

Surviving the Storm

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Disaster comes in many forms — floods, high winds, mudslides, earthquakes, tornadoes — but all bring destruction. Taking steps now, can prevent some of the worst effects.

El Niño May Bring Heavy Rains and Floods....

Prepare Now

Residents of areas of the United States that are expected to be affected by unusual weather patterns caused by El Niño are urged to take steps now to protect their homes and families.

“It is less expensive to protect homes and property before they are damaged than to repair them afterwards,” James Lee Witt, director of the **Federal Emergency Management Agency (FEMA)**, said. “We hope that increased awareness of the possible effects of El Niño will encourage people to take measures to reduce possible damage in the future.”

The El Niño climate pattern, characterized by warm long-lived ocean currents, can mean heavier-than-normal precipitation and above-normal temperatures for many areas of the country. Wetter-than-usual weather is being predicted for the southern part of the United States, from California to the East Coast.

The peak impacts from El Niño are most likely to occur during the winter

months, beginning in November, when a stronger-than-normal jet stream is predicted to bring above-normal precipitation to the southwestern states. Other regions of concern are the coastal areas of southern California and the Gulf States, according to the National Climate Prediction Center.

Witt urged people to protect their property by purchasing flood insurance through the National Flood Insurance Program (NFIP), which is available to residents of communities that agree to adopt and enforce sound floodplain management practices. To find out more about flood insurance, call your insurance agent or the NFIP toll-free number, **1-800-427-4661**.

Other flood protection measures may include elevating electrical panels, water and heating systems and washers and dryers above flood levels and anchoring fuel tanks to keep them from floating and overturning.

The Most Common and Costly Disasters

Floods are the most common and widespread natural disaster. Most communities can experience some kind of flooding after spring rains, heavy thunderstorms or spring thaws. Floods can be slow- or fast-rising, but most often develop over a period of days.

Flash flooding is a rapid rise in water levels associated with heavy rainfall, failure of a dam or an ice jam.

Hurricanes are tropical weather systems that have sustained winds of 74 miles an hour or more. Hurricane winds blow in a large spiral around a relatively calm center, known as the eye. As a hurricane approaches, the sky will darken and winds will grow in strength. As a hurricane nears land, it can bring torrential rains and high winds.

Mudflows (or debris flows) are rapid movements of rock, earth and other debris saturated with water. They develop when the ground becomes saturated, such as during heavy rain or rapid snowmelt, changing the earth into a flowing river of mud or “slurry.” A slurry can flow rapidly down slopes or through channels and can strike, with little or no warning, at avalanche speeds.

Tornadoes are violent windstorms characterized by twisting funnel-shaped clouds. They are spawned by thunderstorms (or sometimes hurricanes) and produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly. Tornado season is generally March through August, although they can occur any time during the year. They tend to occur in afternoons and evenings. Over 80 percent of all tornadoes strike between noon and midnight.

By Fax, Phone and Internet

FEMA Information Available “Round the Clock”

If you need information about emergency preparedness, steps you can take to avoid disaster-related losses or how to get help after a disaster, FEMA is as close as your computer or fax machine.

Internet/World Wide Web

Find out more about who we are, what we do and how we can help. You can access nearly 4,000 files containing the latest emergency information, preparedness tips, storm information, press releases and an on-line edition of our newsletter *Recovery Times*. The new “FEMA for Kids” Internet site offers information on preparing for and recovering from disasters specifically for children from preschool through eighth grade. Our address on the World wide web is <http://www.fema.gov>.

FEMA Fax-on-Demand

To receive faxed copies of our news releases, advisories, historical data and emergency preparedness tips, call our 24-hour fax-on-demand number, **202-646-FEMA**.



A Message From

FEMA Director James Lee Witt

Much has been written about El Niño, the climate pattern that is expected to bring more than the usual amount of precipitation and above-normal temperature in many areas of the United States. What we must not lose sight of in talking about it is that there are many steps we can take right now to protect ourselves and our families from possible damaging effects from storms of any type.

