

SANDSPIT, CA	Station ID = ICAO_CYZP
Latitude = 53.25 N	Elevation = 21 Feet
Longitude = 131.81 W	Average Pressure = 29.89 inches Hg
Period of Record = 1988 To 2017	

Design Criteria Data

	Mean Coincident (Average) Values				
Dry Bulb Temperature (T)	Design Value (°F)	Wet Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	72	63	68	10.6	W
0.4% Occurrence	68	61	68	10.1	W
1.0% Occurrence	66	60	66	9.5	W
2.0% Occurrence	64	58	64	9.9	W
Mean Daily Range	8	-	-	-	W
97.5% Occurrence	32	30	21	10.6	W
99.0% Occurrence	28	25	15	13.2	NNW
99.6% Occurrence	26	23	13	14.4	NNW
Median of Extreme Lows	23	21	12	16.7	NNW

	Design Value (°F)	Dry Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Wet Bulb Temperature (T _{wb})					
Median of Extreme Highs	65	71	79	10.7	W
0.4% Occurrence	62	66	74	9.5	W
1.0% Occurrence	61	65	72	9.7	W
2.0% Occurrence	59	62	68	10	SE

	Design Value (gr/lb)	Dry Bulb Temperature (°F)	Vapor Pressure (in. Hg)	Wind Speed (mph)	Prevailing Direction (NSEW)
Humidity Ratio (HR)					
Median of Extreme Highs	81	65	0.54	14.1	SSE
0.4% Occurrence	76	62	0.5	13	SE
1.0% Occurrence	74	63	0.5	9.8	SE
2.0% Occurrence	70	62	0.47	10	SE

Air Conditioning/ Humid Area Criteria	Threshold	T ≥ 93 °F	T ≥ 80 °F	Twb ≥ 73 °F	Twb ≥ 67 °F
	# of Hours	0	2	0	3

