



U.S. AIR FORCE

Cold Stress

IAW AFI 48-151, Thermal Injury Prevention Program

Table 3.2. Cold Stress Risk Determination (Table values indicate time in minutes to frostbite).

Wind Speed (mph/kph)	Air Temperature (°F/°C)											
	10/-12	5/-15	0/-21	-5/-21	-10/-23	-15/-26	-20/-29	-25/-32	-30/-34	-35/-37	-40/-40	-45/-43
5/8	>120	>120	>120	>120	31	22	17	14	12	11	9	8
10/16	>120	>120	>120	28	19	15	12	10	9	7	7	6
15/24	>120	>120	33	20	15	12	9	8	7	6	5	4
20/32	>120	>120	23	16	12	9	8	8	6	5	4	4
25/40	>120	42	19	13	10	8	7	6	5	4	4	3
30/48	>120	28	16	12	9	7	6	5	4	4	3	3
35/56	>120	23	14	10	8	6	5	4	4	3	3	2
40/64	>120	20	13	9	7	6	5	4	3	3	2	2
45/72	>120	18	12	8	7	5	4	4	3	3	2	2
50/81	>120	16	11	8	6	5	4	3	3	2	2	2

Note: Time in minutes until the occurrence of cheek frostbite in the most susceptible 5 percent of personnel; wet skin could significantly decrease the time for frostbite to occur

Table A2.5. List of recommended preventive measures to decrease frostbite risk.

Frostbite Risk Level	Preventive Measures
Low	<ul style="list-style-type: none"> Recommended work/rest (W/R) cycle: 50 minutes work/10 minutes warming Increase surveillance with self and buddy checks Wear appropriate layers and wind protection for the work intensity Cover exposed flesh if possible Wear Vapor Barrier (VB) boots below 0 °F Provide warming facilities below 20 °F Avoid sweating
High	<ul style="list-style-type: none"> Recommended W/R cycle: 40 minutes work/20 minutes warming Mandatory buddy checks every 20–30 minutes Wear appropriate layers and All Purpose Environmental Clothing System (APECS). Protect head, face and hands Cover exposed flesh Wear VB boots below 0 °F Provide warming facilities Avoid sweating
Severe	<ul style="list-style-type: none"> Recommended W/R cycle: 30 minutes work/30 minutes warming Mandatory buddy checks every 10 minutes Wear appropriate layers and APECS or cold weather parka. Protect head, face and hands Wear VB boots Provide warming facilities Work groups of no less than two personnel No exposed skin Stay active Avoid sweating
Extreme	<ul style="list-style-type: none"> Mission critical work only due to extreme risk Keep task duration as short as possible Wear appropriate layers, cold weather parka, wind protection. Protect head, face and hands Wear VB boots Provide warming facilities Work groups of no less than two personnel No exposed skin Stay active Avoid sweating

Table 3.3. Frostbite Risk Level (FRL) Colors.

Severity	Color	Description
Low	Green	Freezing possible but unlikely
Moderate	Yellow	Freezing could occur in 10-30 minutes
Severe	Red	Freezing could occur in 5-10 minutes
Extreme	Black	Freezing could occur in <5 minutes