



GET READY!

WINTER STORMS AND EXTREME COLD

Most of the United States is at risk for winter storms. Severe storms can cause dangerous or life-threatening conditions. The dangers include blinding wind-driven snow, extreme cold, ice road conditions, avalanches, and downed trees and power lines. It's important to prepare before the winter storm season.

Before

- Stay informed of winter weather.
- Keep a sufficient supply of heating fuel. Consider storing a back-up fuel, such as a good supply of dry, seasoned wood for your fireplace or wood stove.
- Winterize your home. Insulate walls and attics, caulk and weather-strip doors and windows, and install storm windows or cover windows with plastic.
- Insulate pipes with insulation or newspaper and plastic and allow faucets to drip a little during cold weather to avoid freezing.
- Learn how to shut off water valves in case a pipe bursts.
- Winterize your car. Keep a shovel, a windshield scraper, and a small broom in your vehicle.
- Add rock salt, sand, and shovels to your emergency supplies kit, as well as extra socks, hats, mittens, and blankets.

During

- Conserve fuel.
- Stay safe and dry indoors.
- If you are outside, cover your mouth, keep dry, and avoid overexertion. Dress for the weather, wear layers, mittens, and a hat.
- Watch for signs of frostbite, including loss of feeling and white or pale extremities. If you detect any symptoms, seek immediate medical attention.
- Watch for signs of hypothermia, including uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness, and apparent exhaustion. Get the victim to a warm location; remove any wet clothing; put the person in dry clothing and wrap their entire body in a blanket; warm the center of the body first; give warm, non-alcoholic or non-caffeinated beverages; and seek medical attention.
- Drive only if absolutely necessary. If you become trapped while you have a cell phone, call 9-1-1, explain your situation, and tell them to try to track your location by the phone signal. If you must drive,

travel during the day; don't travel alone; keep others informed of your schedule; and stay on main roads.

- If a blizzard traps you in your car, pull off the highway and stay in your vehicle. Tie a brightly colored cloth to the antenna and turn on the inside light at night for rescuers to see. Run the engine and heater about 10 minutes each hour to keep warm. When the engine is running, open a downwind window slightly and periodically clear snow from the exhaust pipe. In extreme cold, use any available means to insulate and maintain body heat. Make sure at least one person is awake at all times to watch for rescuers.

After

- Check on neighbors or anyone who may need assistance.
- Use common sense when going outdoors. Dress warmly and always wear a hat. Stretch before shoveling heavy snow. Take frequent breaks. Use caution when walking on snowy walkways.
- Supervise children at all times. Children should be told to play only in safe, supervised areas outdoors—never in the street or snow banks on the side of the road.



Heavy Snow

Heavy snow can immobilize a region and paralyze a city, stranding commuters, closing airports, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can cause roofs to collapse and knock down trees and power lines. Homes and farms may be isolated for days and unprotected livestock may be lost. In the mountains, heavy snow can lead to avalanches. The cost of snow removal, repairing damages, and the loss of business can have severe economic impacts on cities and towns.



Before and after photo at Mt. Baker, WA, Ski Summit. Early June snow depth in 1999 measured 228 inches. The world record seasonal snowfall of 1,141 inches was recorded at Mt. Baker that year. Photos courtesy of Mt. Baker Ski Area.



BLIZZARD: Winds of 35 mph or more with snow and blowing snow reducing visibility to less than ¼ mile for at least 3 hours.

BLOWING SNOW: Wind-driven snow that reduces visibility. Blowing snow may be falling snow and/or snow on the ground picked up by the wind.

SNOW SQUALLS: Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant.

SNOW SHOWERS: Snow falling at varying intensities for brief periods of time. Some accumulation is possible.

SNOW FLURRIES: Light snow falling for short durations with little or no accumulation.

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

An avalanche is a mass of tumbling snow. More than 80 percent of midwinter avalanches are triggered by a rapid accumulation of snow, and 90 percent of those occur within 24 hours of snowfall. An avalanche may reach a mass of a million tons and travel at speeds up to 200 mph.



