



Cold Stress and Prevention

Extremely cold, wet, or windy weather is a dangerous situation that can cause occupational illness and injuries such as hypothermia, frostbite, trench foot, and chilblains. UVM Employees that spend a lot of time outdoors, and people with conditions that make it harder to regulate their body temperature are at highest risk.

Symptoms of cold stress include shivering, fatigue, loss of coordination, pale or blue skin, dilated pupils, reduced blood flow to extremities, numbness, or aching

Stay Warm	<ul style="list-style-type: none"> Covering your skin. Protect the ears, face, hands and feet in extremely cold or wet weather. Wear appropriate loose fitted clothing. Dress in layers and wear a hat. Stay dry. Move into warm locations during breaks. Limiting your time outside.
Stay Hydrated	<ul style="list-style-type: none"> Drink more water than you believe needed, it is still important to stay hydrated while working in colder temperatures. Be proactive, don't wait until you are thirsty to drink water. Do not drink alcoholic and caffeinated beverages.
Stay Informed	<ul style="list-style-type: none"> Follow local weather and news reports. Sign up for weather alerts.
Listen to Your Body	<ul style="list-style-type: none"> Monitor your physical condition. Ask for help if you feel unwell. Stop what you are doing if you experience any cold stress symptoms. Be more cautious if you have a chronic health condition.
Protect	<ul style="list-style-type: none"> "Buddy System" - check in on fellow coworkers. Carry extra socks, gloves, hats, jacket, blankets, a change of clothes, and a thermos of hot liquid. Include chemical hot packs in your first aid kit

COLD STRESS

Cold stress and cold-related illnesses can occur when individuals are exposed to extreme cold or lesser extremes of cold, wind, and water. Factors that impact the illnesses include temperature, heat loss, and wind chill. Extreme cold weather can be very dangerous unless safety precautions are taken.

What can Happen

HYPOTHERMIA
Lowered body temperature, impairing muscular and cerebral functions

FROSTBITE
The freezing of body tissue, likely to occur in extremities

IMMERSION FOOT
Chronic cooling of extremities by water immersion

How to Help

- Call 911 immediately!
- Insulate with blankets
- Keep dry and heated
- Warm skin indoors; do not rub
- Heat in warm water bath
- Get medical help for bad cases
- Elevate and massage
- Refrain from walking
- Expose to air and keep dry

PREVENTING COLD STRESS

NWS Windchill Chart

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

Frostbite Times: 30 minutes (blue), 10 minutes (purple), 5 minutes (red)

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 11/01/01

For more information on cold stress prevention, please visit:

[Extreme Temperatures](#) | [Environmental Health and Safety](#) | [The University of Vermont \(uvm.edu\)](#)

[OSHA Quick Card - Protecting Workers](#)

[Understanding Wind Chill \(weather.gov\)](#)

Thank you for continuing a culture of workplace safety.