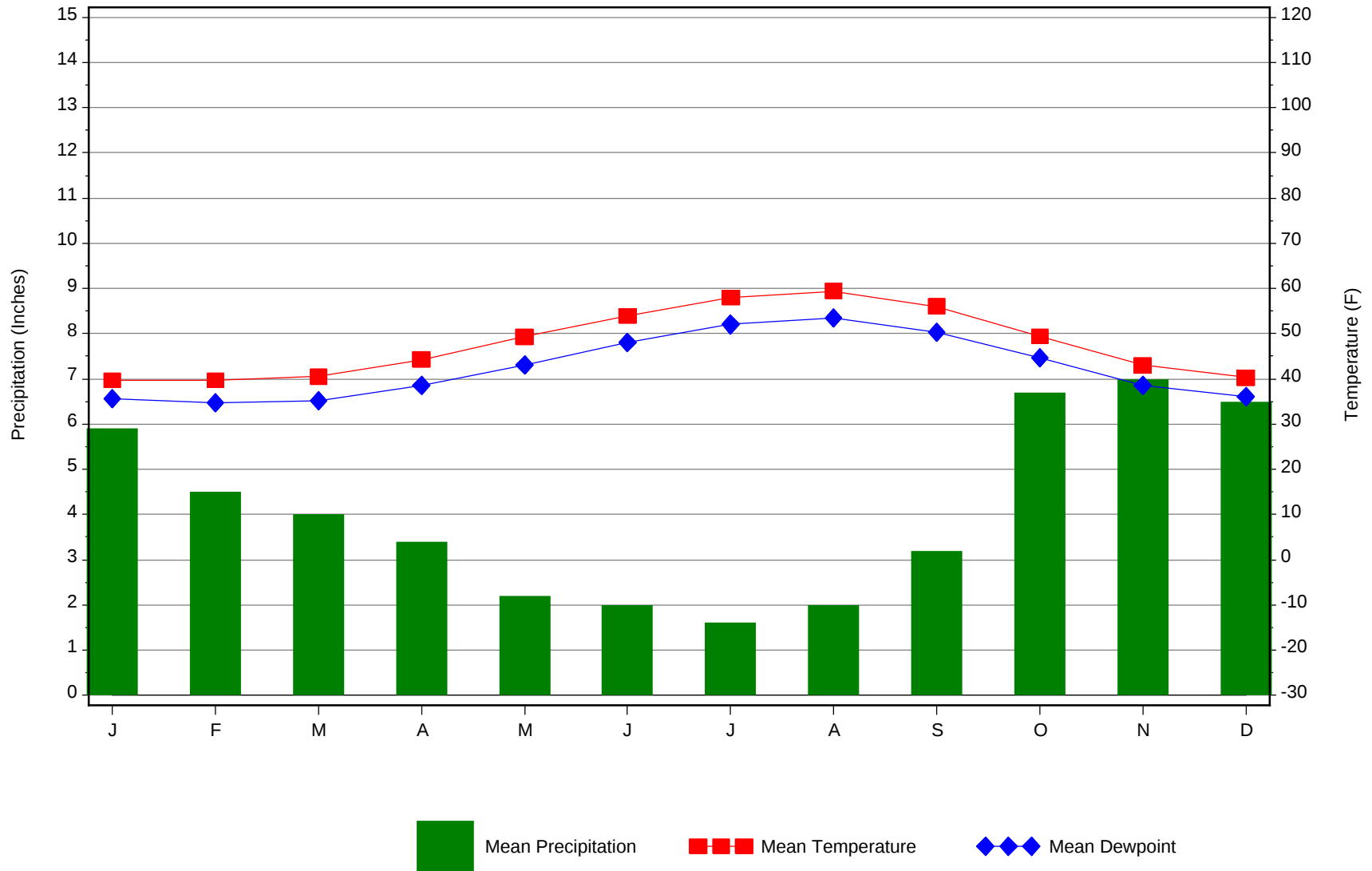
Other Site Data

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
6	N/A	N/A	0.0 + 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 (#)
50.3	N/A	N/A	14

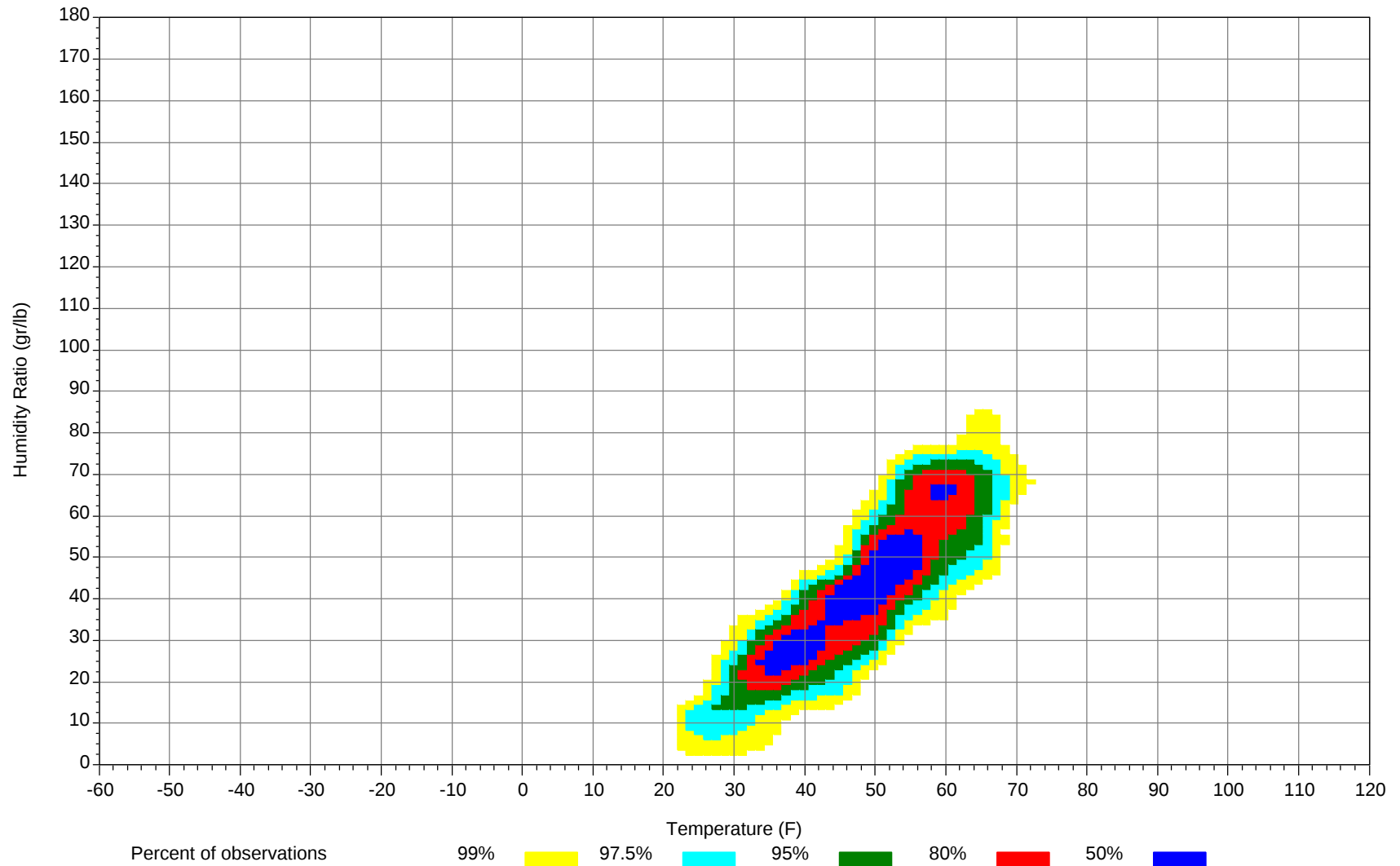
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



