

# WASHINGTON STATE GUIDE TO WEATHER SAFETY



WILL YOU BE  
PREPARED?

# What to do *before* severe weather strikes

## Weather Safety

This guide explains weather-related disasters and suggests life-saving actions you can take. With this information, you can recognize severe weather, develop a plan, and be ready to act when threatening weather approaches. Remember... your safety depends on the actions you take before disaster strikes. Included in this preparedness guide:

**NOAA Weather Radio**  
**Family Disaster Plan**  
**Disaster Supplies Kit**  
**9-1-1**  
**Power Outage**  
**Severe Hot Weather**  
**Severe Cold Weather**  
**Windstorms**  
**Winter Storms**  
**Ice and Snow**  
**Thunderstorms**  
**Lightning**  
**Tornadoes**  
**Floods and Flash Flooding**

## Prepare

Disasters disrupt hundreds of thousands of lives every year. Each disaster has lasting effects—people are seriously injured, some are killed, and property damage runs into the millions of dollars.

Being prepared and understanding what to do can reduce fear, anxiety and losses that accompany disasters. You should know how to prepare for severe weather. This guide can help.

# Stay Calm

In any situation, staying calm is the most important factor in getting through the crisis. Being able to think clearly, focusing on immediate needs, knowing what to do and when to do it will help you and your family. The emotional toll that disaster brings can sometimes be more devastating than the financial strains of damage and loss of home, business or personal property. Keep in mind that children, the elderly and people with special needs also may need your help — your ability to remain calm will help them remain calm as well.

Responding to stress during a crisis really begins before the crisis. By maintaining a healthy life-style, and preparing now, you will be better prepared to cope with unexpected situations.

# Organize

First, ask your local emergency management office which weather-related disaster could strike your community. They will know your community's risks.

Use this guide as your foundation. Since special conditions exist in every community, local instructions may be different from those described here. If so, follow local instructions.

Consider learning more about emergency preparedness as a Citizen Corps community volunteer. For information about the Citizen Corps and FEMA's Community Response Team program, visit [www.citizencorps.com](http://www.citizencorps.com).

# NOAA Weather Radio (NWR)

Providing continuous broadcasts of weather and other hazard information, NOAA Weather Radios are:



**“The Voice of NOAA’s  
National Weather Service”**



**NWR is a nationwide network of radio stations broadcasting National Weather Service warnings, watches, forecasts and other hazard information 24 hours a day.**

Working with the Federal Communication Commission’s Emergency Alert System, NWR is an “all hazards” radio network, making it your single source for comprehensive weather and emergency information. NWR broadcasts warning and post-event information for all types of hazards—both natural (such as severe winter weather) and environmental (such as chemical releases/oil spills).

Broadcast range from a NOAA Weather Radio transmitter is approximately 40 miles.

Weather radios equipped with a special alarm tone feature can sound an alert and give immediate information about a life-threatening situation.

The hearing and visually impaired also can receive alerts by connecting weather radios with the appropriate plug-in to other kinds of attention-getting devices, such as strobe lights, pagers, bedshakers, personal computers and text printers.

Weather radios come in many sizes and with a variety of functions and costs; from simple, battery-operated portables, to CB radios, scanners, short wave sets, and in some cars and TVs.

**Weather Radios are available at most radio electronic retailers and Internet outlets.**

NOAA Weather Radio broadcasts NOAA's National Weather Service **Warnings** (when the specific hazard is a significant threat to public safety and/or property, probability of occurrence and certainty of location is high, and the onset time is relatively short), **Watches** (when conditions are favorable for the hazard but either the start time, probability of occurrence or location is uncertain), **Forecasts** and **Non-weather Hazards** information 24-hours a day.

An **Emergency** refers to an event that by itself would not kill, injure or do property damage but indirectly may lead to other things that could result in a hazard.

