

CERRO MORENO INTL, CI

Latitude = 23.44 S

Longitude = 70.45 W

Period of Record = 1988 To 2017

Station ID = ICAO_SCFA

Elevation = 455 Feet

Average Pressure = 29.50 inches Hg

Design Criteria Data

Dry Bulb Temperature (T)	Mean Coincident (Average) Values				
	Design Value (°F)	Wet Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	79	68	88	12.4	S
0.4% Occurrence	76	66	82	12.6	S
1.0% Occurrence	75	66	81	12.8	S
2.0% Occurrence	73	64	77	12.7	S
Mean Daily Range	9	-	-	-	S
97.5% Occurrence	54	52	52	6.3	S
99.0% Occurrence	52	50	49	5.4	S
99.6% Occurrence	50	48	46	5.1	E
Median of Extreme Lows	46	44	39	4.6	E

Wet Bulb Temperature (T _{wb})	Design Value (°F)	Dry Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	69	74	97	10.3	S
0.4% Occurrence	68	73	93	10.4	S
1.0% Occurrence	67	72	89	10.5	S
2.0% Occurrence	66	71	86	10.5	S

Humidity Ratio (HR)	Design Value (gr/lb)	Dry Bulb Temperature (°F)	Vapor Pressure (in. Hg)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	98	73	0.65	8.8	S
0.4% Occurrence	98	73	0.65	8.8	S
1.0% Occurrence	92	70	0.61	8.6	S
2.0% Occurrence	88	69	0.58	8.6	S

Air Conditioning/ Humid Area Criteria	Threshold	T ≥ 93 °F	T ≥ 80 °F	Twb ≥ 73 °F	Twb ≥ 67 °F
	# of Hours	0	8	1	113

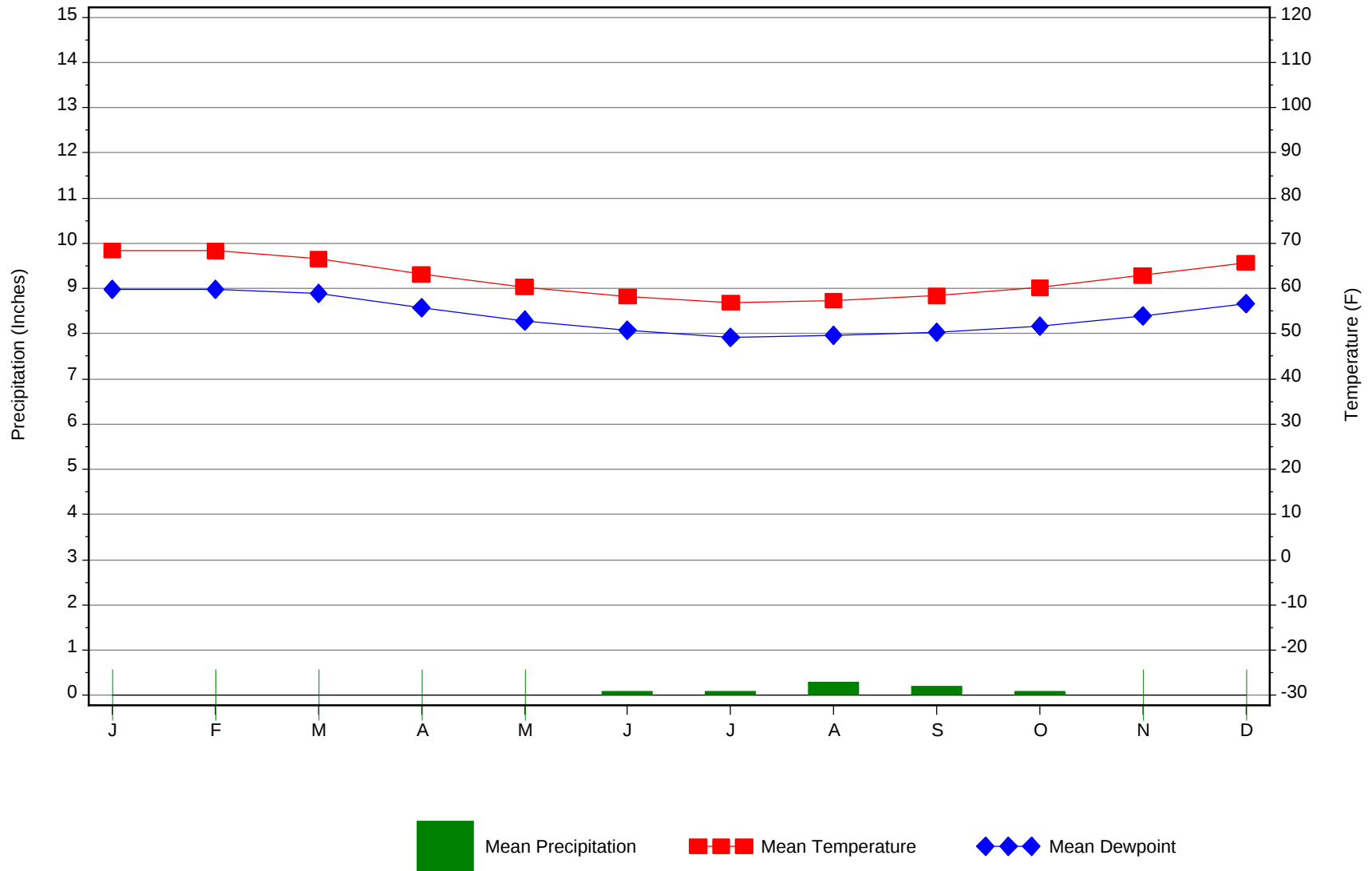
Other Site Data

Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
9	N/A	N/A	0.3 + 0.0
Ground Water Temperature (°F) 50 Foot Depth*	Frost Depth 50 Year Recurrence (in)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
64.7	N/A	N/A	0

