large, slow or rapid. They are activated by storms, earthquakes, volcanic eruptions, fires, and human modification of land.

Debris and mud flows are rivers of rock, earth, and other debris saturated with water. They develop when water rapidly accumulates in the ground, during heavy rainfall or rapid snowmelt, changing the earth into a flowing river of mud or 'slurry'. They flow can rapidly, striking with little or no warning at avalanche speeds. They also can travel several miles from their source, growing in size as they pick up trees, boulders, cars, and other materials.

Landslide problems can be caused by land mismanagement, particularly in mountain, canyon, and coastal regions. Land-use zoning, professional inspections, and proper design can

minimize many landslide, mudflow, and debris flow problems.



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Landslide overview map of the continental United States (FEMA)

Take Protective Measures: Before a Landslide or Debris Flow

The following are steps you can take to protect yourself from the effects of a landslide or debris flow:

- Do not build near steep slopes, close to

mountain edges, near drainage ways, or natural erosion valleys.

- Get a ground assessment of your property.
- Consult an appropriate professional expert for advice on corrective measures.
- Minimize home hazards by having flexible pipe fittings installed to avoid gas or water leaks, as flexible fittings are more resistant to breakage (only the gas company or professionals should install gas fittings).

Recognize Landslide Warning Signs

- Changes occur in your landscape such as patterns of storm-water drainage on slopes (especially the places where runoff water converges) land movement, small slides, flows, or progressively leaning trees.
- Doors or windows stick or jam for the first time.
- New cracks appear in plaster, tile, brick, or

foundations.

- Outside walls, walks, or stairs begin pulling away from the building.
- Slowly developing, widening cracks appear on the ground or on paved areas such as streets or driveways.
- Underground utility lines break.
- Bulging ground appears at the base of a slope.
- Water breaks through the ground surface in new locations.

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- Fences, retaining walls, utility poles, or trees tilt or move.
- A faint rumbling sound that increases in volume is noticeable as the landslide nears.
- The ground slopes downward in one direction and may begin shifting in that direction under your feet.
- Unusual sounds, such as trees cracking or boulders knocking together, might indicate

moving debris.

- Collapsed pavement, mud, fallen rocks, and other indications of possible debris flow can be seen when driving (embankments along roadsides are particularly susceptible to landslides).

During a Landslide or Debris Flow

The following are guidelines for what you should do if a landslide or debris flow occurs:

- Move away from the path of a landslide or debris flow as quickly as possible.
- Curl into a tight ball and protect your head if escape is not possible.

After a Landslide or Debris Flow

The following are guidelines for the period following a landslide:

- Stay away from the slide area. There may be danger of additional slides.
- Check for injured and trapped persons near the slide, without entering the direct

slide area. Direct rescuers to their locations.

- Watch for associated dangers such as broken electrical, water, gas, and sewage lines and damaged roadways and railways.
- Replant damaged ground as soon as possible since erosion caused by loss of ground cover can lead to flash flooding and additional landslides in the near future.
- Seek advice from a geotechnical expert for evaluating landslide hazards or designing corrective techniques to reduce landslide risk.

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Tsunamis

Tsunamis (pronounced soo-ná-mees), also known as seismic sea waves (mistakenly called "tidal waves"), are a series of enormous waves created by an underwater disturbance such as an earthquake, landslide, volcanic eruption, or meteorite. A tsunami can move hundreds of miles per hour in the open ocean and smash into land with waves as high as 100 feet or more.

From the area where the tsunami originates, waves travel outward in all directions. Once the wave approaches the shore, it builds in height. The topography of the coastline and the ocean floor will influence the size of the wave. There may be more than one wave and the succeeding one may be larger than the one before. That is why a small tsunami at one beach can be a giant wave a few miles away.

All tsunamis are potentially dangerous, even though they may not damage every coastline they strike. A tsunami can strike anywhere along

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most of the U.S. coastline. The most destructive tsunamis have occurred along the coasts of California, Oregon, Washington, Alaska, and Hawaii.

Earthquake-induced movement of the ocean floor most often generates tsunamis. If a major earthquake or landslide occurs close to shore, the first wave in a series could reach the beach in a few minutes, even before a warning is issued. Areas are at greater risk if they are less than 25 feet above sea level and within a mile of the shoreline. Drowning is the most common cause of death associated with a tsunami. Tsunami waves and the receding water are very destructive to structures in the run-up zone. Other hazards include flooding, contamination of drinking water, and fires from gas lines or ruptured tanks.