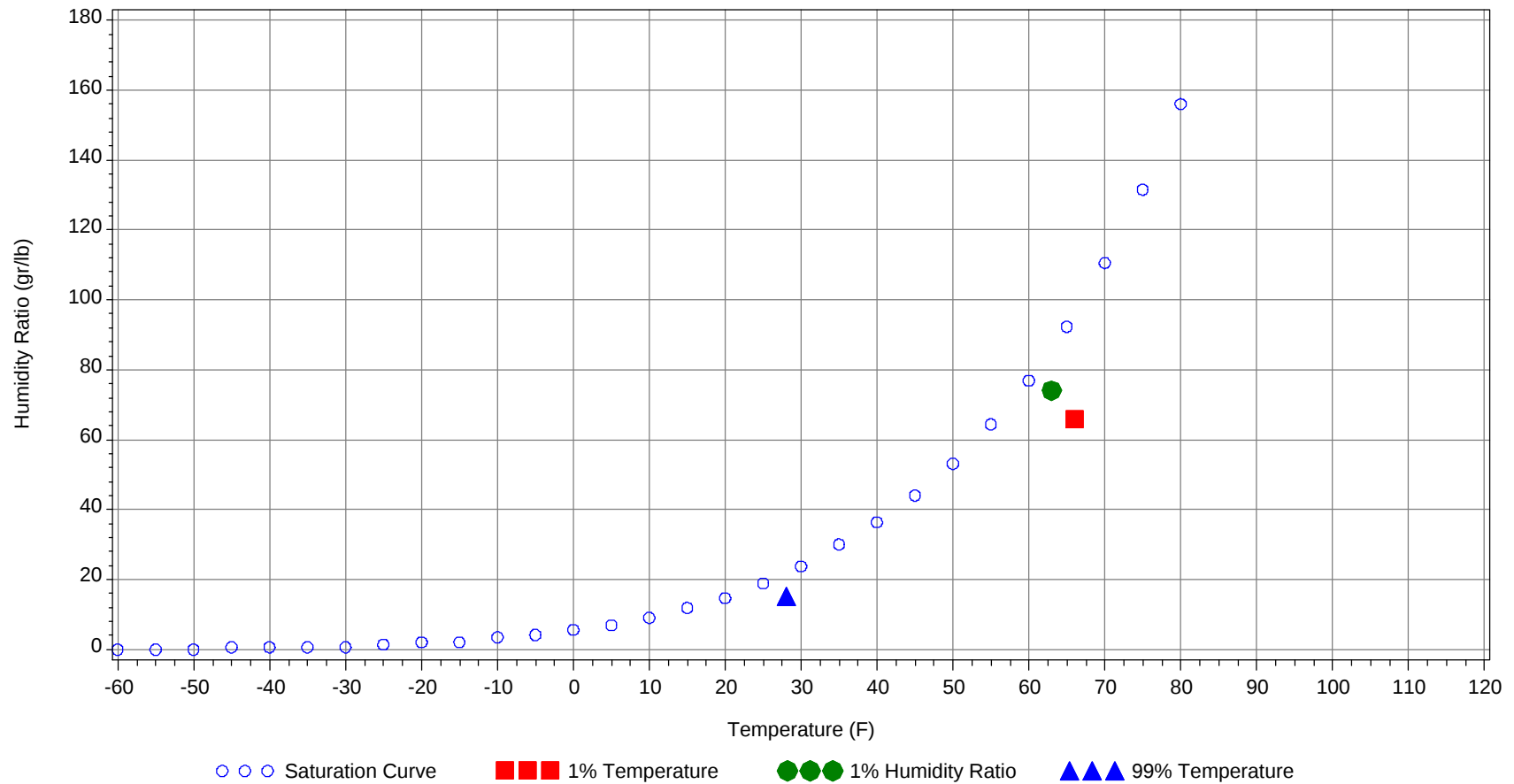
Average Annual Climate



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	66.0		60		66.0	26.2
99.0% Dry Bulb	28.0				15.0	9.0
1.0% Humidity Ratio	74.0	63.0	60.5	59.0		26.7