**SAME\* (Specific Area Message Encoding)** technology lets listeners pre-select the NOAA's National Weather Service and non-weather alerts they want to receive, based on the county where they live. Warnings, watches, and statements that may activate the NWR SAME system include, but are not limited to, the following events:

## Weather hazards

Tornado Warning	Tornado Watch
Severe Thunderstorm Warning	Severe Thunderstorm Watch
Flood and Flash Flood Warning	Flood and Flash Flood Watch*
Severe Weather Statement	Flash Flood Statement*
Special Marine Warning*	Winter Storm Warning*
Hurricane Warning	Hurricane Statement*
Tropical Storm Warning	Tropical Storm Watch

## Hazards relayed from local authorities

Avalanche Watch*	Avalanche Warning
Child Abduction Emergency	Civil Danger Warning
Civil Emergency Message	Law Enforcement Warning
Evacuation Immediate	Shelter in Place Warning
Hazardous Materials Warning	9-1-1 Telephone Outage Emergency
Nuclear Power Plant Warning	Radiological Hazard Warning

\*NWR SAME activation determined by local needs.

# Prepare

## Family Disaster Plan

Where will your family be when disaster strikes? They could be anywhere—at work, at school, or in the car. How will you find each other? Will you know if your children are safe? Disaster may force you to evacuate your neighborhood or confine you to your home. What would you do if basic services—water, gas, electricity, or telephones—were cut off?

Families should be prepared for all hazards that could affect their area. NOAA's National Weather Service, the Federal Emergency Management Agency, and the Washington Emergency Management urge every family to develop a family disaster plan.

If a disaster occurs in your community, local government and disaster-relief organizations try to help you. But you need to be ready as well. Local responders may not be able to reach you immediately, or they may need to focus their efforts elsewhere. You should be ready to be self-sufficient for at least three days. This may mean providing for your own shelter, first aid, food, water and sanitation.

### Follow these 4 steps to develop and maintain a family disaster plan:

#### **1. Gather information about hazards.**

Contact your local emergency management office, and American Red Cross chapter. Find out what type of disasters could occur and how you should respond. Learn your community's warning signals and evacuation plans.

#### **2. Meet with your family to create a plan.**

Discuss the information you have gathered. Pick two places to meet: a spot outside your home for an emergency, such as fire, and a place away from your neighborhood in case you can't return home. Choose an out-of-state friend as your "family check-

in contact” for everyone to call if the family gets separated. Discuss what you would do if advised to evacuate. Check with your veterinarian for animal care instructions in an emergency situation.

### **3. Implement your plan.**

- Post emergency telephone numbers by phones;
- Install safety features in your house, such as smoke detectors and fire extinguishers;
- Inspect your home for potential hazards (such as items that can move, fall, break, or catch fire) and correct them;
- Have your family learn basic safety measures, such as CPR and first aid; how to use a fire extinguisher; and how and when to turn off water, gas, and electricity in your home;
- Teach children how and when to call 9-1-1 or your local emergency medical services number;
- Keep enough supplies in your home to meet your needs for at least three days. Assemble a disaster supplies kit with items you may need in case of an evacuation. Store these supplies in sturdy, easy-to-carry containers, such as backpacks or duffle bags. Include important family documents in a waterproof container. Keep a smaller disaster supplies kit in the trunk of your car.

### **4. Practice and maintain your plan.**

Ask questions to make sure your family remembers meeting places, phone numbers, and safety rules. Conduct drills. Test your smoke detectors monthly and change the batteries 2 times each year. Test and recharge your fire extinguisher(s) according to manufacturer’s instructions. Replace stored water and food every 6 months. Contact your local office of emergency management for additional information or assistance.

# Supplies

## Disaster Supplies Kit

Disasters happen anytime and anywhere. And when disaster strikes, you may not have much time to respond. A winter storm could confine your family at home. A flood, tornado or any other disaster could cut off basic services for days. Your family will cope best by preparing for disaster *before* it strikes. If you've gathered supplies in advance, your family can endure an evacuation or home confinement. Place the supplies you'd most likely need for an evacuation in an easy-to-carry container, such as a duffle bag. These supplies are listed with an asterisk (\*).