Familiarize yourself with these terms to help identify a tsunami hazard:

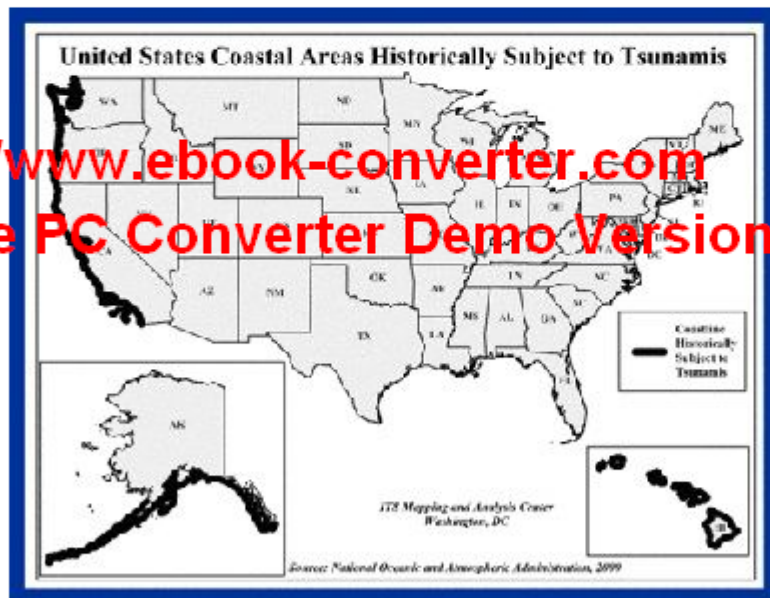
Advisory: An earthquake has occurred in the

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Pacific basin, which might generate a tsunami.

Watch: A tsunami was or may have been generated, but is at least two hours travel time to the area in Watch status.

Warning: A tsunami was, or may have been generated, which could cause damage; therefore, people in the warned area are strongly advised to evacuate.



Map of United States coastal areas that have historically been subject to tsunamis (FEMA)

Take Protective Measures During a Tsunami

The following are guidelines for what you should do if a tsunami is likely in your area:

- Turn on your radio to learn if there is a tsunami warning if an earthquake occurs and you are in a coastal area.
- Move inland to higher ground immediately and stay there.

CAUTION - If there is noticeable recession in water away from the shoreline this is nature's tsunami warning and it should be heeded. You should move away immediately.

After a Tsunami

The following are guidelines for the period following a tsunami:

- Stay away from flooded and damaged areas until officials say it is safe to return.
- Stay away from debris in the water; it may pose a safety hazard to boats and people.

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Save Yourself - Not Your Possessions

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Fires

Each year, more than 4,000 Americans die and more than 25,000 are injured in fires, many of which could be prevented. Direct property loss due to fires is estimated at \$8.6 billion annually.

To protect yourself, it is important to understand the basic characteristics of fire. Fire spreads quickly; there is no time to gather valuables or make a phone call. In just two minutes, a fire can become life-threatening. In five minutes, a residence can be engulfed in flames.

Heat and smoke from fire can be more dangerous than the flames. Inhaling the super-hot air can sear your lungs. Fire produces poisonous gases that make you disoriented and drowsy. Instead of being awakened by a fire, you may fall into a deeper sleep. Asphyxiation is the leading cause of fire deaths, exceeding burns by a three-to-one ratio.

Take Protective Measures Before a Fire

- **Emergency Fire Planning:**

- Review escape routes with your family. Practice escaping from each room.
- Make sure windows are not nailed or painted shut. Make sure security gratings on windows have a fire safety opening feature so they can be easily opened from the inside.
- Consider escape ladders if your residence has more than one level, and ensure that burglar bars and other anti-theft mechanisms that block outside window entry are easily opened from the inside.
- Teach family members to stay low to the floor (where the air is safer in a fire) when escaping from a fire.
- Clean out storage areas. Do not let trash, such as old newspapers and magazines, accumulate.

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- **Smoke Alarms:**

- Install smoke alarms. Properly working smoke alarms decrease your chances of dying in a fire by half.
- Place smoke alarms on every level of your residence. Place them outside bedrooms on the ceiling or high on the wall (4 to 12 inches from ceiling), at the top of open stairways, or at the bottom of enclosed stairs and near (but not in) the kitchen.
- Test and clean smoke alarms once a month and replace batteries at least once a year. Replace smoke alarms once every 10 years.

- **Flammable Items:**

- Never use gasoline, benzine, naphtha, or similar flammable liquids indoors.
- Store flammable liquids in approved containers in well-ventilated storage

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areas.

- Never smoke near flammable liquids.
- Discard all rags or materials that have been soaked in flammable liquids after you have used them. Safely discard them outdoors in a metal container.
- Insulate chimneys and place spark arresters on top. The chimney should be at least three feet higher than the roof. Remove branches hanging above and around the chimney.

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- **Heating Sources:**

- Be careful when using alternative heating sources.
- Check with your local fire department on the legality of using kerosene heaters in your community. Be sure to fill kerosene heaters outside, and be sure they have cooled.