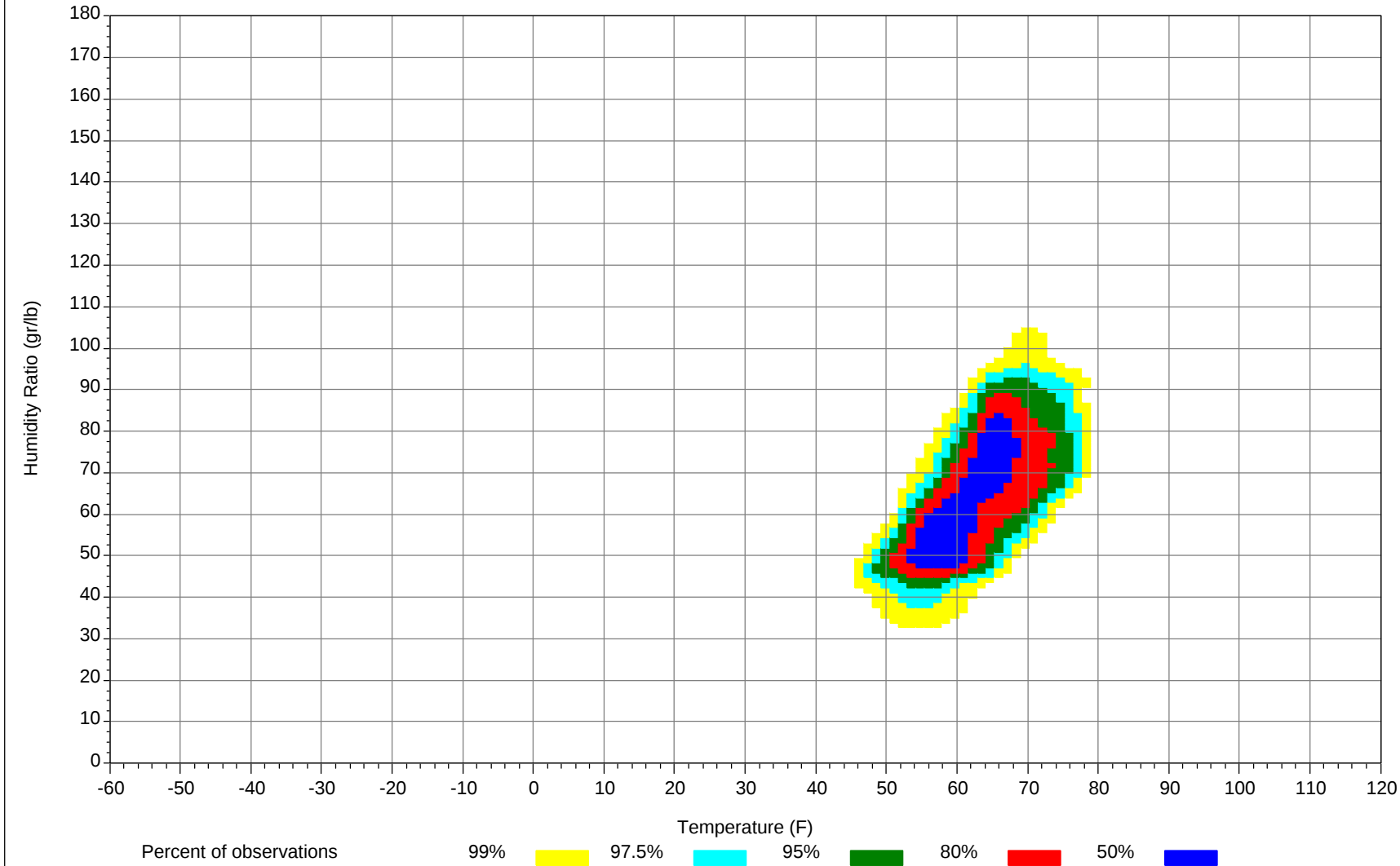
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