NWS



Wind Chill Chart

| Wind (mph) | Temperature (°F) | | | | | | | | | | | | | | | | | | | |
|------------|------------------|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| | Calm | 40 | 35 | 30 | 25 | 20 | 15 | 10 | 5 | 0 | -5 | -10 | -15 | -20 | -25 | -30 | -35 | -40 | -45 | |
| 5 | 36 | 31 | 25 | 19 | 13 | 7 | 1 | -5 | -11 | -16 | -22 | -28 | -34 | -40 | -46 | -52 | -57 | -63 | -69 | -75 |
| 10 | 34 | 27 | 21 | 15 | 9 | 3 | -4 | -10 | -16 | -22 | -28 | -35 | -41 | -47 | -53 | -59 | -66 | -72 | -78 | -84 |
| 15 | 32 | 25 | 19 | 13 | 6 | 0 | -7 | -13 | -19 | -26 | -32 | -39 | -45 | -51 | -58 | -64 | -71 | -77 | -83 | -89 |
| 20 | 30 | 24 | 17 | 11 | 4 | -2 | -9 | -15 | -22 | -29 | -35 | -42 | -48 | -55 | -61 | -68 | -74 | -81 | -87 | -93 |
| 25 | 29 | 23 | 16 | 9 | 3 | -4 | -11 | -17 | -24 | -31 | -37 | -44 | -51 | -58 | -64 | -71 | -78 | -84 | -91 | -97 |
| 30 | 28 | 22 | 15 | 8 | 1 | -5 | -12 | -19 | -26 | -33 | -39 | -46 | -53 | -60 | -67 | -73 | -80 | -87 | -93 | -99 |
| 35 | 28 | 21 | 14 | 7 | 0 | -7 | -14 | -21 | -27 | -34 | -41 | -48 | -55 | -62 | -69 | -76 | -82 | -89 | -95 | -101 |
| 40 | 27 | 20 | 13 | 6 | -1 | -8 | -15 | -22 | -29 | -36 | -43 | -50 | -57 | -64 | -71 | -78 | -84 | -91 | -97 | -103 |
| 45 | 26 | 19 | 12 | 5 | -2 | -9 | -16 | -23 | -30 | -37 | -44 | -51 | -58 | -65 | -72 | -79 | -86 | -92 | -98 | -104 |
| 50 | 26 | 19 | 12 | 4 | -3 | -10 | -17 | -24 | -31 | -38 | -45 | -52 | -60 | -67 | -74 | -81 | -88 | -94 | -100 | -106 |
| 55 | 25 | 18 | 11 | 4 | -3 | -11 | -18 | -25 | -32 | -39 | -46 | -54 | -61 | -68 | -75 | -82 | -89 | -95 | -101 | -107 |
| 60 | 25 | 17 | 10 | 3 | -4 | -11 | -19 | -26 | -33 | -40 | -48 | -55 | -62 | -69 | -76 | -83 | -90 | -96 | -102 | -108 |

Frostbite Times: ■ 30 minutes ■ 10 minutes ■ 5 minutes

$Wind\ Chill\ (°F) = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$
 Where, T = Air Temperature (°F) V = Wind Speed (mph) Effective 11/07/03

Exposure to cold can cause frostbite or hypothermia and become life-threatening. Infants and elderly people are most susceptible. What constitutes extreme cold varies in different parts of the country. In the South, near freezing temperatures are considered extreme cold. Freezing temperatures can cause severe damage to citrus fruit crops and other vegetation. Pipes may freeze and burst in homes that are poorly insulated or without heat. In the North, extreme cold means temperatures well below zero.

NOAA

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.

Injuries Related to Cold

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

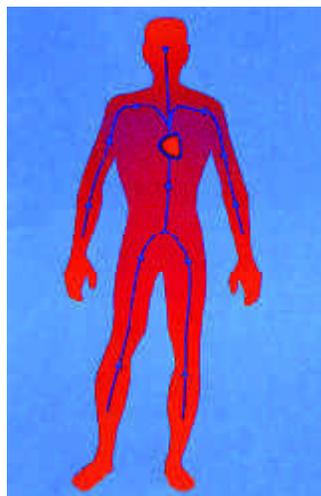
Frostbite is damage to body tissue caused by extreme cold. A wind chill of -20° Fahrenheit (F) will cause frostbite in just 30 minutes. Frostbite causes a loss of feeling and a white or pale appearance in extremities, such as fingers, toes, ear lobes or the tip of the nose. If symptoms are detected, 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. Warming the arms and legs first drives cold blood toward the heart and can lead 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. Warm broth is the first food to offer.



Hypothermia occurs when the extremities are excessively cold (blue)



Improperly warming the body will drive cold blood from the extremities to the heart, leading to heart failure



When CAUGHT in a Winter Storm



Courtesy of American Red Cross



Courtesy of American Red Cross



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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, such as 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.