- Place heaters at least three feet away from flammable materials. Make sure the floor and nearby walls are properly insulated.
- Use only the type of fuel designated for your unit and follow manufacturer's instructions.
- Store ashes in a metal container outside and away from your residence.
- Keep open flames away from walls, furniture, drapery, and flammable items.

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- Keep a screen in front of the fireplace.
- Have heating units inspected and cleaned annually by a certified specialist.
- **Matches and Smoking:**
 - Keep matches and lighters up high, away from children, and, if possible, in

a locked cabinet.

- Never smoke in bed or when drowsy or medicated. Provide smokers with deep, sturdy ashtrays. Douse cigarette and cigar butts with water before disposal.

- **Electrical Wiring:**

- Have the electrical wiring in your residence checked by an electrician.
- Inspect extension cords for frayed or exposed wire or bad plugs.
- Make sure outlets have cover plates and no exposed wiring.
- Make sure wiring does not run under rugs, over nails, or across high-traffic areas.
- Do not overload extension cords or outlets. If you need to plug in two or three appliances, get a UL-approved unit with built-in circuit breakers to

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prevent sparks and short circuits.

- Make sure insulation does not touch bare electrical wiring.

- **Other:**

- Sleep with your door closed.
- Install A-B-C-type fire extinguishers in your residence and teach family members how to use them.
- Consider installing an automatic fire sprinkler system in your residence.

- Ask your local fire department to inspect your residence for fire safety and prevention.

During a Fire

If your clothes catch on fire, you should:

- Stop, drop, and roll - until the fire is extinguished. Running only makes the fire burn faster.

To escape a fire, you should:

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- Check closed doors for heat before you open them. If you are escaping through a closed door, use the back of your hand to feel the top of the door, the doorknob, and the crack between the door and door frame before you open it. Never use the palm of your hand or fingers to test for heat - burning those areas could impair your ability to escape a fire (i.e., ladders and crawling).

- **Hot Door:** Do not open. Escape through a window. If you cannot escape, hang a white or light-colored sheet outside the window, alerting fire fighters to your presence.

- **Cool Door:** Open slowly and ensure fire and/or smoke is not blocking your escape route. If your escape route is blocked, shut the door immediately and use an alternate escape route, such as a window. If clear, leave

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immediately through the door and close it behind you. Be prepared to crawl. Smoke and heat rise. The air is clearer and cooler near the floor.

- Crawl low under any smoke to your exit - heavy smoke and poisonous gases collect first along the ceiling.
- Close doors behind you as you escape to delay the spread of the fire.
- Stay out once you are safely out. Do not reenter. Call 9-1-1.

After a Fire: The following are guidelines for different circumstances in the period following a fire:

- If you are with burn victims, or are a burn victim yourself, call 9-1-1; cool and cover burns to reduce chance of further injury or infection.
- If you detect heat or smoke when entering a damaged building, evacuate immediately.

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- If you are a tenant, contact the landlord.
- If you have a safe or strong box, do not try to open it. It can hold intense heat for several hours. If the door is opened before the box has cooled, the contents could burst into flames.
- If you must leave your home because a building inspector says the building is unsafe, ask someone you trust to watch the property during your absence.

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Returning Home

Returning home after a disaster can be both physically and mentally challenging. Above all, use caution.

General tips:

- Keep a battery-powered radio with you so you can listen for emergency updates and news reports.
- Use a battery-powered flash light to inspect a damaged home. (Note: The flashlight should be turned on outside before entering, the battery may produce a spark that could ignite leaking gas, if present.)
- Watch out for animals, especially poisonous snakes. Use a stick to poke through debris.
- Use the phone only to report life-threatening emergencies.
- Stay off the streets. If you must go out,

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watch for fallen objects; downed electrical wires; and weakened walls, bridges, roads, and sidewalks.

Before You Enter Your Home

Walk carefully around the outside and check for loose power lines, gas leaks, and structural damage. If you have any doubts about safety, have your residence inspected by a qualified building inspector or structural engineer before entering.

Do not enter if:

- You smell gas.
- Floodwaters remain around the building.
- Your home was damaged by fire and the authorities have not declared it safe.

Going Inside Your Home

When you go inside your home, there are certain things you should and should not do. Enter the home carefully and check for damage. Be aware of loose boards and slippery floors. The following items are other things to check inside

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your home:

- Natural gas. If you smell gas or hear a hissing or blowing sound, open a window and leave immediately. Turn off the main gas valve from the outside, if you can. Call the gas company from a neighbor's residence. If you shut off the gas supply at the main valve, you will need a professional to turn it back on. Do not smoke or use oil, gas lanterns, candles, or torches for lighting inside a damaged home until you are sure there is no leaking gas or other flammable materials present.

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- Sparks, broken or frayed wires. Check the electrical system unless you are wet, standing in water, or unsure of your safety. If possible, turn off the electricity at the main fuse box or circuit breaker. If the situation is unsafe, leave the building and call for help. Do not turn on the lights until you are sure they're safe to use. You may

want to have an electrician inspect your wiring.