Buying flood insurance is the first line of defense. Other steps can be as simple as sitting down with our families to design a disaster action plan to raising utilities out of harm's way. Details on what to do are contained in this publication.

No family or community can be completely safe from the effects of natural disasters, but we can prevent some serious damage.

Our long-range goal at FEMA is to build communities that are resistant to disaster. With the cooperation of federal and state agencies, local officials, businesses and emergency management agencies, we are making progress on this front. With your help, we can move further ahead.

If your area suffers from any type of natural disaster, I hope you will meet it knowing that you have done all you can to prepare.

Prepare a Family Disaster Plan

It is a good idea to develop a plan of action for you and your family to be ready for any type of disaster that could strike.

Household emergency plans should be kept simple. A disaster is extremely stressful, so the best emergency plans are those that are easy to remember.

Identify family meeting places in case you are separated. Choose two places, one right outside your home and the other in a building or park outside your neighborhood. The first site is where everyone should meet in case of a sudden emergency,

such as fire. The second is in case family members cannot get home. Everyone should be clear about these locations.

Be familiar with escape routes. Depending on the type of disaster, it may be necessary to evacuate your home or neighborhood. Plan several escape routes for different contingencies.

Maintaining a link to the outside can be crucial. Keep a portable, battery-operated radio. Be sure to keep extra batteries on hand and make sure family members know where the radio is kept.

Post emergency telephone numbers (fire, police, ambulance) by the telephone.

Teach children how to call 911 for help.

Teach household members how to turn off utilities.

Develop an emergency communication plan. In case family members are separated from one another, develop a plan for reuniting after the disaster. Ask an out-of-state relative or friend to serve as the family's contact. Make sure everyone knows the phone number of this contact.

Planning for a Disaster Could Save Your Business

If a storm is threatening the area where your business is located, take the following steps:

Photograph your business establishment, inside and out, from all angles, to help substantiate any insurance claim later.

Assemble papers, such as insurance policies, checkbooks and financial records, and pack them in waterproof containers.

Arrange to pay your employees, preferably in cash, because it may be some time before banking institutions reopen after a hurricane.

Clear out areas with extensive glass frontage, as much as possible. If you have shutters, use them. Otherwise, if high winds are expected, board up windows and glass doors.

Remove outdoor hanging signs.

Bring inside or secure any objects that might become airborne in strong winds or be carried away by flooding.

Secure showcases, turning the glass side toward an inside wall, where possible.

If floods or mudslides threaten, store as much merchandise as high off the floor as possible, especially goods that could be in short supply after a storm.

Secure generators, a long with fuel needed for its operation.

If you expect flooding, place all goods in warehouses above the water level.

Remove lower drawers from file cabinets and put them in plastic trash bags. Store them on top of cabinets.

Turn off gas, water heaters, stoves, pilot lights and other burners.



FEMA photo by Barb Sturmer

These home owners return to assess losses to their storm-damaged property.

Reducing Home Owners' Losses from Storms

In nearly every location across the country, home owners are at risk from a variety of hazards. Nearly every location in every state is at risk.

Flooding is by far the most prevalent, occurring to some degree in every state in the nation.

Forty-one states have a moderate or higher earthquake hazard.

Wildfires can occur anywhere that fuel exists and weather conditions are right. In addition, damaging high winds have caused destruction across the nation, particularly in coastal areas.

Given the hazards that are out there, homeowners need to take action to protect themselves and their property.

Fortunately, home owners can reduce their risk through cost-effective mitigation measures. Ideally, these measures should be considered before your home is built. For example, before making the decision to buy or build, potential home owners

should consider carefully the risks they would face by moving to certain high-hazard areas. Also, when building your home, pay close attention to how your home is being constructed.

Risks posed by all types of natural hazards (including floods, earthquakes, hurricanes, or wildfire) may be reduced substantially by paying attention to building codes and by incorporating mitigation measures into the structure.