### To prepare your kit

- Prepare to be on your own for at least 3 days.
- Beyond basic needs, choose items for your specific family.
- Gather the supplies that are needed if you must evacuate.
- Store your kit in a convenient place known to all family members. Keep a smaller version of the kit in the trunk of your car.
- Change your stored water supply every 6 months so it stays fresh.
- Rotate your stored food every 6 months.
- Re-think your family needs, and replace batteries once a year.
- Ask your pharmacist about storing prescription medications.

### Water

Store water in plastic containers such as soft drink bottles. Avoid using containers that will decompose or break, such as milk cartons or glass bottles.

- Store 1 gallon of water per person per day (2 quarts for drinking, 2 quarts for food preparation and sanitation)\*

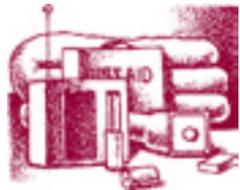
### Food

Select foods that require no refrigeration, preparation or cooking and little or no water, such as:

- Ready-to-eat canned meats, fruits and vegetables.\*
- Canned juices, milk, soup (if powdered, store extra water).\*
- Staples: sugar, salt, pepper.\*
- High energy foods: peanut butter, granola bars, trail mix.\*
- Foods for infants, elderly persons or persons on special diets.\*
- If you must heat food, pack a can of sterno.
- Comfort foods: cookies, hard candy, sweetened cereals, lollipops, instant coffee, tea bags.

### Important items for your family

- First aid kit and first aid manual.\*
- Battery operated radio and extra batteries\*
- Flashlight and extra batteries.\*
- Cash, change for phones.\*
- Infant diapers, bottles, medications.\*
- Heart and high blood pressure medication.\*
- Prescription drugs.\*
- Denture needs.
- Contact lenses and supplies.
- Extra eye glasses.\*
- At least one complete change of clothing/footwear per person.\*
- Sterile adhesive bandages in assorted sizes, hypoallergenic tape.\*



- Sturdy shoes or work boots, work gloves.\*
- Rain gear.\*
- Blankets or sleeping bags.\*
- Scissors, tweezers, needle.
- Matches in a waterproof container.\*
- Antiseptic; petroleum jelly or other lubricant.
- Thermometer.
- Assorted sizes of safety pins.
- Personal cleansing agent/soap.\*
- Aspirin or nonaspirin pain reliever.\*
- Anti-diarrhea medication.
- Antacid (for stomach upset).
- Syrup of Ipecac (use to induce vomiting if needed).
- Laxative.
- Toilet paper, towelettes.\*
- Soap, liquid detergent.\*
- Feminine supplies.\*
- Personal hygiene items.\*
- Plastic bags for sanitation.\*
- Plastic bucket with tight lid for wastes.\*
- Disinfectant.\*
- Household chlorine bleach without perfume.
- Paper cups, plates and plastic utensils.\*
- Non-electric can opener, utility knife.\*



### **Other supplies**

- Thermal underwear.
- Sunglasses.
- Latex gloves (2 pair).
- Sunscreen.
- Needles, thread.
- Fire extinguisher, small canister, ABC type.
- Wrench (to turn off utilities), pliers.
- Whistle.
- Plastic sheeting and duct tape.
- Map of the area (for locating shelters).\*
- Tube tent.\*
- Compass.\*
- Aluminum foil.
- Plastic storage bags for food.\*
- Signal flare.\*
- Entertainment: games and books.\*



### **Take copies of these records in a waterproof container\***

- Important telephone numbers.\*
- Will, insurance policies, contracts, deeds, stocks and bonds.\*
- Passports, social security cards, immunization records.\*
- Family records (birth, marriage, death certificates).\*
- Bank account numbers.\*
- Credit card account numbers and companies.\*
- Inventory of valuable household goods.\*

# 9-1-1

During large scale disasters or emergency situations, the State Enhanced 9-1-1 Office in cooperation with local telephone carriers reminds all citizens in the affected area:

- **To stay off the telephone unless you have a critical need to make a telephone call.** Remember a FAX or a computer also uses a telephone line and its use may affect your ability to get immediate help in a life-threatening emergency.
- **DO NOT call 9-1-1 unless you need an emergency response from police, fire or emergency medical personnel.**
- If you experience other types of problems not related to these emergency services, call the appropriate telephone number for those services.
- **DO NOT call 9-1-1 unnecessarily.** 9-1-1 lines must be kept open for people who have a true emergency.
- If you pick up your telephone to make a call and do not hear a dial tone, **DO NOT HANG UP.** Simply wait a few seconds, and you will get a dial tone and be able to make your call.
- If you are experiencing a power outage, your interconnectivity to **Voice over Internet Protocol (VoIP)** service could be down. Since not all VoIP phone services offer access to 9-1-1, be aware in advance of an emergency if your VoIP phone service is capable of getting your 9-1-1 call to the correct answering center.
- **Do you have an out-of-area contact?** In an emergency, local phone lines could be jammed. If you have a friend or relative to call long distance, you should be able to get through. Your family can leave messages for each other and let people know that they are okay.

# Power OUTAGE

Everyone experiences power interruptions from time to time. Many of these outages come at times of weather extremes or accompany various disasters. When the power is out, safety becomes a major concern. The following information is meant to help you when the lights go out.

- **Have an alternate heat source and supply of fuel.**
- Consider purchasing a generator, especially if someone in the house requires life-sustaining equipment that runs on electricity.
- When installing generators, follow the manufacturer's instructions very carefully.
- **Register life-sustaining and medical equipment with your utility company.**
- If your house is the only one without power, check your fuse box or circuit breaker panel. Turn off appliances before replacing fuses or resetting circuits.
- If power is out in the neighborhood, disconnect all electrical heaters and appliances to reduce the initial demand and protect the motors from possible low voltage damage.
- Unplug computers and other voltage-sensitive equipment to protect them against possible surges when the power is restored.
- **Conserve water, especially if you are on a well.**
- Keep your refrigerator and freezer doors closed. If the door remains closed, a fully loaded freezer can keep foods frozen for two days.
- **Never use a charcoal barbeque inside the home.**
- If you use candles for light, keep in mind they can cause a fire. It's far better to use battery-operated flashlights or glow sticks for alternative lighting.
- **If you use a kerosene heater, gas lantern or stove inside the house, maintain ventilation to avoid a build up of toxic fumes.**
- If your power is out, leave one light switch in the on position to alert you when services are restored.
- If you own an electric garage door opener, learn how to open the door without power.
- **Prepare a power outage kit, and make it a part of your disaster preparedness kit.** Consider having light sticks, flashlights, a battery-powered radio with extra batteries, and a wind-up clock as a part of the kit.
- Have a corded telephone available; remember that cordless phones will not work when the power is out.

# Windstorms

Although the Pacific Northwest escapes the threat of hurricanes, the region is no stranger to strong, damaging winds. Each fall and winter season, several Pacific low pressure systems impact the Pacific Northwest, producing strong winds to 60 mph, and causing some power outages and property damage. About once every decade, storms with powerful winds of 70 mph or more pound the region, producing significant property damage.

On Columbus Day, October 12, 1962, the strongest non-tropical windstorm ever to hit the lower 48 states in recorded American history struck the Pacific coast. The storm claimed 46 lives, injured hundreds more, and knocked power out for several million people.

## Facts about windstorms

- Falling trees or blowing debris cause most fatalities, and also cause severe damage to buildings and vehicles.
- Power pole and line damage cause widespread power outage.
- Failure of roof cover and structures can lead to additional damage and entry of wind and rain into the house.
- Garage doors are the weakest link in the outer structure of a house. Failure at this point has a domino effect.
- Exterior load-bearing walls of buildings can fail resulting in the collapse of the roof.
- Weathered, loose window frames are exceptionally vulnerable during severe wind storms.
- A light metal building can totally collapse.
- Office buildings are generally structurally sound, but broken windows cause injuries inside and outside the building, leading to water damage.
- Bus stop shelters and other common areas where people seek shelter are vulnerable and could collapse, resulting in significant injuries and fatalities.