- Roof, foundation, and chimney cracks. If it looks like the building may collapse, leave immediately.
- Appliances. If appliances are wet, turn off the electricity at the main fuse box or circuit breaker. Then, unplug appliances and let them dry out. Have appliances checked by a professional before using them again. Also, have the electrical system checked by an electrician before turning the power back on.

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- Water and sewage systems. If pipes are damaged, turn off the main water valve. Check with local authorities before using any water; the water could be contaminated. Pump out wells and have the water tested by authorities before drinking. Do not flush toilets until you know that sewage lines are intact.

- Food and other supplies. Throw out all food and other supplies that you suspect may have become contaminated or come in to contact with floodwater.
- Your basement. If your basement has flooded, pump it out gradually (about one third of the water per day) to avoid damage. The walls may collapse and the floor may buckle if the basement is pumped out while the surrounding ground is still waterlogged.
- Open cabinets. Be alert for objects that may fall.
- Clean up household chemical spills. Disinfect items that may have been contaminated by raw sewage, bacteria, or chemicals. Also clean salvageable items.
- Call your insurance agent. Take pictures of damages. Keep good records of repair and cleaning costs.

Be Wary of Wildlife and Other Animals

Disaster and life threatening situations will

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exacerbate the unpredictable nature of wild animals. To protect yourself and your family, learn how to deal with wildlife.

Guidelines:

- Do not approach or attempt to help an injured or stranded animal. Call your local animal control office or wildlife resource office.
- Do not corner wild animals or try to rescue them. Wild animals will likely feel threatened and may endanger themselves by dashing off into floodwaters, fire, and so forth.
- Do not approach wild animals that have taken refuge in your home. Wild animals such as snakes, opossums, and raccoons often seek refuge from floodwaters on upper levels of homes and have been known to remain after water recedes. If you encounter animals in this situation, open a window or provide another escape route

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and the animal will likely leave on its own. Do not attempt to capture or handle the animal. Should the animal stay, call your local animal control office or wildlife resource office.

- Do not attempt to move a dead animal. Animal carcasses can present serious health risks. Contact your local emergency management office or health department for help and instructions.
- If bitten by an animal, seek immediate medical attention.

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Longer Term Planning

At the beginning of this book we talked about having the very basics: a mere three days -- or 72 hours -- of food, water and other items that can help you through the immediate term following major disasters. Sometimes however, it's prudent to think a little longer term.

In fact, the U.S. government and FEMA now encourage Americans to have one to two weeks' worth of emergency supplies on hand just in case you're hit by a large enough scale disaster that it takes time for rescue workers to get to you. When Hurricane Katrina hit New Orleans in 2005, some people were left to fend for themselves for two full weeks.

A full five weeks after the earthquake and tsunami hit Japan in 2011, people were still living in emergency shelters and barely have enough food for one meager meal each day.

While you cannot plan for every conceivable

situation, you can try to plan for common ones. Even if you had a full month's worth of food and water on hand in your home, it would have done you no good at all if your home was one of those washed away completely in a tsunami like the one that hit Japan. In most cases however, having extra emergency supplies might make the difference between your family getting through the disaster relatively unharmed-or suffering through painfully.

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Several Weeks

Once you have an emergency three day supply of the very basics, start planning a strategy that will take care of your family for a full two to four weeks in the event of an extended emergency. All it takes is building upon what you've already started. Expand your emergency food storage, expand your water storage, and expand any medical, heating and cooking supplies you feel may be needed.

Regardless of whether you have chosen to approach your food storage from a rotational, continuous stocking or stock and store strategy, you can build from a three day extra supply to a multi-week extra supply by simply buying more at once or buying extra for a longer period of time. If for example, you're spending an extra \$5 or \$10 at the grocery store each week, continue that habit for however long it takes you to have at least two weeks' worth of extra basic foods on hand.

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Since many perishable items do not last two to four weeks without refrigeration, concentrate on adding shelf stable food items such as canned and jarred goods or dry goods.

Even if you have meat in the freezer, be sure to include canned meats as part of your emergency stockpile. If the electricity goes out and stays out for an extended period of time, frozen foods will go bad after the second or third day. Canned meat includes chicken, tuna, Spam, canned ham, corned beef, roast beef and different types of seafood. Most canned meat products are expensive so it's a good idea to include canned beans as an alternate source of protein in the event of an emergency. Canned soups and pasta meals sometimes have small amounts of meat in them as well, so stock up on as many of those as you can.

Canned fruits and vegetables aren't as tasty as fresh but they store well, are relatively inexpensive and provide you with nutrients in

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the event of an emergency. Other canned goods to consider storing include evaporated milk, gravy or sauce to liven up pasta or rice, broth and cream soups for cooking. If you have children you may want to consider stocking up on canned fruit juices and canned chocolate sauce as comfort foods.

