

Surviving Winter Weather



Winter Weather

- A major winter storm can last for several days and be accompanied by high winds, freezing rain or sleet, heavy snowfall and cold temperatures.
- 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.

Effects of Winter Storms

- Each year, dozens of Americans 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.
- Infants and the elderly are most susceptible to extreme cold.
- Extremely cold temperatures, heavy snow and coastal flooding can cause hazardous conditions and hidden problems.
- The aftermath of a winter storm can have an impact on a community or region for days, weeks or even months.

- 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. You must prepare properly to avoid these extreme dangers.
- 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!
- 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.

Injuries Related to Cold

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



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

NOAA Weather Radio is the best means to receive warnings from the National Weather Service.

The National Weather Service continuously broadcasts warnings and forecasts that can be received by NOAA Weather Radios, which are sold in many stores. The average range is 40 miles, depending on topography. Purchase a radio that has a battery back-up and a Specific Area Message Encoder feature, which automatically alerts you when a watch or warning is issued for your county or parish.

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.
Prepare now!

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.

- **When a Winter Storm WARNING is Issued...**
- Stay indoors during the storm.
- If you must go outside, several layers of lightweight clothing will keep you warmer than a single heavy coat. Gloves (or mittens) and a hat will prevent loss of body heat. Cover your mouth to protect your lungs.
- Understand the hazards of wind chill, which combines the cooling effect of wind and cold temperatures on exposed skin.
- As the wind increases, heat is carried away from a person's body at an accelerated rate, driving down the body temperature.
- Walk carefully on snowy, icy, sidewalks.
- After the storm, if you shovel snow, be extremely careful. It is physically strenuous work, so take frequent breaks. Avoid overexertion.
- Avoid traveling by car in a storm, but if you must...
 - Carry a Disaster Supplies Kit in the trunk.
 - Keep your car's gas tank full for emergency use and to keep the fuel line from freezing.
- Let someone know your destination, your route, and when you expect to arrive. If your car gets stuck along the way, help can be sent along your predetermined route.



Cold Air

Warm Air

Cold Air

Rain

Frozen precipitation
melts into rain

Freezing Rain

Frozen precipitation
melts in warm air...
...rain falls and freezes on
cold surfaces as a sheet of ice

Sleet

Frozen precipitation
melts...
...refreezes into sleet
before hitting ground

Snow

Snow falling into
cold air never melts

What is Wind Chill?

- One of the gravest dangers of winter weather is wind chill. The wind chill is based on the rate of heat loss from exposed skin by combined effects of wind and cold. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature.
- 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.

New Wind Chill Chart

Wind (mph)

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

Frostbite occurs in 15 minutes or less

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T = Air Temperature (°F)

V = Wind Speed (mph)

- **SNOW FLURRIES:** Light snow falling for short durations with little or no accumulation.
- **BLOWING SNOW:** Wind-driven snow that reduces visibility and causes significant drifting. Blowing snow may be snow that is falling and/or loose snow on the ground picked up by the wind.
- **SNOW SHOWERS:** Snow falling at varying intensities for brief periods of time. Some accumulation is possible.
- **SNOW SQUALLS:** Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant. Snow squalls are best known in the Great Lakes region.
- **BLIZZARD:** Winds of 35 mph or more with snow and blowing snow reducing visibility to less than
- ¼ mile for at least 3 hours.

- **Freezing Rain:** Rain that falls onto a surface with a temperature below freezing. This causes it to freeze to surfaces, such as trees, cars, and roads, forming a coating or glaze of ice. Even small accumulations of ice can cause a significant hazard.
- **Sleet:** Rain drops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects. However, it can accumulate like snow and cause a hazard to motorists.
- **Coastal Floods:** Winds generated from intense winter storms can cause widespread tidal flooding and severe beach erosion along coastal areas.

- 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.

- Dress for the conditions when outdoors. Wear several layers of light-weight, warm clothing: layers can be removed to prevent perspiring and subsequent chill. Outer garments should be tightly woven, waterproof and hooded. For the hands, mittens, snug at the wrists, offer better protection than fingered gloves.