## What to do before a windstorm

- Contact your local emergency management office or the National Weather Service to find out what types of storms are most likely to occur in your community.
- Contact vendors to know the proper use of home generators.
- Find out who in your area might need special assistance, specifically the elderly, disabled, or non-English speaking neighbors.
- If you live on a coastal or inland shoreline, be familiar with evacuation routes.
- Know what emergency plans are in place at your workplace, school and daycare center.
- Conduct a home safety evaluation, including the garage door, and nearby trees.
- If you have an electric garage door opener, locate the manual override.

# Severe Hot Weather

Severe heat may cause illness or even death. When temperatures rise to extreme highs, reduce risks by taking the following precautions.

## **Precautions to reduce the risk of heat stroke**

- Stay indoors and in an air-conditioned environment as much as possible unless you're sure your body has a high tolerance for heat.
- Drink plenty of fluids but avoid beverages that contain alcohol, caffeine or a lot of sugar.
- Eat more frequently but make sure meals are balanced and light.
- Never leave any person or pet in a closed, parked vehicle.
- Avoid dressing babies in heavy clothing or wrapping them in warm blankets.
- Check frequently on people who are elderly, ill or may need help. If you might need help, arrange to have family, friends or neighbors check in with you at least twice a day.
- Salt tablets should only be taken if specified by your doctor. If you are on a salt-restrictive diet, check with a doctor before increasing salt intake.
- If you take prescription diuretics, antihistamines, mood-altering or antispasmodic drugs, check with a doctor about the effects of sun and heat exposure.
- Cover windows that receive morning or afternoon sun. Awnings or louvers can reduce the heat entering a house by as much as 80 percent.

## **If you go outside**

- Plan strenuous outdoor activities for early or late in the day when temperatures are cooler; then gradually build up tolerance for warmer conditions.
- Take frequent breaks when working outdoors.
- Wear a wide-brimmed hat, sun block and light-colored, loose-fitting clothes when outdoors.
- At first signs of heat illness (dizziness, nausea, headaches, muscle cramps), move to a cooler location, rest for a few minutes and slowly drink a cool beverage. Seek medical attention immediately if you do not feel better.
- Avoid sunburn: it slows the skin's ability to cool itself. Use a sunscreen lotion with a high SPF (sun protection factor) rating.
- Avoid extreme temperature changes. A cool shower immediately after coming in from hot temperatures can result in hypothermia, particularly for elderly or very young people.

## **If the power goes out or air conditioning is not available**

- If air conditioning is not available, stay on the lowest floor out of the sunshine.
- Ask your doctor about any prescription medicine you keep refrigerated. (If the power goes out, most medicine will be fine to leave in a closed refrigerator for at least 3 hours.)
- Keep a few bottles of water in your freezer; if the power goes out, move them to your refrigerator and keep the doors shut.

# Severe Cold Weather

## Injuries related to cold

- 50% happen to people over 60 years old.
- More than 75% happen to males.
- About 20% occur in the home.

**FROSTBITE** is damage to body tissue caused by extreme cold. A wind chill of -20° Fahrenheit (F) will cause frostbite in just 30 minutes. Frostbite causes a loss of feeling and a white or pale appearance in extremities, such as fingers, toes, ear lobes or the tip of the nose. If symptoms are detected, get medical help immediately! If you must wait for help, slowly rewarm affected areas. However, if the person is also showing signs of hypothermia, warm the body core before the extremities.

**HYPOTHERMIA** is a condition brought on when the body temperature drops to less than 95°F. **It can kill.** For those who survive, there are likely to be lasting kidney, liver and pancreas problems. Warning signs include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness and apparent exhaustion. Take the person's temperature. If below 95°F, seek medical care immediately!

**IF MEDICAL CARE IS NOT AVAILABLE,** warm the person slowly, starting with the body core. Improperly warming the body will drive cold blood from the extremities to the heart, leading to heart failure. If necessary, use your body heat to help. Get the person into dry clothing and wrap in a warm blanket covering the head and neck. Do not give the person alcohol, drugs, coffee or any hot beverage or food.

