

FLOOD SAFETY AND PREPAREDNESS

PROTECTING YOURSELF, YOUR FAMILY, AND YOUR PROPERTY





BEING PREPARED

Flooding is the most common natural disaster in the United States, and one of the most damaging. Whether floodwater is an inch or several feet deep, the aftermath of a flood can be financially and emotionally devastating. By understanding your flood risks, you can develop a plan for before, during, and after a flood. Although you can't prevent a flood, you can take precautionary steps to keep your property—and your loved ones—safe.

The most important thing you can do to protect yourself, your family, and your property is be prepared. Start with these eight steps:

- **Understand your flood risk:** Consult flood maps to determine your flood zone and BFE. Familiarize yourself with the flood risks in your area.
- **Sign up for community warning systems:** Stay informed about flood warnings and evacuation orders. Register for alerts from local weather stations, emergency management departments, and the Federal Emergency Management Agency (FEMA).
- **Purchase flood insurance:** Most homeowners' and renters' insurance policies don't cover flood damage. Buy flood insurance through the National Flood Insurance Program (NFIP) to protect your property and belongings.
- **Chart and practice evacuation routes and emergency plans:** Identify safe evacuation routes and establish a meeting place for your family. Practice your evacuation plan regularly to ensure that everyone knows what to do in an emergency.
- **Create an emergency kit:** Pack essential items such as water, nonperishable food, first aid supplies, flashlights, batteries, and a battery-operated radio. Include necessities for pets, such as food, water, and medications.
- **Prepare your home:** Put valuables in a waterproof, fireproof safe on a higher level. Elevate furniture that isn't waterproof and secure outdoor furniture. Declutter drains and gutters to ensure proper water flow. Seal cracks in your foundation and around doors and windows.
- **Protect your documents:** Keep hard copies of important documents in a safe deposit box or waterproof and fireproof safe. Make digital backups of important documents and store them securely.
- **Build a rainy-day fund:** Save money for flood-related expenses, such as repairs and temporary accommodations.

Remember, preparation is key to minimizing the impact of a flood. By taking these steps, you can protect your family and property if there is a flood.

UNDERSTANDING YOUR FLOOD RISK

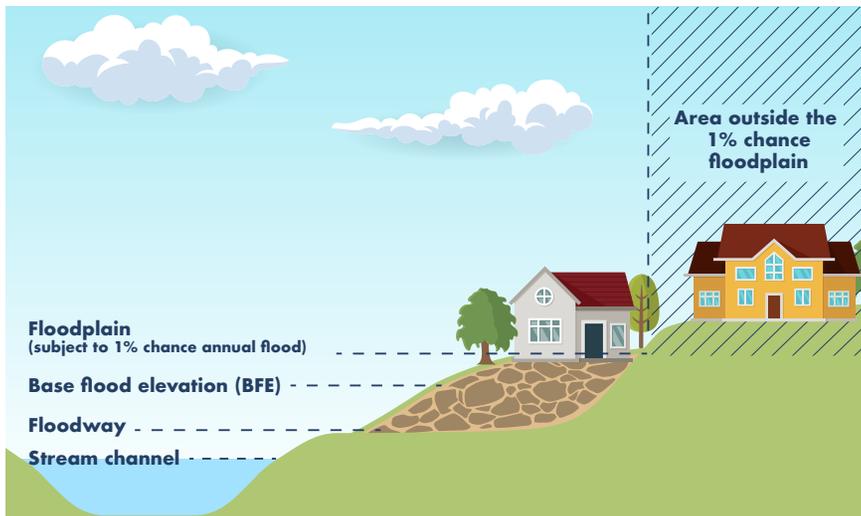
Start with four key data points to understand the flood risks you face:

Flood map: A flood map shows a community's risk of flooding and includes the area's flood zone, floodplain boundaries, and base flood elevation (BFE).

Flood zones: A flood map shows each community's flood zones, which describe the flood risk for a particular area (low risk, moderate risk, or high risk).