If you have an existing home, however, all hope is not lost. There are many steps you can take to better protect yourself from future losses. Buildings subject to earthquakes or high winds may be strengthened to make them more resistant to a variety of hazards. In addition, simple steps can be taken within your home to make your property less susceptible to damages if a disaster occurs.

Included in this publication are some of these ideas. We urge you to read them — and then act on them.

Storm Preparations: Know What

Timely preparations, including taking measures to avoid the impact of severe weather, can help avert a tragedy. Experts agree that the following measures can be effective in dealing with the challenges of severe weather.

Before Severe Weather Arrives

Check your disaster supply kit to be sure you have drinking water, first-aid kit, food, a non-electric can opener, flashlight and extra batteries where you can get them easily, even in the dark.

Keep your car and other vehicles fueled and in good repair, with an emergency kit in each.

Get a NOAA Weather Radio to monitor severe weather.

Know safe routes from home, work and school to high ground, in event of flooding.

Review your family plan to be sure each member knows how to contact other

family members through an out-of-state contact in the event you become separated.

Know how to turn off gas, electric power and water in your home.

Know what you should do to help elderly or disabled friends, neighbors or employees.

Keep plastic sheeting, plywood and hand tools accessible.

Check your home to see doors and windows are secure, roof leaks are repaired, rain gutters are clear and your roof is securely anchored to withstand wind storms. Be sure water drains properly from your roof.

During Any Storm or Emergency

Monitor your NOAA Weather Radio or local radio and/or TV station for information and emergency instructions.

Have your emergency survival kit ready if you need to evacuate your home.

If advised to evacuate, tell others where you are going, turn off utilities and leave immediately, following routes designated by local officials.

During a Flood: If times permits, move valuable household possessions to an upper floor. Fill bathtubs, sinks, and jugs with clean water, in case the water supply becomes contaminated. Bring outdoor belongings, such as patio furniture, indoors.

If advised by local officials to evacuate, do so immediately. If outdoors, climb to high ground and stay there. Avoid areas subject to sudden flooding. Do not try to walk across running water more than 6 in. deep. Even 6 in. of rapidly running water can sweep you off your feet. Do not drive into flooded areas. If your car stalls, abandon it immediately if you can and seek higher ground. Many deaths have resulted from attempts to drive through high water or move stalled vehicles.

During a Landslide or Mudflow; If you are inside a building, stay inside.

Take cover under a desk, table or other piece of sturdy furniture.

If outdoors, run to the nearest high ground in a direction away from the path of the mudflow or landslide. If rocks or other debris are approaching, run for the nearest shelter, such as a group of trees or a sturdy building. If escape is not possible, curl into a tight ball and protect your head. Get behind a large object, such as a boulder.

During a Hurricane: Stay inside away from windows, skylights and glass doors. If power is lost, turn off major appliances to reduce the power surge when electricity is restored.

If time permits, elevate furniture to protect it from flooding or, better yet, move it to a higher floor. If told to evacuate your home, leave as soon as possible. Avoid flooded roads and watch out for washed out bridges.

After the Storm

Return home only after authorities advise it is safe to do so.

Use extreme caution when entering a building that was in the storm's path. Beware of snakes, insects or animals that may have come into your home with the storm.

Do not turn on electricity if you smell gas or if the electric system has been flooded. Do not handle electric equipment in wet areas.

Examine walls, floors, doors and windows to make sure the building is not in danger of collapsing. If flooded, open windows and doors to ventilate your home.

If the power has been off, check refrigerated food for spoilage. Throw away food—including canned food—that has come in contact with floodwaters.

Disinfect everything that was touched by floodwaters.

Take pictures of damage, to both the structure and its contents, for insurance purposes.

Roofs Most Prone to Wind Damage

Roofs are the portion of the house most prone to damage from high winds. Proper roof construction is essential. All lumber used in roof construction should be structural grade material.