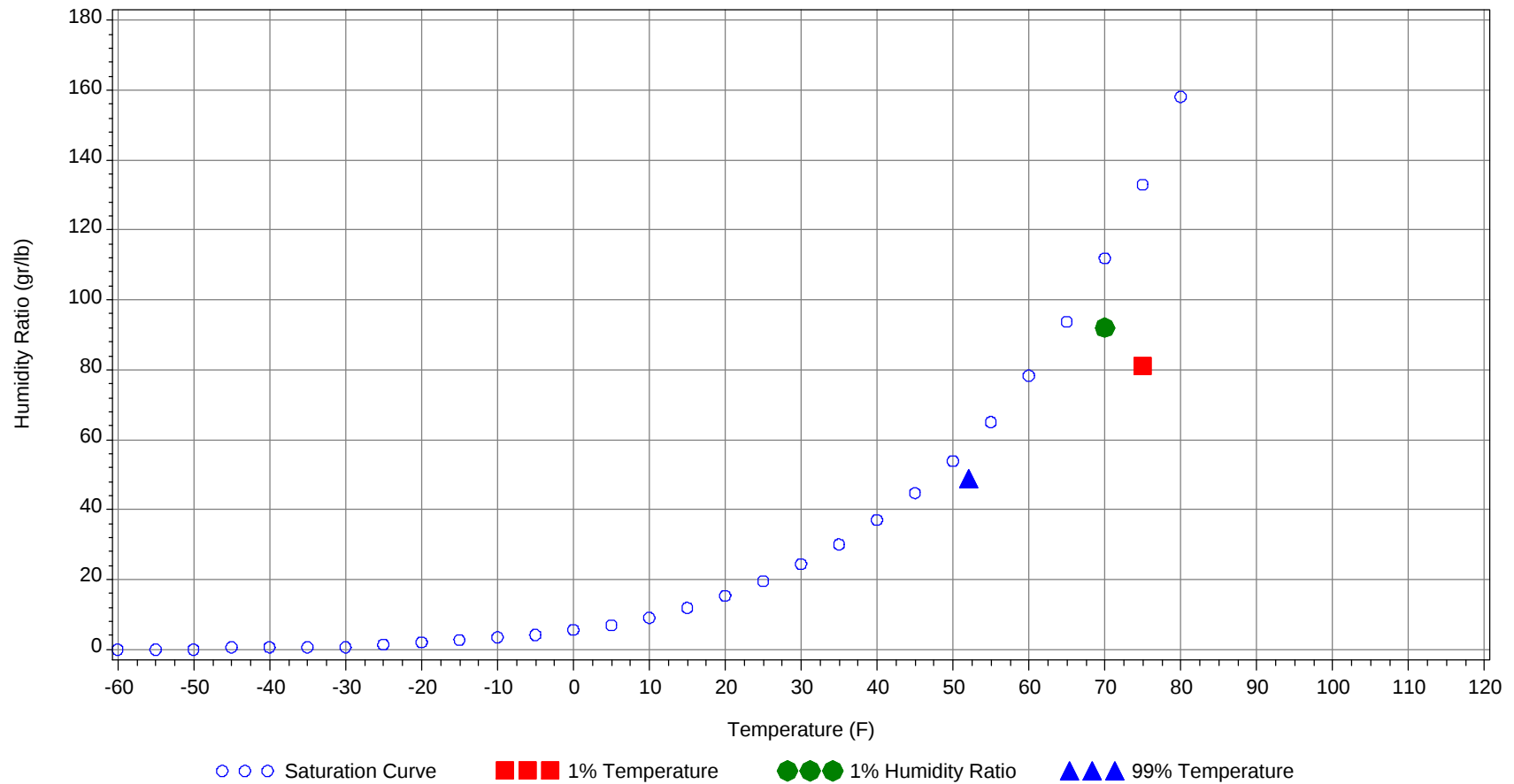
Average Annual Climate



Long Term Psychrometric Summary



Psychrometric Summary of Peak Design Values



	(° F) / (gr/lb)	MCDB (° F)	MCWB (° F)	MCDP (° F)	MCHR (gr/lb)	Enthalpy (btu/lb)
1.0% Dry Bulb	75.0		66		81.0	30.7
99.0% Dry Bulb	52.0				49.0	20.0
1.0% Humidity Ratio	92.0	70.0	66.4	64.4		31.2

Dry-Bulb Temperature Hours For An Average Year

	January					February					March				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
85/ 89		0		0	70.3							0		0	69
80/ 84	0	2	0	2	69		1	0	1	67.4		1		1	68
75/ 79	1	34	5	40	66.8	0	32	3	35	66.3	0	11	1	12	65.8
70/ 74	16	183	74	273	64.1	9	165	71	245	64.2	3	151	34	188	63.6
65/ 69	112	28	143	283	62.7	93	26	124	243	62.9	53	76	125	254	62.3
60/ 64	118	1	25	144	60.2	119	1	25	145	60.4	170	9	88	267	60
55/ 59	2		0	2	56.4	3	0	0	3	56.3	21	0	1	22	56.5
50/ 54	0			0							0			0	50.3
45/ 49	0			0	47						0			0	45
40/ 44															

Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

Dry-Bulb Temperature Hours For An Average Year

	April					May					June				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
85/ 89															
80/ 84		0		0	65.3		0		0	64.6					
75/ 79		1		1	63.3	0	1	0	1	62.8		0		0	56
70/ 74	0	41	2	43	62.2	0	8	1	9	61.3		1	0	1	60.4
65/ 69	13	123	50	186	60.5	2	49	9	60	59.4	0	14	2	16	58.7
60/ 64	121	72	150	343	58.7	73	162	119	354	57.1	21	132	45	198	55.9
55/ 59	98	3	37	138	55.4	137	28	112	277	54.5	158	89	172	419	53.5
50/ 54	7	0	0	7	51.9	36	0	7	43	50.8	57	4	21	82	50.4
45/ 49						1			1	46.3	4	0	0	4	45.6
40/ 44											0			0	42

Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

Dry-Bulb Temperature Hours For An Average Year

	July					August					September				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
85/ 89															
80/ 84							0		0	62					
75/ 79							0	0	0	63.2		0		0	63
70/ 74		0		0	59.1		1	0	1	61.8		1		1	60.3
65/ 69	0	6	0	6	57.8	0	7	0	7	58.5	0	11	0	11	58.5
60/ 64	7	90	19	116	55.3	8	109	18	135	55.3	15	156	39	210	55.6
55/ 59	146	141	191	478	52.8	175	125	205	505	52.8	190	72	190	452	53.3
50/ 54	86	10	37	133	50.1	63	6	25	94	50.3	34	1	11	46	50.3
45/ 49	9	0	0	9	45.1	3		0	3	45.7	1		0	1	45.4
40/ 44	0			0	40										

Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

Dry-Bulb Temperature Hours For An Average Year

	October					November					December				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
85/ 89															
80/ 84												0		0	64
75/ 79		0		0	63		0		0	62	0	5	0	5	65.6
70/ 74		2	0	2	59.5		13	0	13	61	4	113	18	135	62.5
65/ 69	0	38	2	40	58.2	4	142	25	171	59.1	43	116	103	262	60.8
60/ 64	50	186	101	337	56.3	164	85	183	432	57.5	178	13	124	315	59
55/ 59	190	21	144	355	54.2	71	1	32	104	55.2	22	0	2	24	55.8
50/ 54	7	0	1	8	50.9	1	0	0	1	51.7	0			0	52
45/ 49															
40/ 44															

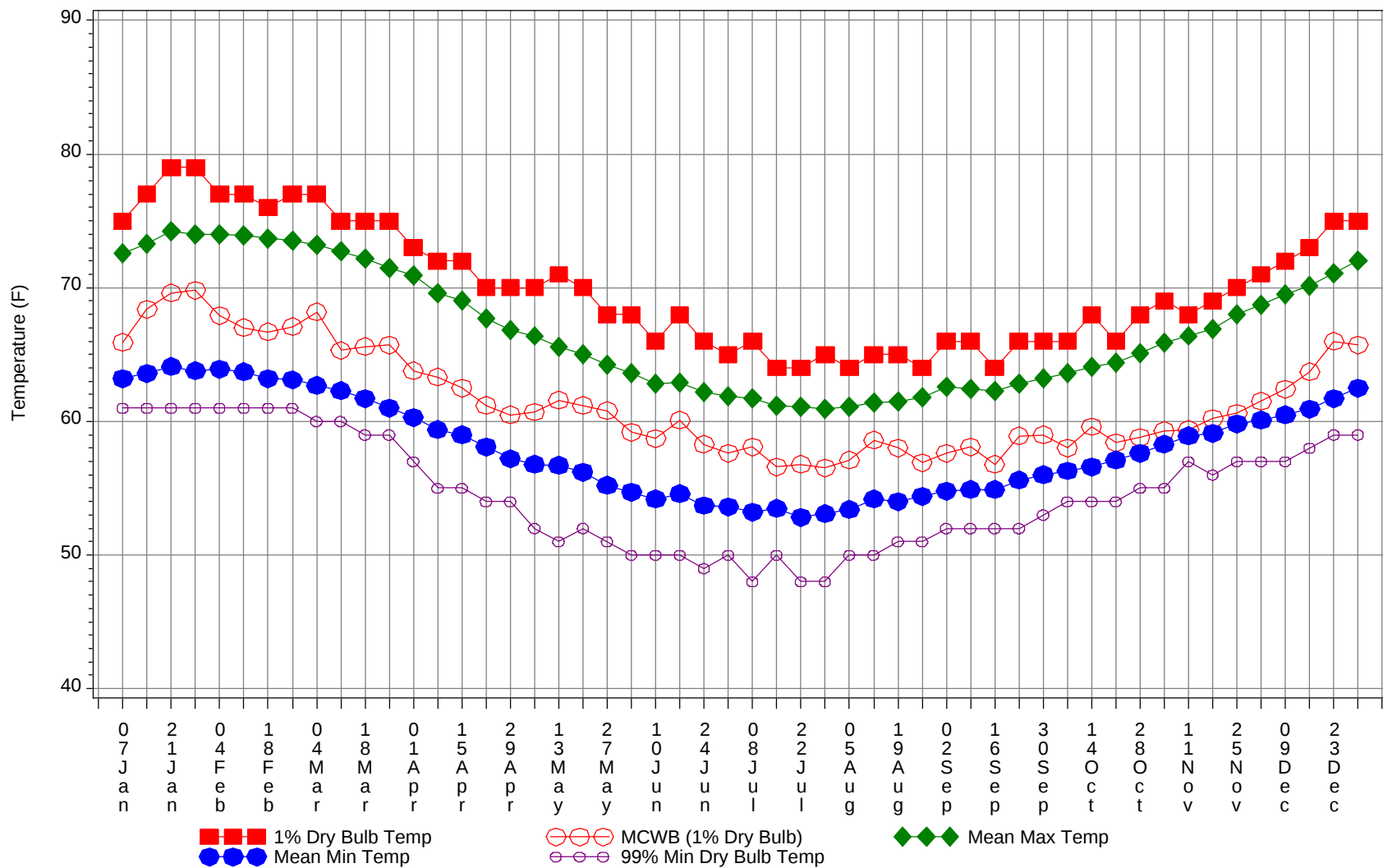
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