Base flood: The base flood is the national standard used by the NFIP and all federal agencies for the purposes of requiring the purchase of flood insurance and regulating new development. Also referred to as the "100-year flood," it refers to a significant flood that has a 1% chance of occurring in any given year. It does not mean that a base flood will occur or that once a storm of that magnitude has occurred, it will not happen again for another 100 years.

Base flood elevation (BFE): The BFE is the height to which floodwater is expected to rise during a base flood. This information is used to determine the risk of flooding for each structure.



BEING PREPARED: YOUR HOME

Preparing your home can go a long way toward minimizing damage from a flood and positioning you to recover more quickly. Although some bigger projects may take more planning and consideration, you can start simpler solutions right away.

Before making significant changes to your home, contact your local zoning office or city planner to understand building and permit requirements in your community. For construction, electrical, and plumbing projects, hire a licensed professional.

THINGS YOU CAN DO NOW

- **Move valuables** to higher levels in a waterproof and fireproof safe. Secure them to prevent them from being knocked over, broken, or washed away.
- **Elevate furniture that isn't waterproof.** After a flood, "soft" furniture such as sofas and mattresses that become wet often grow bacteria and mold and are unsafe to use.
- **Move cardboard boxes and other paper goods** off the floor onto metal or plastic shelves.
- **Secure outdoor furniture** to keep it from being washed away or causing damage or injury.
- **Learn to safely shut off your utilities**, because you may need to do this in the event of a flood.



PREPPING YOUR HOME: REGULAR MAINTENANCE

- **Declutter drains and gutters.** Keeping them clear lets water flow as intended.
- **Seal cracks in your foundation** and around doors and windows as you notice them to prevent water from getting in.
- **Be proactive about stormwater management.** Take the time to understand how stormwater travels and collects on your property. Undertake measures such as building rain gardens to divert water away from foundations or other areas where it could lead to flooding.
- **Increase the amount of permeable (pervious) surface area on your property.** A permeable surface allows stormwater to penetrate the surface and soak into the ground. Examples include pavers, rain gardens, grassy swales, and vegetated filter strips along paved areas and streams.

PREPPING YOUR HOME: RENOVATIONS

- **Elevate and anchor mechanical units,** furnaces, water heaters, electrical systems, and other utilities on masonry, concrete, or pressure-treated lumber at least 12 inches above the BFE of your home.
- **Use flood-resistant drywall** and insulation that can be easily cleaned and sanitized.
- **Install flood vents** in foundation walls, garages, and other enclosed areas to allow water to flow through and drain out; this will lower the risk of structural damage.
- **Waterproof your basement** by replacing carpet with tile. After a flood, tile floors can be dried, but carpet and carpet padding often must be ripped out and thrown away because of the risk of growing bacteria from floodwater.
- **Apply coatings and sealants** to your foundation, walls, windows, and doorways to help prevent floodwater from leaking into your house through cracks.
- **Install a sump pump** in your basement. Consider one that has a battery backup so it can continue pumping out floodwater even if you lose power.

YOUR DOCUMENTS

In an emergency, such as a flood, having access to key documents and identification will aid in disaster recovery. Organize and make copies of important documents and store them in a safe and secure place:

Identification: Passports, driver's licenses, birth certificates, Social Security cards, pet tags/chip registration numbers, and photos of you, your family, and your pets (to prove ownership).

Financial and legal documents: Insurance policies (health, life, homeowners', and flood), mortgage/rental documents, copy of most recent tax return, photos and/or videos of jewelry, art, major household items, and other valuables for help with filing insurance claims.

Medical information: Medical and vaccination records and physician contact information, especially if you have a disability or a serious or chronic health condition.

Emergency contacts: Loved ones, neighbors, schools, and workplaces.

Important memorabilia: Wedding album, photos, mementos, etc.

Passwords for online access: Bank accounts, medical portal, social media, etc.

Where you store these documents could be flooded or your computer could be ruined in a flood, so it's a good idea to have them in more than one place. You could keep another set of paper copies in a safe deposit box or make a password-protected digital backup. Ensure that any digital backups follow digital safety best practices to avoid cyber theft.