The roof framing members should be properly tied with hurricane connections to the exterior walls and, in some cases, to the interior walls of the house.

The roof should have adequate ventilation to remove humidity and to help equalize the interior and exterior pressures. These vents should be properly sized and strategically located.

All construction must comply with your local building code and you should obtain all required permits from your local building department.

What to Do before the Storm Strikes



FEMA photo by Andrea Booher

Disaster planning should include all members of the family — including pets.

Pets Need Help, Too

As storms threaten, consider ways to protect your pets.

Put identification tags on animals.

Do not leave pets outside or tied on leashes.

If you plan to remain at home, bring pets inside with you. Have newspapers on hand for sanitary purposes. Feed the animals moist or canned food so they will need less water to drink.

As a rule, public shelters will not take pets.

If you are not going to stay in your home during the storm, arrange to leave your pets with your veterinarian or friends, or leave them loose inside your home with food and plenty of water. Remove the toilet tank lid, raise the seat and brace the bathroom door open so they can drink.

Assemble Disaster Supplies and Keep Them Handy

In a disaster, services may not be available, transportation may be cut off and roads may be blocked. Be ready to respond to any situation by assembling and maintaining a disaster supplies kit.

Water: Plan on having one gallon of water per day per person. Store water in clean plastic containers, such as soft drink bottles. Change the water every six months.

Food: Store at least a three-day supply of food that requires no refrigeration, cooking or preparation. Change the food every six months.

First Aid: Keep two complete first-aid kits — one in your home and the other in your car.

Supplies and Tools: Keep handy a battery-operated radio and flashlight (with extra batteries); a non-electric can opener and utility knife; matches in a waterproof

container; plastic sheeting; a wrench to shut off household gas and water; and an emergency preparedness manual.

Clothing and Bedding: Have on hand at least one complete change of clothing and footwear per person. Also have available rain gear, blankets or sleeping bags and cold weather clothing.

Sanitation: Your kit should include soap or liquid detergent and toilet paper or towelettes. Also, you will need personal items, such as toothpaste and toothbrushes, comb and brush. A small shovel for digging an expedient latrine and plastic garbage bags and ties, along with disinfectant and household chlorine bleach, are also recommended.

Special Items: Include items for household members with special needs, such as formula and diapers for babies or medications for elderly family members.

Surviving the Storm is a special edition of *Recovery Times*, developed by the **Federal Emergency Management Agency.**

Additional copies of *Surviving the Storm* are available by calling **1-800-480-2520**. Comments may be sent via the Internet to eipa@fema.gov or to FEMA, EIMA, 500 C St. S.W., Washington, D.C.20472.

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Flood Insurance Myths and Facts

MYTH: My standard home owners insurance will cover me if my house is damaged or destroyed in a flood.

FACT: Home owners insurance does not cover flood damage. Federal flood insurance, purchased through your insurance agent or company, is the only guaranteed flood insurance available for your home.

MYTH: Federal disaster aid, available during and after a flood, will reimburse me for losses. Therefore, I don't need to buy flood insurance for my home and belongings.

FACT: Federal Emergency Management Agency (FEMA) disaster aid is only available during presidentially declared disasters. Federal aid is usually in the form of a loan from the Small Business Administration (SBA) that you must pay back with interest. Flood insurance policies pay claims whether or not a disaster is declared.

MYTH: I live outside the floodplain, so I don't need to buy flood insurance.

FACT: Nearly 30 percent of the National Flood Insurance Program (NFIP) claims are for structures outside identified floodplains. People who face even low or moderate flood risks should get insurance, which can be purchased for as little as \$101 per year.

MYTH: I can't buy flood insurance because my home has been flooded previously.

FACT: If your community is participating in the NFIP, it doesn't matter that your home has been flooded before. You may still buy flood insurance.

MYTH: If people don't want to purchase flood insurance, it's their own business. It doesn't really affect me.

FACT: When people do not buy flood insurance, you pay more for federal and state disaster relief. Flood insurance is one of the best ways to keep disaster relief costs down for all taxpayers.