Many dry goods can be stored for years if they're in sealed packages and kept in a cool, dark area of your home. The best dry goods to keep for emergency storage purposes are staples such as flour, sugar and salt. Packaged dry goods keep well too, but some need to be sealed into a plastic bag to prevent moisture from ruining the food. Dry packaged goods include rice or pasta meal mixes, dry breakfast cereal, crackers, nuts and dried fruits.

As previously mentioned, the type of food you store for emergency purposes depends on your and your family's personal likes, preferences and allergies. The best approach is usually to just

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buy more of the same types of things you already eat.

Getting together a full two to four weeks' worth of extra food can seem daunting both in cost and in storage space. Buying a little extra at a time is the friendliest approach for your budget, and the easiest to find storage space for as well. If you bring home ten extra boxes of cereal from the store you may have a difficult time figuring out how to fit all of them on the cereal shelf in your kitchen. If instead you bring one or two extra boxes at a time, you can fit them into the current storage system more easily.

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If you plan to store your extra food away from the everyday food it may not be as difficult to find places to store the extra, since you already have a separate designated space.

Don't forget to add more water to your emergency supplies while you're adding extra food. Put aside at least one gallon for each person in your household. A two week supply of

water for a family of four is 56 gallons.

As part of your longer term emergency planning, don't forget to stock up a little more on emergency first aid supplies, blankets, and cooking or heating fuels.

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Several Months

Once you have at least two to four weeks of emergency food, water, heating and cooking fuel, and any other emergency items stored that you feel are warranted, you may find yourself thinking farther into the future. Often being prepared in such a small way is empowering and makes you feel more secure about your life and the world in general.

Storing several months' worth of food and everyday household items is a tactic some people use to protect themselves against either unexpected natural disasters or personal household emergencies such as losing a primary source of income.

By storing three to six months' worth of food and other household essentials, you protect yourself from price fluctuations at the grocery store and you can take full advantage of sales cycles, buying everyday items when they're priced the lowest instead of buying them when

you run out.

Some people feel that having enough food, water and other household items on hand to last for several months is excessive. It's a personal opinion, and those who have lived through any major disaster or life altering event such as being unemployed for six months to a year might disagree.

Once you have your initial two week to one month supply of emergency items, you can begin expanding your larder so that it contains the essential ingredients to help you and your family through three to six months of hard times.

Storing three to six months of household essentials is fairly easy. You just do a bit of math, make a list, and then start purchasing items as the budget allows. If your household uses one 6-roll pack of toilet paper each week for example, then you know you need four packages to supply you for one month. If you want a three month supply you'll purchase 12 packages, and for a six

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month supply you'll need 24 packages. Take the same approach to other items you need and use regularly such as feminine supplies, shampoo and soap, and household cleaning materials. If you don't know how long it takes you to use a bottle of shampoo or a box of dishwashing powder, make a list and start keeping track. Start by buying one extra of each item; then as you gain knowledge about how quickly each thing is used, extrapolate it out to the number of months you want to have stored.

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Here's a list of common items to help you start planning:

- Toilet Paper
- Paper Towels
- Shampoo
- Soap, sanitizer, lotions and creams
- Dishwashing liquid
- Bleach, vinegar or lemon juice for sterilizing and cleaning

- Wet Wipes
- Cotton Swabs
- Toothpaste
- Over the Counter medications such as Tylenol or Advil
- Isopropyl alcohol and peroxide
- Band-Aids, sterile bandages, gauze and other basic first aid items

Depending upon how you and your family currently eat, food storage can be a bit more complicated for a three to six month period.

Stop and think about your life today: If you suddenly couldn't go to the store or the local fast food joint whenever you wanted, what would you do to feed yourself and your family for the next three months? What about the next six months? Do you know how to cook anything from scratch? Do you habitually pick up ready-made food or pop something in the microwave?

Many people find themselves learning new skills

and changing old habits when they decide they want to have the security of stored extra food in their home.

Stocking up on three to six months' worth of food means you will definitely have canned and dried goods. There is very little in the way of fresh food that can be stored that long. Many root vegetables can, mind you -- potatoes, carrots, and onions just to name a few -- if you have a cool, dark area to store them in such as a root cellar or a basement. Many foods can be stored in a freezer as well, but you run the risk of losing a lot of time and money investment if you lose electricity to the freezer for more than three days.

For a safe three to six month outlook on food, the simplest approach is to purchase more of the storable items you've already been buying. More canned goods, more dried goods, and more staples.

If you are so inclined -- and if your budget allows

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-- the easiest way to get a lot of emergency food stored fast and make the cooking learning curve easier on yourself in the future is to simply stock up on freeze dried ready-to-mix meals. As mentioned previously, this option has its good points and bad. The freeze dried options are generally very expensive, and depending on where you purchase them they might not actually contain as much food as you'd like. An emergency grab and go style bucket from Costco might advertise that it contains a three month supply of food for a family of four, but if each day's ration is a mere 500 calories you might be severely disappointed if you planned to use it as a fallback when a job layoff happens.