EMERGENCY KITS

Although most flood events won't require you to evacuate, a flood can disrupt your daily household activities, including accessing water, food, and power.

Pack the following items in airtight containers and store them in an easy-to-carry duffel or backpack. Update the contents annually to make sure all items are in good condition:

- **Water.** One gallon of water per person for several days is recommended for drinking and sanitation purposes. Keep gallon jugs of distilled water or a case of water bottles at home. Put a few bottles, as many as you can carry, in your emergency kit for evacuation purposes.
- **Food.** At least a three-day supply of nonperishable, canned or packaged food (such as protein bars, beans, tuna).
- **First aid kit.**
- **Hand sanitizer.**
- **Baby wipes and garbage bags** (for sanitation purposes).
- **Flashlight.**
- **Battery-operated or hand crank radio.**
- **Extra batteries.**
- **Whistle (to signal for help).**
- **Wrench/pliers.**
- **Manual can opener.**
- **Local maps.**
- **Plastic sheeting and duct tape.**
- **Dust masks.**
- **Blanket.**
- **Cell phone charger** with portable backup battery.
- **Pet supplies.** Water bowl, leash/carrier, toys, sanitation items such as poop bags or litter box and litter.

PREPARE YOUR CAR

Make sure your car is ready to go in a flood. If a flood is anticipated, ensure that your car's tank is at least half full so you can evacuate if you have to, and charge critical electronics like phones. Gas stations may be flooded, so plan accordingly.

Keep an emergency kit in your car. Build your kit based on your family's needs, including whether you have pets or children who will be traveling with you during an emergency. Some basics to include are drinking water, nonperishable food, cell phone chargers, flashlight and whistle, and reflectors or other tools to signal for help. Pack a blanket, tarp, and rain gear as well.



FLOOD INSURANCE

According to FEMA, just one inch of floodwater in your home can result in at least \$25,000 worth of damage, not to mention the substantial inconvenience of remediation and repair.

It's important to know that most homeowners' and renters' insurance policies don't cover flood damage. Read your current policies to understand what is and isn't covered. Flood insurance, frequently purchased through the NFIP, is a separate policy that will cover repair and replacement of your property and/or its contents following a flood. It's designed to restore your property to its pre-disaster condition.

The NFIP is managed by FEMA and works with a network of insurance companies to offer flood insurance policies.

Renters are encouraged to purchase contents-only flood insurance because even though the landlord likely has flood insurance for the building itself, it will not cover a renter's personal property. These policies typically cover furniture, clothes, televisions, computers, rugs, artwork, and more.

When purchasing flood insurance, read the policy and make sure you understand what the policy will cover and what it won't.

Most policies take up to 30 days to go into effect, so it's important to carry insurance early, not just when you suspect a flood may happen. Because flood risks change, check with your insurance agent during renewals to make sure you have the right type and right amount of coverage.

DISASTER ASSISTANCE

After certain floods, an area may be declared a federal disaster, which can lead to the availability of FEMA recovery funds. These funds are not a replacement for flood insurance. Instead, FEMA disaster assistance programs are designed to kick-start recovery by providing financial assistance and direct services. FEMA also partners with the Small Business Administration to offer low-interest disaster loans to homeowners and renters in declared disaster areas to help cover disaster-caused damage or items to help prevent future damage. If your area is declared a federal disaster, visit FEMA's website or contact your local government to find out about these programs.

PETS

While many pet owners have plans in place for themselves and their families, they often overlook the needs of their pets during emergencies. Pets are an important part of our lives and families, and ensuring their safety during a flood is important.

Make a plan: Collaborate with neighbors, friends, or relatives to ensure that someone reliable is available to care for or evacuate your pets if you can't.

Arrange a safe room: Identify a safe room in your home where your pets can stay during a flood. This room should be free of hazards such as tools, debris, and toxic products.

Build a kit: Just as you would for your family, create an emergency kit specifically for your pets. Think about the basics of animal survival, such as food and water. It's wise to have two kits: one larger kit to use if you're sheltering in place and a lightweight version for evacuation. Regularly review your kits to ensure that the contents, especially food and medicines, are fresh.