MYTH: Flood insurance is available only for home owners.

FACT: Flood insurance is available to protect homes, condominiums and nonresidential buildings, including farm and commercial structures, whether in or out of the floodplain, in participating communities. Contents coverage also is available, so renters can purchase coverage as well.

MYTH: If a flood is forecast in the near future, it's too late for me to purchase insurance.

FACT: You can purchase flood insurance anytime in a participating community. However, there is a 30-day waiting period after you have applied and paid the premium before the policy is in effect. The policy will not, however, cover a loss in progress.

MYTH: I can only buy federal flood insurance through the federal government.

FACT: You can buy federal flood insurance through most major private insurance companies and property insurance agents.

MYTH: The NFIP does not offer any type of coverage for basements.

FACT: Yes it does. The NFIP defines a basement as any area of a building with a floor that is below-ground level on all sides. Basement coverage under an NFIP policy includes clean-up expenses and repair or replacement of items used to service homes and buildings. These can include elevators, furnaces, water heaters, air conditioners, utility connections, circuit breaker boxes, pumps and tanks used in solar energy systems. Flood insurance will not cover the contents of a finished basement and basement improvements such as finished walls, floors and ceilings.

How to File a Flood Insurance Claim

If you have flood insurance, call your insurance agent to report your claim. The agent will prepare a Notice of Loss form and an adjuster will be assigned to assist you.

If possible, photograph the outside of the premises, showing the flooding and the damage. Also, photograph the inside of the premises, showing the damaged property and the height of the water.

Separate damaged from undamaged property. Put damaged property in the best possible order for the adjuster's examination.

Dispose of damaged property which

presents a health hazard or which may hamper clean-up operations. Be sure to describe adequately all discarded items so that when the adjuster examines your losses and your records, these articles are included in the documentation.

Compile a room-by-room inventory of missing or damaged goods and include manufacturers' names, dates and places of purchase and prices. Try to locate receipts or proofs of purchase, especially for large appliances.

When the adjuster visits your property, let him or her know if you need an advance or partial payment of loss. Good records can speed up settlement of your claim.

Danger: Flash Floods

Nearly half of all flash flood fatalities are automobile-related.

Water weighs 62.4 lbs. per cubic foot and typically flows downstream at 6 to 12 miles an hour.

When a vehicle stalls in water, the water's momentum is transferred to the car. For each foot the water rises, 500 lbs. of lateral force are applied to the car.

But the biggest factor is buoyancy. For each foot the water rises up the side of the car, the car displaces 1,500 lbs. of water. In effect, the car weighs 1,500 lbs. less for each foot the water rises.

Two feet of water will carry away most automobiles.



Heavy rains last winter brought flooding to large areas of northern California.

Inspecting Utilities in a Damaged Home

Check for gas leaks. If you smell gas or hear a blowing or hissing noise, open a window and quickly leave the building. Turn off the gas at the outside main valve if you can, and call the gas company from a neighbor's home. If you turn off the gas for any reason, it must be turned back on by a professional.

Look for electrical system damage. If you see sparks or broken or frayed wires, or if you smell hot insulation, turn off the electricity at the main fuse box or circuit breaker. If you have to step in water to get to the fuse box or circuit breaker, call an electrician first for advice.

Check for sewage and water line damage. If you suspect sewage lines are damaged, avoid using the toilets and call a plumber. If water pipes are damaged, contact the water company and avoid using water from the tap. You can obtain safe water by melting ice cubes.

Flood Insurance:

The Best Protection Money Can Buy

Most home owners policies do not cover flood damage. Fortunately, federally backed flood insurance protection is available through the National Flood Insurance Program (NFIP).

NFIP coverage is available from most property and casualty insurance agents or brokers.

Flood insurance is available for virtually any building that is walled, roofed and principally above ground, along with building contents. Separate policies are needed for each structure.