For extreme emergencies, any food is better than no food at all. For prudent preparation that can take care of you during emergencies or hard times, you'll be much happier without adding the stress of strange, unfulfilling foods.

With that said, freeze dried foods are an

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excellent choice for your emergency vehicle kit and bug out bags because they are lightweight and can be stored for a long time. Buy in small, individual meal packets if you can afford them, particularly to help lighten the load in your emergency bags.

Sensible long term food storage is the least expensive and most flexible when it's built around basic staples such as flour, sugar, honey, salt, pasta or rice, beans, and everyday boxed and dried goods your family enjoys.

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If you don't know how to cook foods from scratch -- or at least cook boxed and pre-packaged meals -- it's time to start learning. Most microwave meals are not made to be stored for very long and that's an expensive way to feed multiple people. Canned soups, stews and pasta meals are an option but the lack of variety can quickly cause problems, particularly when you're trying to coax young children to eat. How you choose to cook is a personal preference

that you should not let anyone chide you for. It doesn't matter if you prefer to bake cookies from a boxed mix or from scratch, the end result is still a batch of tasty cookies and the ingredients for each approach can be stored on a shelf without needing refrigeration. In both cases, baking your own cookies is still much cheaper than buying them already made, and the base ingredients can be stored much longer than the pre-made cookies can too.

The same applies to many common types of food.

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Basic spaghetti consists of dried pasta and either a can or a jar of pre-made spaghetti sauce -- both of which can be stored on a shelf for a year or more in the right conditions.

In most cases, the more you cook from complete scratch the longer you can store the items you use for cooking. White rice and dry beans last for 20 to 30 years when stored in the right conditions, as does sugar, vanilla extract and

baking soda. Several of these items are the base ingredients for making a cake or cookies. That means that as long as you have some basic staples on hand, and a little bit of know-how for cooking them, you can always feed yourself and your family.

If you purchase a cookie or cake mix in a box at the store, manufacturers claim it only keeps well for one to two years. Most dry goods of this sort are still useable past the "use by" or "best by" dates stamped on the package. They may go stale or clump up if they weren't stored well, but that doesn't make them unusable. So if you prefer cooking from a ready-made mix then buy those to stock up your home. Don't feel that you have to purchase basic staples just because they last longer or just because that's what everyone seems to think you should be storing.

One very important thing to know however, is that the healthier a basic staple is the shorter its shelf life is. White rice can be stored for 20 to 30

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years for example, but brown rice can only be stored three to six months. White flour can be stored for ten years or more, but wheat flour is also only good for about three to six months.

Since brown rice and wheat flour are both whole grains, they have not had their fiber, oil and other nutrition stripped from them. The natural oils tend to go rancid in a relatively short period of time. The life of whole grains can be extended by storing them in their whole form. Instead of storing wheat flour for example, store unground wheat berries. Whole wheat and other unground grains can be stored for 30 years or more in the proper conditions.

You can extend the life of ground wheat flour or brown rice by putting it into the freezer, but this only helps it keep an additional one to three months.

Here's a few basic food lists to help you start stocking your pantry with three to six months or more of food:

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- Basic Staples...

- Flour
- Sugar
- Salt
- Honey
- Baking Soda
- Vanilla Extract
- White Rice
- Dried Beans
- White pasta
- Shortening or Oil
- Bullion powder or cubes
- Dry Yeast
- Dry milk
- Spices and seasonings such as black pepper, chili powder, garlic powder, dried onion flakes, oregano, basil, etc.

- Basic Canned Goods...

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- Canned tuna, mackerel, sardines, etc.
- Corned Beef
- Roast Beef
- Spam luncheon meat
- Canned Ham
- Soups, stews and pasta
- Cream of soups (Cream of mushroom, celery, chicken, etc.)
- Chicken, beef and vegetable broth
- Canned sauces and gravies
- Canned beans (Seasoned chili beans, bean soup, plain beans)
- Canned vegetables
- Canned fruit
- Evaporated Milk
- Canned pie filling and other treats such as canned chocolate

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- Other everyday items...
 - Dry cereal
 - Instant or rolled oats
 - Nuts and trail mix
 - Pretzels and crackers
 - Peanut butter, jelly and jam
 - Granola bars
 - Jerky or other dried and seasoned meats

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- Dried fruits
- Baked cake, cookie and bread mixes
- Boxed flavored pasta or rice side meals
- Boxed flavored potato meals
- Hard candy, chocolate pieces and other comfort foods

How to Pay For It All

If you already struggle with a big weekly food bill you might be wondering exactly how you're supposed to pay for all of this extra. That's a very valid concern in today's economy and there are several approaches you can take that won't blow your budget and make the rest of your life more difficult.