Pack copies of pet identification: Make sure you have access to your pets' registration information and vaccination records. Also keep copies of photos of your pets in case you get separated and need them for identification.

Bring pets indoors: Always bring pets indoors at the first sign or warning of a storm or disaster.

Considerations for large animals: If you own large animals, such as horses or livestock, additional steps are necessary. Evacuate large animals earlier whenever possible and map out primary and secondary routes in advance. Ensure that food, water, veterinary care, and handling equipment are available at their destinations.

Evacuating with your pet: Many public shelters and hotels don't allow pets inside, so it's essential to identify safe places where you can take your pets before a disaster happens. Plan ahead and make a list of addresses and contact numbers of all the places you can take your pet in an emergency. This list should include pet-friendly shelters, hotels, and homes of friends or relatives.

Service animals: If you have a service animal, make sure you pack documentation of this in your emergency kit and keep digital copies in an easily accessible place.

DURING A FLOOD

Floodwater is deceptively powerful due to its swift and forceful flow, even if it's shallow. Just six inches of water can make maintaining balance or stability difficult or even knock you off your feet. Twelve inches of water can wash away a car. Additionally, floodwater can carry heavy debris, animals, and objects. Its power should never be underestimated, and it's crucial to avoid all contact. Do not attempt to navigate floodwater.

EVACUATION

Stay aware. Check emergency channels and remain informed about flood warnings and evacuation orders in your area so you can act promptly if necessary.

Follow the instructions of your local emergency officials. If you don't heed evacuation warnings and follow safety instructions, you may put your life and the lives of others, including first responders, at risk. Follow routes given by emergency officials—shortcuts can lead to blocked or dangerous areas.

Sandbag your home. If time permits, put sandbags around the outside of your home.

Turn off utilities. If it can be done safely, you may need to shut off the main power source, gas, and water valves in anticipation of a flood.

IF YOU'RE IN YOUR CAR

Never drive through floodwater. Just 12 inches of water can carry away your car. Pay attention to barricades. Local responders use them to safely direct traffic out of flooded areas. Stay off bridges over fast-moving water, which can be washed away without warning. If your car is trapped in rapidly moving water, stay inside. If water is rising inside the vehicle, climb onto the roof. Signal for help or call 911.

FLOODWATER

Avoid contact with floodwater: Don't walk, swim, or drive through floodwaters, which can be deceptive and dangerous. Stay away from flooded areas and barricaded roads to prevent accidents, and keep children and pets away from floodwater.

Electrical safety: Stay clear of downed power lines and report them to the authorities. Do not touch electrical equipment if it's wet or if you're standing in water. To prevent electric shock, turn off electricity to your home if it's safe to do so.

Contaminants and health risks: Understand that floodwater may contain hazardous substances, chemicals, sewage, and other contaminants. Avoid contact with floodwater to minimize the risk of illness or infection. Wash your hands thoroughly with soap and clean water after any contact with floodwater.

Structural hazards and debris: Be cautious about potential structural damage caused by flooding that may weaken buildings, bridges, or roads. Don't enter damaged buildings or other structures until they've been deemed safe by professionals, and watch out for debris and sharp objects in floodwater that can cause injuries.

Animal and insect hazards: Be aware of displaced animals, insects, and reptiles in floodwater. Avoid contact with wild or stray animals, which may be aggressive or carry diseases. Take precautions to prevent animal bites or stings.

Emotional well-being: Floods can be emotionally distressing. Reach out to friends, family, or support services for emotional support. Take care of your mental health and seek professional help if you need it.

IF YOU'RE TRAPPED IN YOUR HOME

If you're unable to safely evacuate, move to the highest level of the building. Don't go into a closed attic because of the risk of being trapped there with floodwaters. Go onto the roof only if necessary. Call 911.

ELECTRICAL SAFETY

Electricity and water don't mix. Electrical hazards can cause serious injury or even death during a flood. Understanding how to mitigate these risks before, during, and after a flood is crucial.