**WIND CHILL** is not the actual temperature but rather how wind and cold feel on exposed skin. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature. Animals are also affected by wind chill; however, cars, plants and other objects are not.



## Wind Chill Chart



		Temperature (°F)																	
		40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
Wind (mph)	5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
	10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
	15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
	20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
	25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
	30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
	35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
	40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
	45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
	50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97	
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98	

Frostbite Times
 30 minutes
  10 minutes
  5 minutes

**Wind Chill (°F) = 35.74 + 0.6215T - 35.75(V<sup>0.16</sup>) + 0.4275T(V<sup>0.16</sup>)**  
 Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

# Winter Storms

## The Deceptive Killers

This preparedness guide explains the dangers of winter weather and suggests life-saving action YOU can take. With this information, you can recognize winter weather threats, develop an action plan and be ready when severe winter weather threatens. Remember... your safety is up to YOU.

### Why talk about winter weather?

- Each year, dozens of people die due to exposure to cold. Add to that number, vehicle accidents and fatalities, fires due to dangerous use of heaters and other winter weather fatalities and you have a **significant** threat.
- Threats, such as hypothermia and frostbite, can lead to loss of fingers and toes or cause permanent kidney, pancreas and liver injury and even death.
- A major winter storm can last for several days and be accompanied by high winds, freezing rain or sleet, heavy snowfall and cold temperatures. People can become trapped at home or in a car, without utilities or other assistance.
- Attempting to walk for help in a winter storm can be a deadly decision.
- Avoid physical exertion when outdoors during severe cold weather.

### Keep ahead of the storm

Listen to your NOAA Weather Radio, commercial radio and television for the latest winter storm warnings, watches and advisories.

### What to listen for

- **OUTLOOK:** Winter storm conditions are possible in the next 2-5 days. Stay tuned to local media for updates.
- **WATCH:** Winter storm conditions are possible within the next 36-48 hours. Have your Disaster Supplies Kit handy.
- **WARNING:** Life-threatening severe winter conditions have begun or will begin within 24 hours. Act now!
- **ADVISORY:** Winter weather conditions are expected to cause significant inconveniences and may be hazardous. If you are cautious, these situations should not be life threatening.

### What to do before a winter storm threatens

You can avoid the dangers and discomfort by preparing **before** winter weather arrives.

- Prepare to survive on your own for at least 3 days.
- Replenish your Disaster Supplies Kit and gather warm clothing.
- Maintain several days' supply of water, prescriptions, medicines, and food that needs no cooking or refrigeration.
- Have sufficient heating fuel; regular fuel sources may be cut off.
- Keep fire extinguishers on hand, and make sure your household knows how to use them.
- Winterize your home to extend the life of your fuel supply.

# Ice and Snow

Heavy accumulations of ice can bring down trees and topple utility poles and communication towers. Ice can disrupt communications and power for days while utility companies repair extensive damage. Even small accumulations of ice can be extremely dangerous to motorists and pedestrians. Bridges and overpasses are particularly dangerous because they freeze before other surfaces.

## Injuries due to ice and snow

- About 70% result from vehicle accidents
- About 25% occur in people caught out in a storm
- Most happen to males over 40 years old

## OUTSIDE

### Find shelter:

- Try to stay dry.
- Cover all exposed body parts.

### No shelter:

- Build a lean-to, windbreak or snow cave for protection from the wind.
- Build a fire for heat and to attract attention.
- Place rocks around the fire to absorb and reflect heat.

### Melt snow for drinking water:

- Eating snow will lower your body temperature.

## IN A VEHICLE

### Stay in vehicle:

- You will become quickly disoriented in wind-driven snow and cold.
- Run the motor about 10 minutes each hour for heat.
- Open the window a little for fresh air to avoid carbon monoxide poisoning.
- Make sure the exhaust pipe is not blocked.

### Be visible to rescuers:

- Turn on the dome light at night when running the engine.
- Tie a colored cloth, preferably red, to your antenna or door.
- After snow stops falling, raise the hood to indicate you need help.