Dry-Bulb Temperature Hours For An Average Year

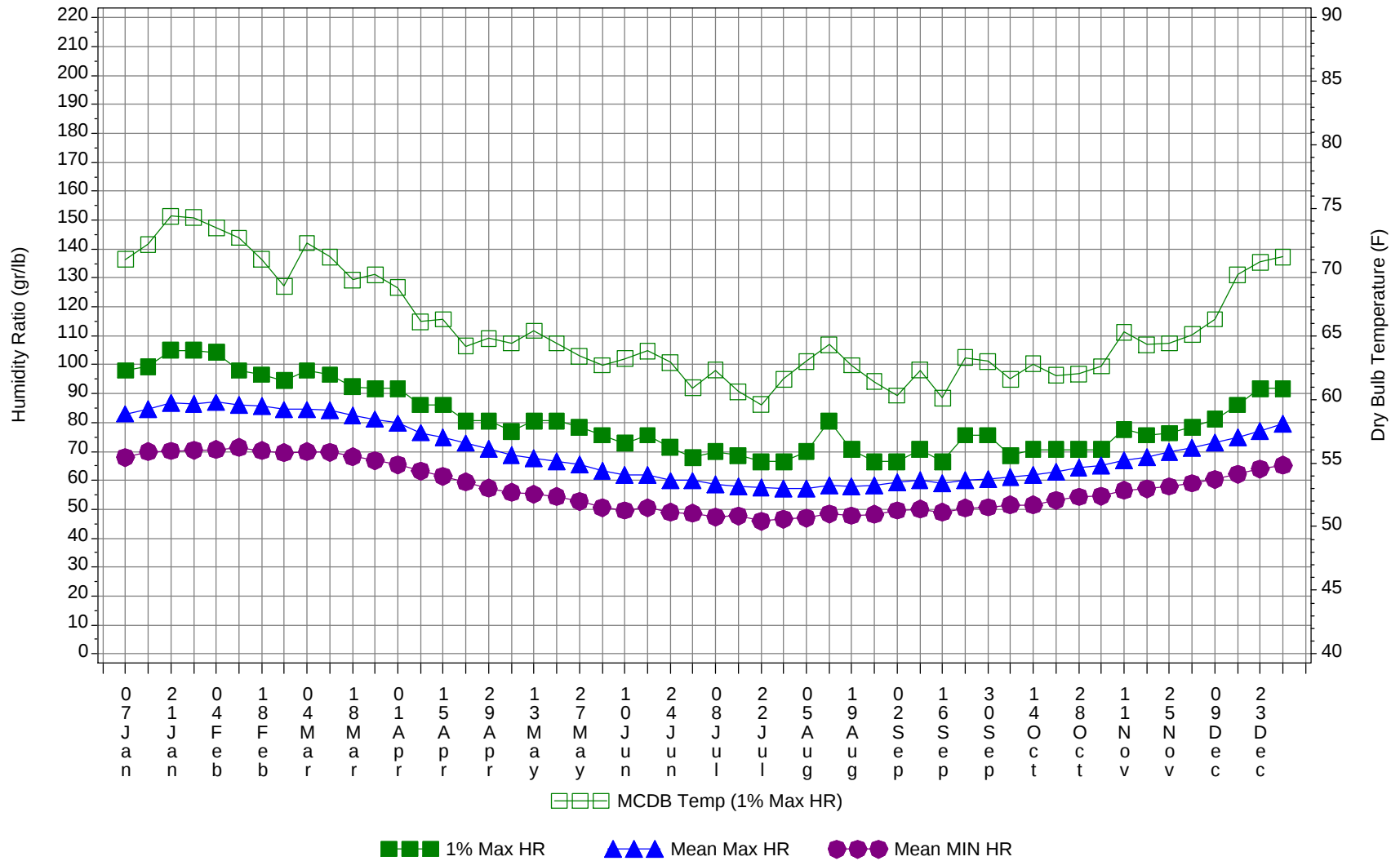
	Annual				
Temperature Range (° F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (° F)
85/ 89		0		0	70
80/ 84	0	3	0	3	68
75/ 79	1	85	10	96	66.4
70/ 74	33	679	201	913	63.6
65/ 69	322	637	585	1544	61.3
60/ 64	1044	1015	937	2996	57.7
55/ 59	1211	480	1085	2776	53.6
50/ 54	291	21	102	414	50.4
45/ 49	18	0	1	19	45.4
40/ 44	0			0	41.3

Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

Annual Summary of Temperatures



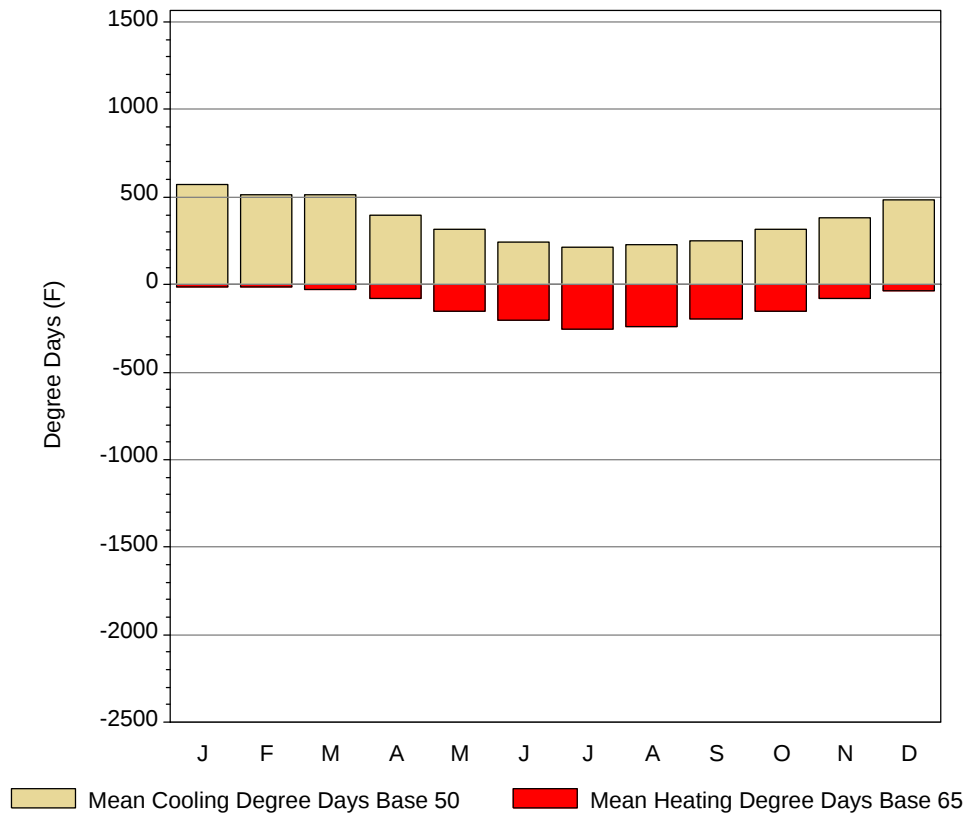
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