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)
80/ 84															
75/ 79															
70/ 74															
65/ 69															
60/ 64															
55/ 59		0		0	52							0	0	0	51.3
50/ 54	2	6	3	11	48.6	1	4	1	6	47.9	1	11	3	15	47.6
45/ 49	58	77	59	194	44.7	35	64	43	142	44.1	35	92	59	186	43.7
40/ 44	56	65	63	184	40.4	52	72	67	191	40.1	65	81	78	224	39.7
35/ 39	76	62	76	214	35.9	86	61	80	227	35.6	97	49	82	228	35.6
30/ 34	43	29	34	106	30.4	40	18	27	85	30.2	42	10	21	73	30.7
25/ 29	11	7	10	28	25.1	8	4	5	17	24.8	8	4	5	17	24.3
20/ 24	2	2	1	5	20.5	1	0	0	1	19.7	1	0	0	1	20.1
15/ 19	0	1	1	2	16.2	0	0	0	0	13.4	0	0	0	0	16.7
10/ 14	1	0	1	2	11.2	0	0	0	0	10.5					
5/ 9							0		0						
0/ 4							0		0						
-5/ -1							0		0						
-10/ -6							0		0	-7					

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)
80/ 84															
75/ 79											0	0	0	0	61.8
70/ 74							0		0	57	0	1	1	2	60
65/ 69							0	0	0	56.4	0	4	2	6	58.3
60/ 64		0	0	0	51	1	6	4	11	54.1	2	27	14	43	56
55/ 59	0	3	1	4	49.6	4	41	20	65	51.5	36	122	75	233	52.7
50/ 54	5	49	18	72	47	65	134	102	301	48.4	152	83	131	366	49.7
45/ 49	74	140	116	330	43.8	132	63	103	298	44.4	47	3	17	67	45.5
40/ 44	84	42	73	199	39.7	38	3	16	57	39.8	2		0	2	40.8
35/ 39	70	6	30	106	36.1	9	0	2	11	36.5	0			0	37.5
30/ 34	6	0	1	7	31.9	0			0	32.4					
25/ 29	0			0	28										
20/ 24															
15/ 19															
10/ 14															
5/ 9															
0/ 4															
-5/ -1															
-10/ -6															

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)
80/ 84		0		0	67										
75/ 79		1	0	1	64		1	0	1	65					
70/ 74	0	5	4	9	62	0	10	3	13	62.3	0	1	0	1	62.5
65/ 69	1	17	7	25	60.1	1	31	12	44	60.6	0	7	1	8	60
60/ 64	18	106	56	180	57.3	38	129	85	252	57.9	8	69	28	105	57.3
55/ 59	143	109	145	397	54.2	166	75	137	378	54.7	101	130	129	360	53.9
50/ 54	83	9	35	127	50.9	41	2	11	54	51.3	105	32	74	211	50
45/ 49	2	0	0	2	46.4	1		0	1	47	24	1	8	33	45.4
40/ 44											1		0	1	41.5
35/ 39											0		0	0	38.5
30/ 34															
25/ 29															
20/ 24															
15/ 19															
10/ 14															
5/ 9															
0/ 4															
-5/ -1															
-10/ -6															

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)
80/ 84															
75/ 79															
70/ 74															
65/ 69															
60/ 64	0	3	1	4	57.8										
55/ 59	13	50	17	80	53.3	1	1	0	2	52.8		0		0	51.5
50/ 54	89	125	109	323	49.3	18	35	21	74	48.8	6	10	7	23	48.9
45/ 49	99	58	94	251	44.7	73	98	83	254	44.5	57	70	59	186	44.9
40/ 44	36	9	22	67	40.3	69	63	71	203	40	59	72	64	195	40.2
35/ 39	11	2	5	18	36.2	63	33	52	148	36	85	67	82	234	35.8
30/ 34	0		0	0	31.9	13	8	11	32	30.6	31	20	27	78	31
25/ 29						3	2	2	7	24.4	8	6	7	21	24.4
20/ 24						1	1	0	2	20.2	2	1	1	4	20.1
15/ 19							0	0	0	17.6	1	0	1	2	15.4
10/ 14												0		0	12
5/ 9															
0/ 4															
-5/ -1															
-10/ -6															