1. A little at a time...

As mentioned throughout this book, even the tightest budget can adjust to make room for one to five dollars towards emergency supplies. It can take time to build up extra food and everyday toiletries when money is that tight, but every little bit counts. When you consistently spend a few dollars each week you'll quickly find yourself with more extra on hand than you thought you had.

Prices vary from one part of the country to another, but in general at the time of this writing, an extra \$5 per week can buy 5 lbs. of

dry spaghetti or macaroni, 5-10 lbs. of dried beans or rice, or 5-10 cans of basic canned vegetables, fruits, sauces or tuna. For more expensive items such as hamburger helper or flavored potatoes, you might only be able to purchase two to three boxes each week. Even if you can only buy one small can of Spam in a week, that's one more than you had previously so it's forward movement, and that's all you need.

2. Use coupons...

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In late 2010 and early 2011 coupons became all the rage. There's even a new TV show on cable called "Extreme Couponing." When you learn how to maximize the use of coupons you can save massive amounts of money. This approach is not for everyone because it does take some time to manage all of the coupons and sales ads, plus some people feel the only things they can get good deals on are junk foods.

If you're up to it, I'd strongly suggest trying it for

at least a month or two. It is downright amazing what types of deals you can find when you use coupons effectively.

I have personally ended up with free cans of soup, biscuits, soap and candy just by using coupons in conjunction with store sales. I've also gotten name brand dry cereal for \$0.75 a box, and name brand granola bars for \$0.30 a box.

The process can seem a bit complicated at first and some coupon advocates call things free that I don't personally consider free. To me, if I bring something to the cash register and after discounts or coupons I hand over no money at all... that is free. On extreme couponing-style websites however, you'll find people saying something is free because you got a voucher back that is worth equal to what you paid for the product.

Even if you're not inclined to learn all the ins and outs of getting the rock bottom deals with coupons, I'd strongly urge you to save coupons

for products you normally buy anyway, then keep your eye on your local store sales advertisements. If a box of cereal is on sale for \$2 and you have a coupon for \$0.50 off, that's a lot better than buying the same box of cereal next week for \$3 without any coupons or sales.

Even just partially using coupons when a sale is running will help stretch your \$5 weekly extras budget much farther, much faster.

3. Cook more from scratch...

This isn't for everyone but it has been a major tool in my arsenal over the last 20+ years. It was particularly helpful when all four of my children were home and eating like horses.

These days I only cook for myself, my husband and sometimes our dog, but I still save massive amounts of money by cooking a lot of our basics from scratch. I've been tracking the differences over the last six to 12 months and here is what I've found:

It costs me approximately \$2 per week to create

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all of these:

- 2 large loaves of bread OR about 16 large hamburger/sandwich rolls
- PLUS 16 tortillas
- PLUS about 4 dozen cookies

...and I still have enough left over to make basic cream gravy or cream based soups.

At the grocery store in early 2011, one loaf of bread is over \$1 and often closer to \$1.50. A dozen tortillas is also at least \$1.50 to \$2.00 and cookies are several dollars for less than a dozen.

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I get all of the above just by having a good supply of the basic staples on hand:

- Flour
- Sugar
- Baking powder OR baking soda and cream of tarter
- Yeast OR saved starter dough

- Salt
- Vanilla
- Water or Powdered Milk

So yes, cooking from scratch can save amazing amounts of money. It's not for everyone but it's worth considering, particularly if you find yourself needing to cut expenses extremely low or you have extra time on your hands.

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Kathy Burns-Millyard is a prolific professional writer and semi-professional photographer who specializes in writing non-fiction, self-help ebooks about health, herbal remedies, alternative energy, internet business and marketing, personal finance, sustainable living, homesteading and emergency preparation.

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Weather Disaster Glossary

Flood Terms

Flood Watch

Flooding is possible. Tune in to NOAA Weather Radio, commercial radio, or television for information.

Flash Flood Watch

Flash flooding is possible. Be prepared to move to higher ground; listen to NOAA Weather Radio, commercial radio, or television for information.

Flood Warning

Flooding is occurring or will occur soon; if advised to evacuate, do so immediately.

Flash Flood Warning

A flash flood is occurring; seek higher ground on foot immediately. Take Protective Measures

Tornado Terms

Tornado Watch

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Tornadoes are possible. Remain alert for approaching storms. Watch the sky and stay tuned to NOAA Weather Radio, commercial radio, or television for information.

Tornado Warning

A tornado has been sighted or indicated by weather radar. Take shelter immediately. Take Protective Measures

Hurricane Terms

Familiarize yourself with these terms to help identify hurricane hazards.

Tropical Depression: An organized system of clouds and thunderstorms with a defined surface circulation and maximum sustained winds of 38 MPH (33 knots) or less. Sustained winds are defined as one-minute average wind measured at about 33 ft (10 meters) above the surface.