### Exercise:

- From time to time, move arms, legs, fingers and toes vigorously to keep blood circulating and to keep warm.

## INSIDE

### Stay inside:

- When using alternate heat from a fireplace, wood stove, space heater, etc., use fire safeguards and properly ventilate.

### No heat:

- Close off unneeded rooms.
- Stuff towels or rags in cracks under doors.
- Cover windows at night.
- Eat and drink. Food provides the body with energy for producing its own heat. Keep the body replenished with fluids to prevent dehydration.
- Wear layers of loose-fitting, lightweight, warm clothing. Remove layers to avoid overheating, perspiration and subsequent chill.

## AVOID OVEREXERTION

Avoid shoveling heavy snow, pushing a car or walking in deep snow. The strain from the cold and the hard labor may cause a heart attack. Sweating could lead to a chill and hypothermia. Take Red Cross Cardiopulmonary Rescue (CPR) and Automated External Defibrillator (AED) training so you can respond quickly to an emergency.

## PROTECTION FOR YOUR PETS

- Keep indoor pets in a dry, warm area free of drafts. Elevate your pet's bed off the floor.
- Provide outdoor dogs or cats with a dry, insulated pet house or shelter out of the wind. Staying warm demands extra calories, so feed your pet accordingly whenever temperatures drop. Bring your pet inside if the wind chill or other weather conditions become severe.
- Remove ice, salt and caked mud from your pet's paws and coat at once. Contact your veterinarian immediately if you suspect your pet has frostbite. Frostbitten skin may turn reddish, white or gray, and it may be scaly or sloughing.
- Cats and kittens often take shelter on car engines. Knock on the hood or honk the horn, then wait a few minutes before starting the car.
- Pets like the smell and taste of antifreeze, but even a small amount can kill them. Thoroughly clean up spills at once. Tightly close containers and store them where pets cannot get to them.
- Always have fresh, clean water available.

# Thunderstorms and Lightning

All thunderstorms are dangerous. Every thunderstorm produces lightning. 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. 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.

## 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.

## 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.

### Before a thunderstorm strikes

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). However, the steel frame of a hard-topped vehicle provides increased protection if you are not touching metal.
- Remember, rubber-soled shoes and rubber tires provide NO protection from lightning.
- 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.
- Use your battery-operated NOAA Weather Radio for updates from local officials.

### **During a thunderstorm**

**If you are:**      **Then:**

*In a forest*      Seek shelter in a low area under a thick growth of small trees.

*In open area*      Go to a low place such as a ravine or valley.  
Be alert for flash floods.

*On open water*      Get to land and find shelter immediately.

### **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.
- Anything metal—tractors, farm equipment, motorcycles, golf carts, golf clubs, and bicycles.
- Anywhere you feel your hair stand on end (which indicates that lightning is about to strike) 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.**

### **Aid for victims of lightning**

- Call 9-1-1 for medical aid immediately.

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.

# Tornadoes

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.

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.