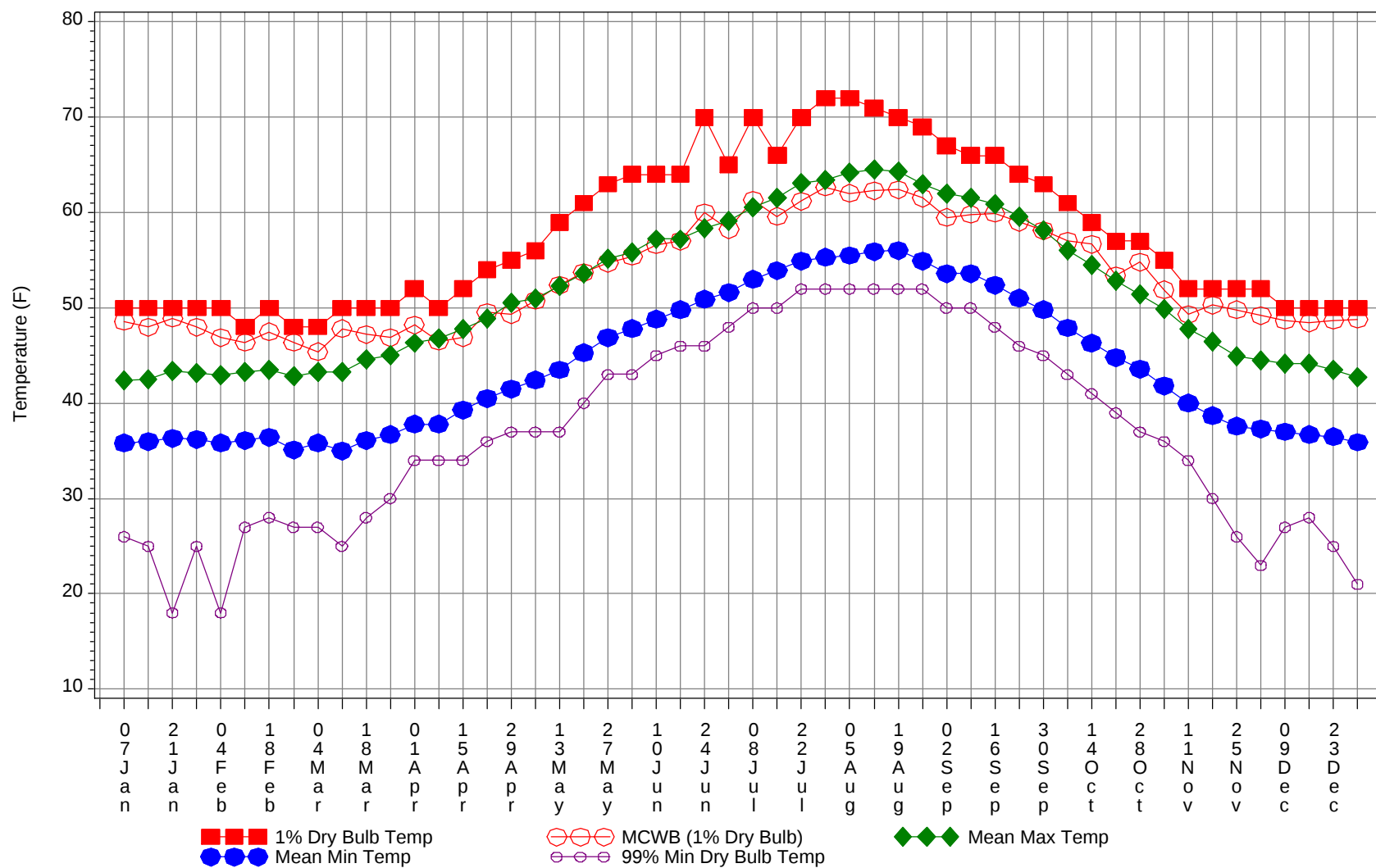
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary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