On a single-family home, you may purchase flood insurance coverage up to a maximum of \$250,000 on the structure and up to \$100,000 on the contents. If you are a business owner, the ceiling is \$500,000 on the building and \$500,000 on contents. If you are a renter, you can purchase coverage up to \$100,000 for personal belongings.

Mobile homes can be insured if they are on a permanent foundation and

anchored to resist flotation, collapse or lateral movement.

NFIP rates are set by the federal government. There is a 30-day waiting period from the date of purchase before coverage becomes effective.

If property is located in a designated high-risk flood area, flood insurance must be purchased to be eligible for any federally insured mortgage or construction loan.

Those who live in high-risk flood areas and receive federal disaster loans or grants are required to purchase and maintain flood insurance. Otherwise, many forms of disaster assistance may be denied in future floods.

All NFIP claims and operating expenses are paid by policy premiums. No federal tax dollars are used for this purpose.

For more information about flood insurance, call toll free **1-800-427-4661**.

To help you, FEMA will . . .

- Provide you with access to disaster assistance.
- Provide you with an opportunity to tell your story to a responsive FEMA representative.
- Treat you with respect and care.
- Give you clear, accurate information about available assistance and how to apply for it.
- Explain clearly what you need to do after registration, what you can expect from government agencies and how long the process should take.
- If you are eligible, provide you with disaster housing assistance as promptly as possible and give you an estimate of when you will receive assistance.
- Advise you on how to protect against future losses.
- Use your suggestions to improve our service.

Building for a Safer Future

Homes with rivers running through them. Buildings swept off their foundations. Appliances submerged and destroyed beneath raging waters.

Many storm victims endured such destruction during recent floods. But when you rebuild and repair, you can take steps to protect your property in the future.

“There are a number of low-cost measures that property owners can take to diminish the possibility of future damage,” Mike Armstrong, FEMA director of mitigation, said. “We are working closely with community leaders to help people find the best ways to stay safe and protect their families in future disasters.”

Methods for avoiding flood damage include elevating your entire home or relocating out of the 100-year floodplain. But there are also other relatively inexpensive ways to protect a home against flooding.

Relocate the electrical box to an upper floor or elevate the electrical box to 12 inches above the base flood elevation.

Relocate the water heater and heating systems to an upper floor where they will be at least 12 inches above the base flood elevation.

Anchor the fuel tank to the floor or wall to prevent it from overturning and floating. Metal structural supports and fas-



FEMA photo by Dave Gatley

High winds destroyed one house, but left another, that had been elevated, with only minor damage.

teners must be non-corrosive. Wooden structural supports must be pressure treated.

Install a floating floor-drain plug at the lowest point of the lowest finished floor to allow water to drain. When the floor drainpipe backs up, the float rises and plugs the drain.

Install an interior or exterior septic backflow valve to prevent sewer

backup from entering your home.

Properly anchor manufactured homes. Soil conditions and flood hazards are some of the many factors affecting the type of anchoring system needed.

“People should consider investing in a variety of hazard mitigation measures to reduce or eliminate the damaging effects of a flood,” Armstrong said.

How the Public Can Help after a Disaster

When disaster strikes, people everywhere want to help those in need. To ensure that this compassion and generosity are put to good use, keep these facts in mind.

Financial contributions should be made through recognized voluntary organizations to help ensure that contributions are put to their intended use.

Before donating food or clothing,

wait for instructions from local officials. Immediately after a disaster, relief workers usually don't have the time or facilities to set up distribution channels. Too often these items go to waste.

Volunteers should go through a recognized voluntary agency, such as the American Red Cross or the Salvation Army. They know what is needed and are prepared to deal with the need. Local emergency service

officials also coordinate volunteer efforts.

Organizations and community groups wishing to donate items should first contact local officials, the American Red Cross or the Salvation Army to find out what is needed and where to send donations. Be prepared to deliver items to one place. Tell officials when it will be delivered and provide the transportation and people to unload the shipment.