

SAFETY BULLETIN

WIND CHILL AND ITS IMPACT ON WORKERS

Most of the time, outside temperature is based on the thermometer reading; however, if there's a slight breeze, wind chill is factored into the equation. It can have a significant impact on individuals and how cold they feel when working outdoors.

According to the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS), wind chill is only defined for temperatures at or below 50 degrees F and wind speeds above 3 mph. Bright sunshine may increase the wind chill temperature by 10 to 18 degrees F.

Knowing the "feels like" temperature is extremely important especially during the winter months (Refer to the NWS Wind Chill Chart below). When wind blows across the exposed surface of our skin, it draws heat away from our bodies. When the wind picks up speed, it draws more heat away, so if your skin is exposed to the wind, your body will cool more quickly than it would have on a calm day.

The air temperature has to be below freezing in order for frostbite to develop on exposed skin. Wind chill cannot bring the temperature to below freezing when the thermometer says it is above freezing. This means that an individual will not get frost bite, but they could get hypothermia from being exposed to the cold.

Keep in mind that wind doesn't impact objects like construction equipment. Lower wind chills mean that inanimate (non-living) objects cool to the air temperature more quickly, but even high winds can't force the object's temperature below the air temperature.



		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 (light blue), 10 minutes (medium blue), 5 minutes (dark blue)

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

NWS WIND CHILL CHART

To understand the NWS Wind Chill Chart, read right, and down from the calm-air line. For example, a temperature of zero combined with a 20 mph wind, has an equivalent cooling effect of minus 22 degrees F. The chart also includes a frostbite indicator, showing the points where temperature, wind speed and exposure time will produce frostbite. The chart includes three shaded areas of frostbite danger. Each area shows how long (30, 10 and 5 minutes) a person can be exposed before frostbite develops.

PROPER WINTER ATTIRE

Wind chill can have an impact on workers and wearing the proper winter attire is key to protecting exposed skin. The following outlines recommended winter attire:

- ▶ **Wear wool socks.** This will help keep your feet as dry as possible.
- ▶ Use a **scarf** to cover the mouth and nose. This will also help protect lungs from cold air.
- ▶ Wear a **hat.** Half of body heat is lost through the top of the head.
- ▶ Wear **loose fitting, lightweight, warm clothing in several layers.** The trapped air between the layers insulates. Layers can be removed to avoid perspiration and subsequent chill.
- ▶ Wear **outer garments that are tightly woven, water repellent and hooded.**
- ▶ Wear **warm gloves** that protect your hands. There are many glove manufacturers that utilize thin insulation lining that help keep workers' hands warm.

This material is for informational purposes only and is not intended to provide specific solutions for any potentially unsafe conditions. Amerisure assumes no duty or obligation to any party in providing this information.

For more information, please contact your local Risk Management Consultant at [800.257.1900](tel:800.257.1900) or riskmanagement@amerisure.com