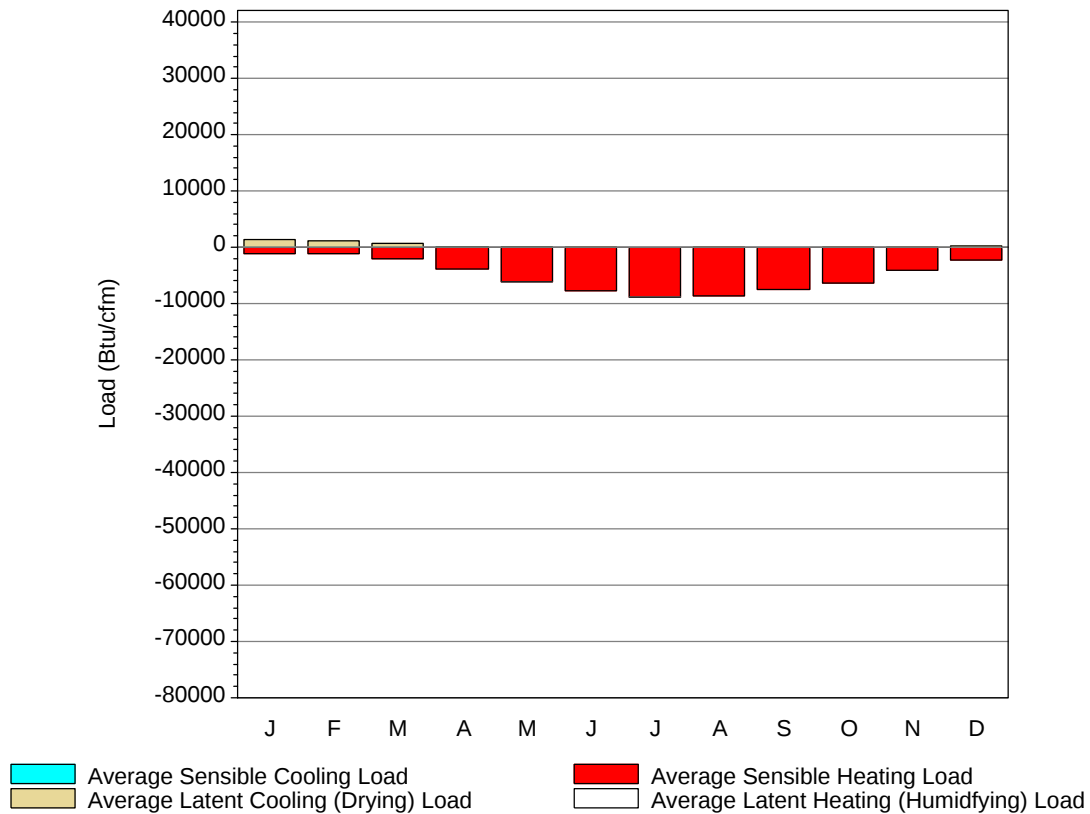
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	75	65.9	72.6	63.2	61	98	71	83	68
14-Jan	77	68.4	73.3	63.6	61	99.4	72.2	84.7	70
21-Jan	79	69.6	74.2	64.1	61	105	74.4	86.9	70.2
28-Jan	79	69.8	74	63.8	61	105	74.3	86.4	70.4
4-Feb	77	67.9	74	63.9	61	104.3	73.5	87	70.6
11-Feb	77	67	73.9	63.7	61	98	72.7	86.1	71.3
18-Feb	76	66.7	73.7	63.2	61	96.6	71	85.8	70.3
25-Feb	77	67.1	73.5	63.1	61	94.5	68.9	84.5	69.5
4-Mar	77	68.2	73.2	62.7	60	98	72.3	84.5	70
11-Mar	75	65.3	72.7	62.3	60	96.6	71.2	84.2	69.8
18-Mar	75	65.6	72.2	61.7	59	92.4	69.4	82.4	68.2
25-Mar	75	65.7	71.5	61	59	91.7	69.8	81.2	66.9
1-Apr	73	63.8	70.9	60.3	57	91.7	68.8	79.8	65.4
8-Apr	72	63.3	69.6	59.4	55	86.1	66.1	76.5	63.3
15-Apr	72	62.5	69	59	55	86.1	66.3	75	61.4
22-Apr	70	61.2	67.7	58.1	54	80.5	64.2	72.9	59.5
29-Apr	70	60.5	66.8	57.2	54	80.5	64.8	70.8	57.3
6-May	70	60.7	66.4	56.8	52	77	64.4	68.8	55.8
13-May	71	61.6	65.6	56.7	51	80.5	65.4	67.8	55.2
20-May	70	61.2	65	56.2	52	80.5	64.4	66.5	54.4
27-May	68	60.8	64.2	55.2	51	78.4	63.4	65.6	52.7
4-Jun	68	59.2	63.6	54.7	50	75.6	62.7	63.3	50.6
10-Jun	66	58.7	62.8	54.2	50	72.8	63.2	61.8	49.6
17-Jun	68	60.1	62.9	54.6	50	75.6	63.8	61.9	50.5
24-Jun	66	58.3	62.2	53.7	49	71.4	62.9	59.9	48.9
1-Jul	65	57.6	61.9	53.6	50	67.9	60.9	59.9	48.6
8-Jul	66	58.1	61.7	53.2	48	70	62.3	58.6	47.3
15-Jul	64	56.6	61.2	53.5	50	68.6	60.6	58	47.7
22-Jul	64	56.8	61.1	52.8	48	66.5	59.6	57.5	45.9
29-Jul	65	56.5	60.9	53.1	48	66.5	61.6	57.2	46.6
5-Aug	64	57.1	61.1	53.4	50	70	63	57.2	46.9
12-Aug	65	58.6	61.4	54.2	50	80.5	64.3	58.3	48.5
19-Aug	65	58	61.5	54	51	70.7	62.7	57.9	47.8
26-Aug	64	56.9	61.8	54.4	51	66.5	61.4	58.3	48.2
2-Sep	66	57.6	62.6	54.8	52	66.5	60.3	59.3	49.6
9-Sep	66	58.1	62.4	54.9	52	70.7	62.3	60	50
16-Sep	64	56.8	62.3	54.9	52	66.5	60.1	59	49
23-Sep	66	58.9	62.8	55.6	52	75.6	63.3	60.1	50.4
30-Sep	66	59	63.2	56	53	75.6	63	60.5	50.7
7-Oct	66	58	63.6	56.3	54	68.6	61.6	61.3	51.5
14-Oct	68	59.6	64.1	56.6	54	70.7	62.8	61.8	51.5
21-Oct	66	58.4	64.4	57.1	54	70.7	61.9	63	53.2
28-Oct	68	58.8	65.1	57.6	55	70.7	62	64.4	54.3
4-Nov	69	59.3	65.9	58.3	55	70.7	62.6	65	54.5
11-Nov	68	59.4	66.4	58.9	57	77.7	65.3	66.9	56.5
18-Nov	69	60.2	66.9	59.1	56	75.6	64.3	68	57.1
25-Nov	70	60.6	68	59.8	57	76.3	64.4	69.8	57.9
2-Dec	71	61.5	68.7	60.1	57	78.4	65.1	71.4	59
9-Dec	72	62.4	69.5	60.5	57	81.2	66.3	73.1	60.4
16-Dec	73	63.7	70.1	60.9	58	86.1	69.8	75	62.1
23-Dec	75	66	71.1	61.7	59	91.7	70.8	77.2	63.9
31-Dec	75	65.7	72	62.5	59	91.7	71.2	79.6	65.3