Tropical Storm: An organized system of strong thunderstorms with a defined surface

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circulation and maximum sustained winds of 39–73 MPH (34–63 knots).

Hurricane: An intense tropical weather system of strong thunderstorms with a well-defined surface circulation and maximum sustained winds of 74 MPH (64 knots) or higher.

Storm Surge: A dome of water pushed onshore by hurricane and tropical storm winds. Storm surges can reach 25 feet high and be 50–1000 miles wide.

Storm Tide: A combination of storm surge and the normal tide (i.e., a 15-foot storm surge combined with a 2-foot normal high tide over the mean sea level created a 17-foot storm tide).

Hurricane/Tropical Storm Watch: Hurricane/tropical storm conditions are possible in the specified area, usually within 36 hours. Tune in to NOAA Weather Radio, commercial radio, or television for information.

Hurricane/Tropical Storm Warning: Hurricane/tropical storm conditions are

expected in the specified area, usually within 24 hours.

Short Term Watches and Warnings: These warnings provide detailed information about specific hurricane threats, such as flash floods and tornadoes.

Thunderstorm Terms

Severe Thunderstorm Watch: Tells you when and where severe thunderstorms are likely to occur. Watch the sky and stay tuned to NOAA Weather Radio, commercial radio, or television for information.

Severe Thunderstorm Warning: Issued when severe weather has been reported by spotters or indicated by radar. Warnings indicate imminent danger to life and property to those in the path of the storm.

Winter Storm/Extreme Cold Terms

Familiarize yourself with these terms to help identify a winter storm hazard:

Freezing Rain: Rain that freezes when it hits the ground, creating a coating of ice on roads, walkways, trees, and power lines.

Sleet: Rain that turns to ice pellets before reaching the ground. Sleet also causes moisture on roads to freeze and become slippery.

Winter Storm Watch: A winter storm is possible in your area. Tune in to NOAA Weather Radio, commercial radio, or television for more information.

Winter Storm Warning: A winter storm is occurring or will soon occur in your area.

Blizzard Warning: Sustained winds or frequent gusts to 35 miles per hour or greater and considerable amounts of falling or blowing snow (reducing visibility to less than a quarter mile) are expected to prevail for a period of three hours or longer.

Frost/Freeze Warning: Below freezing temperatures are expected.

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Extreme Heat Terms

Familiarize yourself with these terms to help identify an extreme heat hazard:

Heat Wave: Prolonged period of excessive heat, often combined with excessive humidity.

Heat Index: A number in degrees Fahrenheit (F) that tells how hot it feels when relative humidity is added to the air temperature. Exposure to full sunshine can increase the heat index by 15 degrees.

Heat Cramps: Muscular pains and spasms due to heavy exertion. Although heat cramps are the least severe, they are often the first signal that the body is having trouble with the heat.

Heat Exhaustion: Typically occurs when people exercise heavily or work in a hot, humid place where body fluids are lost through heavy sweating. Blood flow to the skin increases, causing blood flow to decrease to the vital organs. This results in a form of mild shock. If

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not treated, the victim's condition will worsen. Body temperature will keep rising and the victim may suffer heat stroke.

Heat Stroke: A life-threatening condition. The victim's temperature control system, which produces sweating to cool the body, stops working. The body temperature can rise so high that brain damage and death may result if the body is not cooled quickly.

Sun Stroke: Another term for heat stroke.

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Kindle PC Converter Demo Version Familiarize yourself with these terms to help identify an earthquake hazard:

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

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

Fault: The fracture across which displacement has occurred during an earthquake. The

slippage may range from less than an inch to more than 10 yards in a severe earthquake.

Epicenter: The place on the earth's surface directly above the point on the fault where the earthquake rupture began. Once fault slippage begins, it expands along the fault during the earthquake and can extend hundreds of miles before stopping.

Seismic Waves: Vibrations that travel outward from the earthquake fault at speeds of several miles per second. Although fault slippage directly under a structure can cause considerable damage, the vibrations of seismic waves cause most of the destruction during earthquakes.

Magnitude: The amount of energy released during an earthquake, which is computed from the amplitude of the seismic waves. A magnitude of 7.0 on the Richter Scale indicates an extremely strong earthquake. Each whole number on the scale represents an increase of

about 30 times more energy released than the previous whole number represents. Therefore, an earthquake measuring 6.0 is about 30 times more powerful than one measuring 5.0.

Tsunami Terms

Familiarize yourself with these terms to help identify a tsunami hazard:

Advisory: An earthquake has occurred in the Pacific basin, which might generate a tsunami.

Watch: A tsunami was or may have been generated, but is at least two hours travel time to the area in Watch status.

Warning: A tsunami was, or may have been generated, which could cause damage; therefore, people in the warned area are strongly advised to evacuate.

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