- Be careful when shoveling snow. It is extremely hard work for anyone in less than prime physical condition. It can bring on a heart attack, a major cause of death during and after winter storms.

- **What are the warning signs for hypothermia?**

- **Adults:**

- shivering/exhaustion
 - confusion/fumbling hands
 - memory loss/slurred speech
 - drowsiness

- **Infants:**

- bright red, cold skin
 - very low energy

What should I do if I see someone with warning signs of hypothermia?

- If you notice signs of hypothermia, take the person's temperature. If it is below 95°, the situation is an emergency—get medical attention immediately.
- If medical care is not available, begin warming the person, as follows:
 - Get the victim into a warm room or shelter.
 - If the victim has on any wet clothing, remove it.
 - Warm the center of the body first—chest, neck, head, and groin—using an electric blanket, if available. Or use skin-to-skin contact under loose, dry layers of blankets, clothing, towels, or sheets.
 - Warm beverages can help increase the body temperature, but do NOT give alcoholic beverages. Do not try to give beverages to an unconscious person.
 - After body temperature has increased, keep the person dry and wrapped in a warm blanket, including the head and neck.
 - Get medical attention as soon as possible.

- A person with severe hypothermia may be unconscious and may not seem to have a pulse or to be breathing. In this case, handle the victim gently, and get emergency assistance immediately. Even if the victim appears dead, CPR should be provided. CPR should continue while the victim is being warmed, until the victim responds or medical aid becomes available. In some cases, hypothermia victims who appear to be dead can be successfully resuscitated.

What is frostbite?

- Frostbite is an injury to the body that is caused by freezing. Frostbite causes a loss of feeling and color in affected areas. It most often affects the nose, ears, cheeks, chin, fingers, or toes. Frostbite can permanently damage the body, and severe cases can lead to amputation.

What are the warning signs of frostbite?

- At the first signs of redness or pain in any skin area, get out of the cold or protect any exposed skin—frostbite may be beginning. Any of the following signs may indicate frostbite:
 - a white or grayish-yellow skin area
 - skin that feels unusually firm or waxy
 - numbness
- **Note:** A victim is often unaware of frostbite until someone else points it out because the frozen tissues are numb.

What should I do if I see someone with warning signs of frostbite?

- If you detect symptoms of frostbite, seek medical care. Because frostbite and hypothermia both result from exposure, first determine whether the victim also shows signs of hypothermia, as described previously. Hypothermia is a more serious medical condition and requires emergency medical assistance.

Why are older people most at risk for cold-related illness?

- Older adults often make less body heat because of a slower metabolism and less physical activity. If you are more than 65 years of age, check the temperature in your home often during severely cold weather. Also, check on elderly friends and neighbors frequently to ensure that their homes are adequately heated.

Dehydration

- Dehydration is one of the most frequent causes of hospitalization among people over the age of 65. Worse, at least one study has found that about one-half of those hospitalized for dehydration died within a year of admission.
- Older people are at greatest risk for dehydration because the mechanism that normally triggers thirst becomes less sensitive with age. In addition, as we age, a lower percentage of our body weight is water, so dehydration can occur more rapidly.
- Be aware of common symptoms of dehydration: fatigue, headache, dry nasal passages, dry, cracked lips and overall discomfort. Drinking at least 6 to 8 cups of liquid per day, part of which can come from fruit juices, milk, coffee and tea, is the best defense.

Gather emergency supplies for work or home:

- Be prepared for at least three days, if not more.
- A battery-powered NOAA Weather Radio and a battery-powered commercial radio and extra batteries.
- Foods that do not require cooking or refrigeration are best. Include high energy foods.
- Extra medications and special items for babies, the disabled or elderly.
- Extra water in clean containers.
- Rock salt to melt ice on walkways and sand to improve traction.
- Flashlights and extra batteries. Do not use candles; they are a fire hazard.
- Have emergency heating equipment (fireplaces, wood burning stoves or space heaters) and ample fuel so you can keep at least one room of your house warm enough to be livable. Always ensure proper ventilation.
- Keep fire extinguishers on hand, and make sure your family knows how to use them.

- Hang blankets over windows at night, but let the sun shine in during the day. Cover cracks around doors with rugs, newspapers, towels or other such material.