Degree Days, Heating and Cooling (Base 65 F) & Cooling (Base 50F)



Month	Mean Cooling Degree Days (°F) Base 50	Mean Cooling Degree Days (°F) Base 65	Mean Heating Degree Days (°F) Base 65
JAN	571.3	116.4	10.1
FEB	516.6	104.1	11.5
MAR	510.1	74.9	29.8
APR	393.1	24.3	81.2
MAY	319.4	6.1	151.9
JUN	245.2	1.3	206.5
JUL	215.1	0.5	251.4
AUG	227.9	0.8	238.2
SEP	252.7	0.7	198.2
OCT	315.9	2.4	151.4
NOV	384.6	14.5	80
DEC	486.7	56.8	35.2
ANN	4438.6	402.8	1445.4

Average Ventilation and Infiltration Loads (Outside Air vs 75F, 60% RH summer; 68F, 30% RH winter)



Month	Average Sensible Cooling Load (Btu/cfm)	Average Sensible Heating Load (Btu/cfm)	Average Latent Cooling Load (Btu/cfm)	Average Latent Heating Load (Btu/cfm)
JAN	55	-1083	1247	0
FEB	31	-1074	1125	0
MAR	12	-2014	675	0
APR	1	-3949	77	0
MAY	2	-6224	12	-1
JUN	0	-7656	2	0
JUL	0	-8915	0	-6
AUG	0	-8568	5	0
SEP	0	-7452	0	0
OCT	0	-6282	1	0
NOV	0	-4067	2	0
DEC	4	-2325	156	0
ANN	105	-59609	3302	-7

Station Information		Shading Geometry in Dimensionless Units	
City, State, WBAN	N/A	N/A	N/A
Lat, Lon, Elev	N/A	N/A	N/A
Press Stn Type	N/A	N/A	N/A

AVERAGE INCIDENT SOLAR RADIATION (Btu/sq.ft./day), Percentage Uncertainty = 9														
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
HORIZ.	Global													
	Std.Dev.													
	Minimum													
	Maximum													
	Diffuse													
Clear Day	Global													
NORTH	Global													
	Diffuse													
Clear Day	Global													
EAST	Global													
	Diffuse													
Clear Day	Global													
SOUTH	Global													
	Diffuse													
Clear Day	Global													
WEST	Global													
	Diffuse													
Clear Day	Global													