BEFORE A FLOOD

Utility shutoff: Learn how to safely turn off your home's utilities. You may need to shut off the main power source, gas, and water valves in anticipation of a flood.

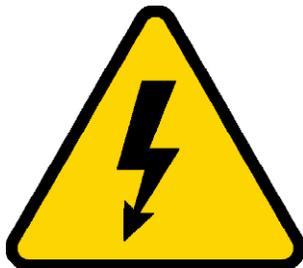
Elevate electric appliances: Ensure that your electrical system, including circuit breakers and appliances, is elevated above potential flood levels if you live in a flood-prone area.

Install GFCI outlets: Ground fault circuit interruption (GFCI) outlets are often found in kitchens, bathrooms, and other places where electricity might come into contact with water. They sense any difference between the amount of electricity leaving and entering a circuit. If electricity comes in contact with water, some of it will travel through the water to the ground, creating a differential, and the outlet will shut off.

DURING THE FLOOD

Avoid electrical systems: Don't touch electrical equipment, including the circuit breaker, if it's wet or you're standing in water.

Stay away from power lines: Be vigilant about looking for downed power lines and avoid them at all costs. Assume all wires on the ground are electrically charged.



AFTER A FLOOD

Wait for inspection: Don't turn on the main power switch immediately after flooding. To be safe, wait for a licensed electrician to inspect your home's electrical system.

Inspect appliances: Have an electrician check all electrical appliances that were wet during the flood. Moisture can damage internal components, creating a risk of shock or fire. Some may require reconditioning, and others might need to be replaced.

Professional assistance: Always seek professional help for electrical repairs. Don't attempt to make them yourself.

Make safety your top priority: If in doubt, always consult with a professional electrician. Stay safe and prepared.

GENERATOR SAFETY

As you enter the cleanup phase, you may turn to generators to power appliances before power returns or before it's safe to turn on an electrical system. However, it's important to use them safely to protect yourself, your family, and your community.

Don't use generators in flooded areas, and ensure that power cords running from them don't get wet.

Carbon monoxide: To avoid the risk of carbon monoxide poisoning, portable generators should always be run outdoors, at least 25 feet away from your home. Never operate them in enclosed spaces such as garages and basements or under covered areas outside. Always direct the exhaust away from open windows and doors, and close all windows and doors closest to or downwind of the generator.

Before the power returns: Don't use a generator to power your house until its electrical systems have been deemed safe by an electrician.

Backfeed: Always connect a generator through a transfer switch installed by a licensed electrician. Never try to power your house through the dryer outlet or any other outlet. Doing that can cause backfeed, which is when electricity you're running through your home makes its way to outside power lines, reenergizing them. Backfeed is extremely dangerous, and you could be found liable if someone is hurt or killed.

AFTER A FLOOD

Returning to your home after it's been flooded can be heart wrenching. The floodwaters have receded, but the damage left behind can pose numerous health and safety risks. It's crucial to approach this task with caution and knowledge.

RETURNING TO YOUR HOME

Return during daylight: Always return during the daytime when visibility is better and there's no need to use artificial lighting, which can be dangerous, especially with a damaged electrical system.

Use flashlights: In the event of a power outage, use flashlights instead of candles to prevent the risk of fire.

Electrical safety: The danger of electric shock is still present. Don't turn on the power until it's been inspected by an electrician. Avoid water that may contain underground wires or downed power lines. When using equipment such as fans or wet-dry vacuums, don't allow power cord connections to become wet. Before turning on appliances and electronics that were wet or submerged, have an electrician inspect them. If you see frayed wiring or sparks once your power is restored, or if you smell something burning, immediately shut off the electrical system at the main circuit breaker.

Gas leaks: Be vigilant about paying attention to the smell of gas or hissing noises. If you suspect a gas leak, exit immediately. Notify the gas company or emergency services and wait for their clearance before returning.

Air out your home: A closed-up home can accumulate harmful gases. Before spending a significant amount of time inside, open doors and windows to ventilate it for at least 30 minutes.

Safe water use: Floodwater can compromise drinking water sources. Follow local advisories on water safety. Use only bottled, boiled, or treated water for drinking and personal hygiene until your supply is declared safe.