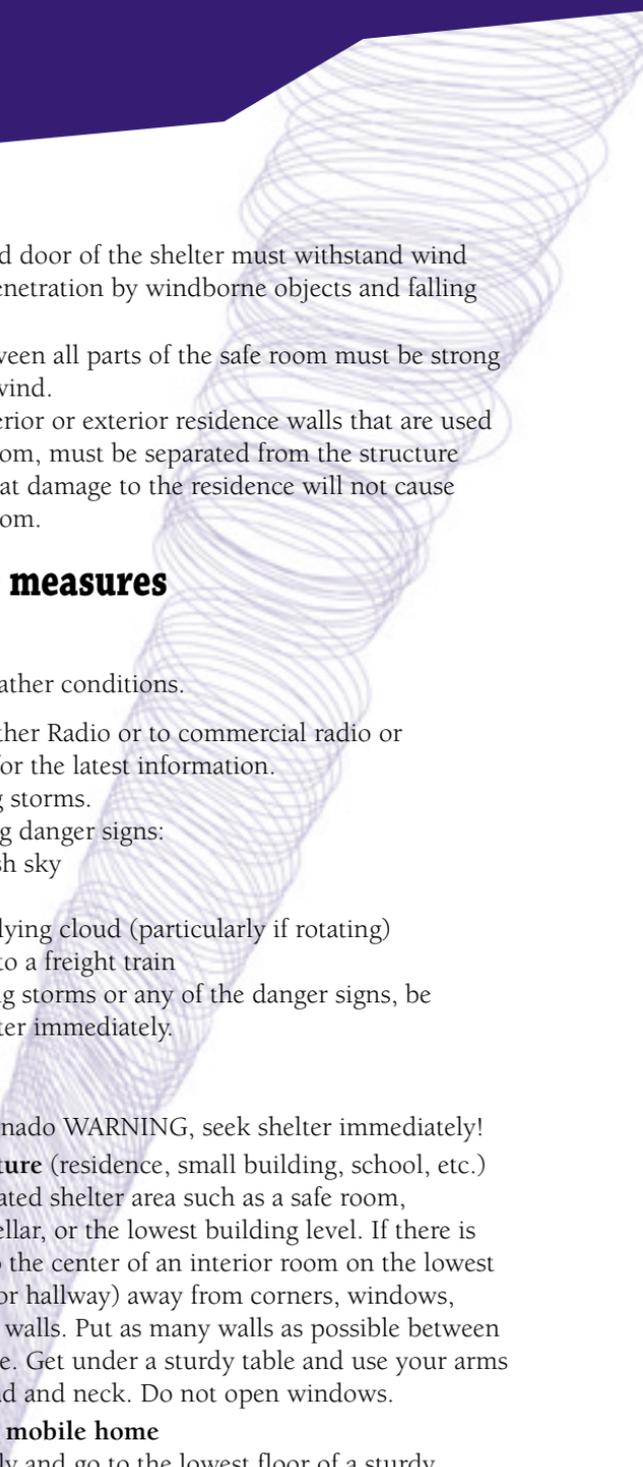
## **The following are facts about tornadoes:**

- 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.
- 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 have occurred in every state, but most frequently 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.

## **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. The purpose of a safe room or a wind shelter is to provide a space where you 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.

- 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 door 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 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.

## **Take protective measures**

### **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** (residence, small building, school, etc.)
  - 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.
- **A vehicle, trailer, or mobile home**
  - 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.
- **The outside with no shelter**
  - 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.

# Floods and Flash Flooding

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.

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.

## Driving flood facts

- 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. There is no tire friction once water has lifted the vehicle off the road.
- Two feet of moving water can carry away most vehicles including sport utility vehicles (SUV's) and pick-ups.
- Nearly half of all flood fatalities are vehicle related.
- 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.
- Barricades are put up for your protection. Turn around and go another way!

## Before a flood

- 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 waterproofing compounds to avoid seepage.

## During a flood

- 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 streams, 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**

- 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.
- 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.

## **After a flood**

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

## **Flood insurance**

- Flood losses are not covered under homeowners' insurance policies.
- FEMA manages the National Flood Insurance Program, which makes federally-backed flood insurance available in communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage.
- Flood insurance is available in most communities through insurance agents.
- There is a 30-day waiting period before flood insurance goes into effect, so don't delay.
- Flood insurance is available whether the building is in or out of the identified flood-prone area.

**For additional information, visit these Websites:**

- Washington Military Department,  
Emergency Management Division . . . . . [www.emd.wa.gov](http://www.emd.wa.gov)
- National Oceanic and Atmospheric Administration . . . . . [www.noaa.gov](http://www.noaa.gov)
- National Weather Service . . . . . [www.nws.noaa.gov/stormready](http://www.nws.noaa.gov/stormready)
- Federal Emergency Management Agency . . . . . [www.fema.gov](http://www.fema.gov)
- Homeland Security Ready Campaign . . . . . [www.Ready.gov](http://www.Ready.gov)  
    Ready Campaign in Spanish . . . . . [www.Listo.gov](http://www.Listo.gov)
- Citizen Corps . . . . . [www.citizen corps.gov](http://www.citizen corps.gov)



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