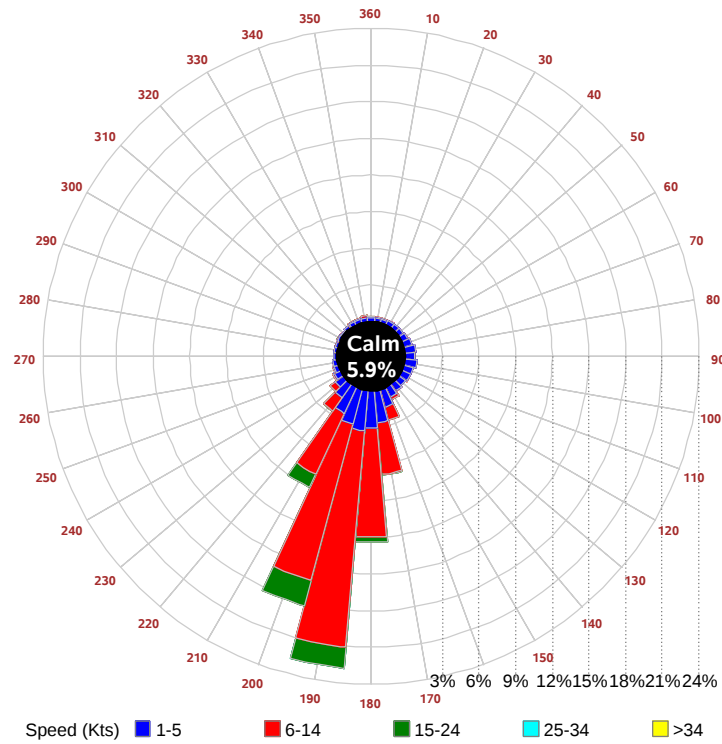
Average Annual Solar Radiation - Nearest Available Site Source: National Renewable Energy Laboratory, Golden CO, 1995

AVERAGE TRANSMITTED SOLAR RADIATION (Btu/sq.ft./day) FOR DOUBLE GLAZING, Percentage Uncertainty = 9														
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
HORIZ.	Unshaded													
NORTH	Unshaded													
	Shaded													
EAST	Unshaded													
	Shaded													
SOUTH	Unshaded													
	Shaded													
WEST	Unshaded													
	Shaded													

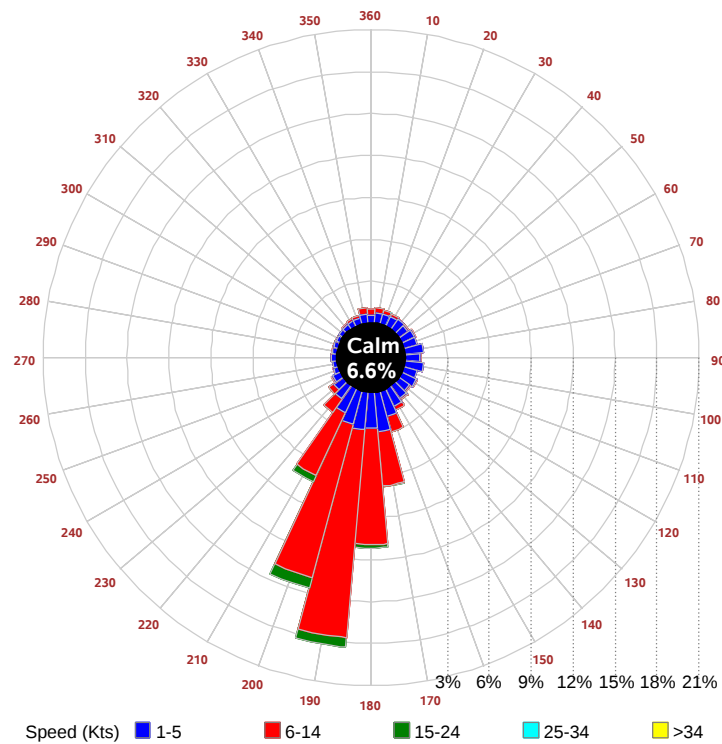
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9												
		March						June				
		9am	11am	1pm	3pm	5pm		9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear											
	M.Cloudy											
NORTH	M.Clear											
	M.Cloudy											
EAST	M.Clear											
	M.Cloudy											
SOUTH	M.Clear											
	M.Cloudy											
WEST	M.Clear											
	M.Cloudy											
M.Clear	(% hrs)											

		Sept						Dec				
		9am	11am	1pm	3pm	5pm		9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear											
	M.Cloudy											
NORTH	M.Clear											
	M.Cloudy											
EAST	M.Clear											
	M.Cloudy											
SOUTH	M.Clear											
	M.Cloudy											
WEST	M.Clear											
	M.Cloudy											
M.Clear	(% hrs)											

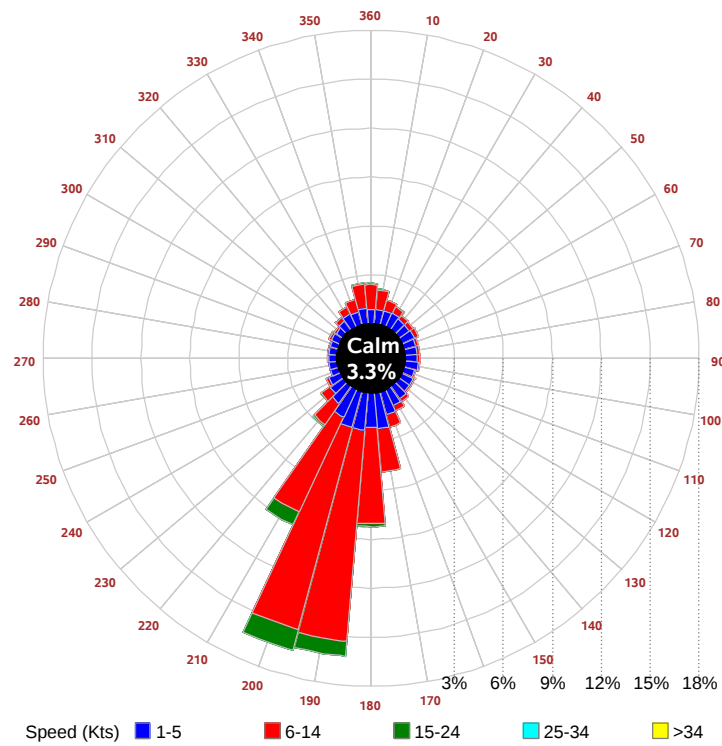
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