Wells: Have wells tested for bacteria and chemicals before using them again.

Food safety: Discard food that has come into contact with floodwaters or spoiled due to power outages. When in doubt, throw it out.

Assume mold presence: Flooded homes, especially those closed up for days, are prone to mold. Wear protective clothing and a mask when cleaning.

CLEANING UP

Wear protective gear: Wear protective clothing, heavy work gloves, boots, goggles, and a mask to help protect against dangerous debris and contaminants, such as mold, bacteria, asbestos, lead, and chemicals that can result in respiratory issues, wound infections, skin rash, gastrointestinal illness, tetanus, and other serious complications.

Find the right mask: Regardless of how long you plan to be in a building where mold could be present, the CDC recommends wearing an N95 mask or a respirator with a higher protection level. If you're cleaning up mold or spending more than four hours in the location with mold, the CDC recommends reusable half-face respirators and full-face respirators. Always research the right type of mask for the contaminants you're likely to encounter, and follow the safety instructions for fitting the mask tightly to your face to get the maximum protection.

Water removal: Use wet-dry vacuums, sump pumps, or other water-removal equipment to clear standing water. Ensure electrical safety by using generators only outdoors, away from windows, doors, and vents.

Contaminated surfaces: Floodwaters often carry sewage and other contaminants. Treat all surfaces as potentially contaminated and clean accordingly.



Mold: Mold is a fungus that grows and thrives in moisture. It is common after a flood because of the excess moisture that remains even after floodwater recedes. According to the EPA, if you're not able to thoroughly dry the inside of your home within 24 to 48 hours after a flood, you should assume that you have mold growth.

Mold remediation: All mold must be removed before repairs can begin. Painting or caulking over it will not prevent it from growing. Carpet, ceiling tiles, and other porous surfaces may have to be thrown away if they become moldy. Mold can grow in the empty spaces and crevices, and it may be difficult or impossible to remove completely. Consider hiring a mold remediation contractor.

Discarding unsafe possessions: Certain items that were submerged in or soaked through with floodwater should be thrown away because they could grow bacteria and become unsafe to use. These include "soft" furniture such as mattresses, pillows, and cloth furniture, along with leather sofas, wood-veneer furniture, and medicines.

Ventilation: To prevent mold growth, ventilate your home as much as possible by opening windows and using fans and dehumidifiers.

Make your health your priority: Floodwaters and the stress of dealing with a flood can affect your health. Pay attention to your physical and emotional well-being, and seek professional help if you need it.

FINANCIAL

Begin the financial recovery process as soon as possible by filing your claim with your flood insurance agent. Be prepared to provide a copy of your flood insurance policy along with the notes and photographs you've taken. Also, visit the FEMA website and search "disaster assistance" or call the FEMA hotline to find out if a disaster has been declared in your area and whether you're qualified to apply for assistance. If you're not, FEMA can recommend other resources that may help you with your recovery.

Document everything. Start with the date of the flood, the source of the flooding, and when the water began to recede. Include as much detail as you can. This will be helpful if you file an insurance claim.

Photograph the following:

- Flooded areas inside and outside your home
- Structural damage that appears to be caused by the floodwater, such as new cracking in the walls or walls that have moved
- Any preexisting damage
- Possessions that were damaged
- A debris line or any visible high-water marks

RESOURCES

Visit these sites for additional information:

CENTERS FOR DISEASE CONTROL AND PREVENTION

www.cdc.gov/mold

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

www.fema.gov

Helpline: 800-621-3362

FEMA NATIONAL FLOOD INSURANCE PROGRAM

www.fema.gov/flood-insurance

NATIONAL FLOOD INSURANCE PROGRAM

www.floodsmart.gov

NATIONAL WEATHER SERVICE

www.weather.gov

U.S. DEPARTMENT OF HOMELAND SECURITY

www.disasterassistance.gov

www.ready.gov

U.S. ENVIRONMENTAL PROTECTION AGENCY

www.epa.gov/flooded-homes

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