Dry-Bulb Temperature Hours For An Average Year

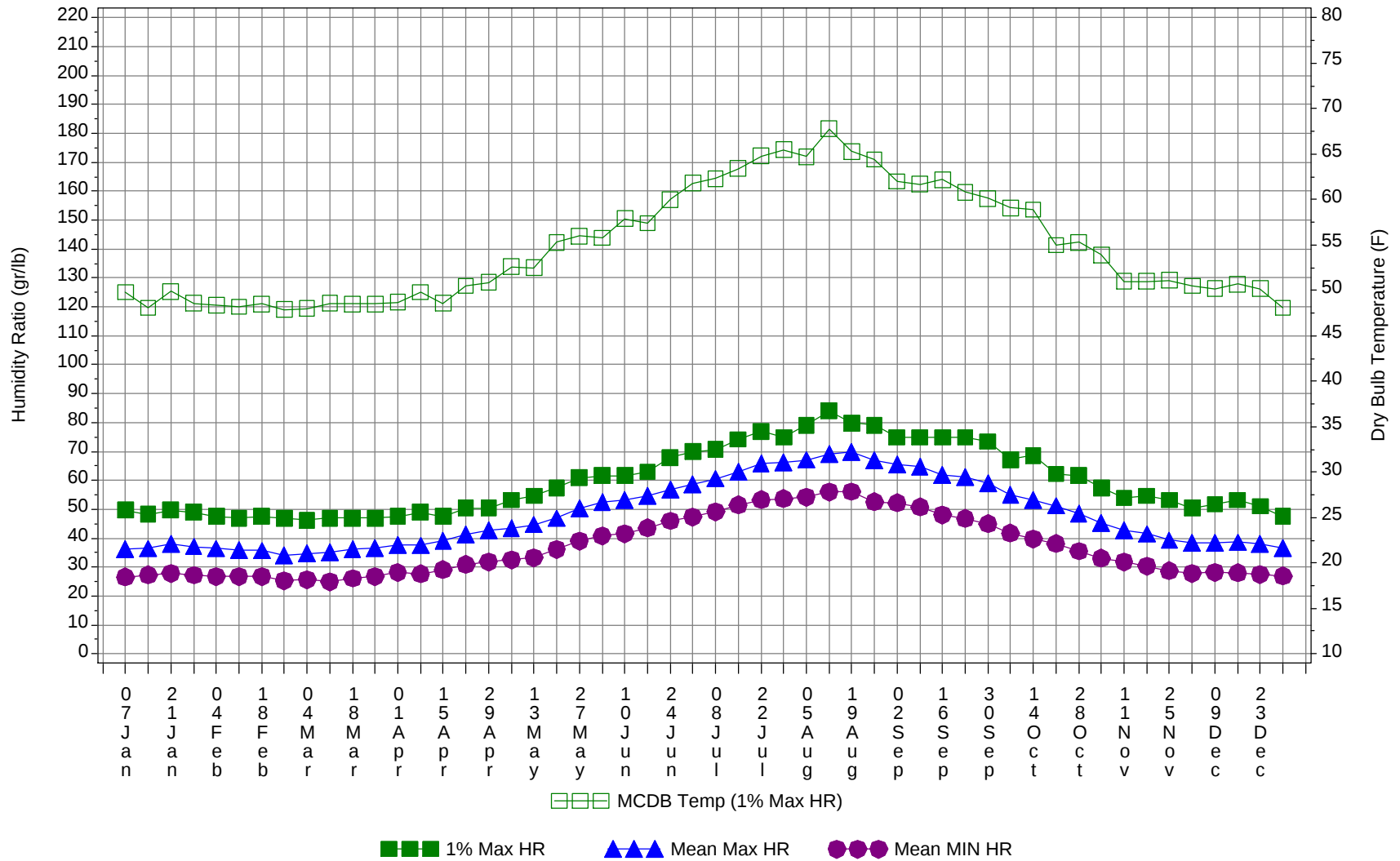
	Annual				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
80/ 84		0		0	67
75/ 79	0	2	1	3	64.1
70/ 74	1	17	8	26	62
65/ 69	3	60	23	86	60.2
60/ 64	68	340	187	595	57.4
55/ 59	463	531	524	1518	53.9
50/ 54	565	499	514	1578	49.3
45/ 49	638	668	643	1949	44.4
40/ 44	464	407	455	1326	40
35/ 39	498	281	410	1189	35.8
30/ 34	176	86	122	384	30.6
25/ 29	37	23	29	89	24.7
20/ 24	6	4	3	13	20.2
15/ 19	1	1	2	4	15.5
10/ 14	1	1	1	3	10.9
5/ 9		0		0	
0/ 4		0		0	
-5/ -1		0		0	
-10/ -6		0		0	-7

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



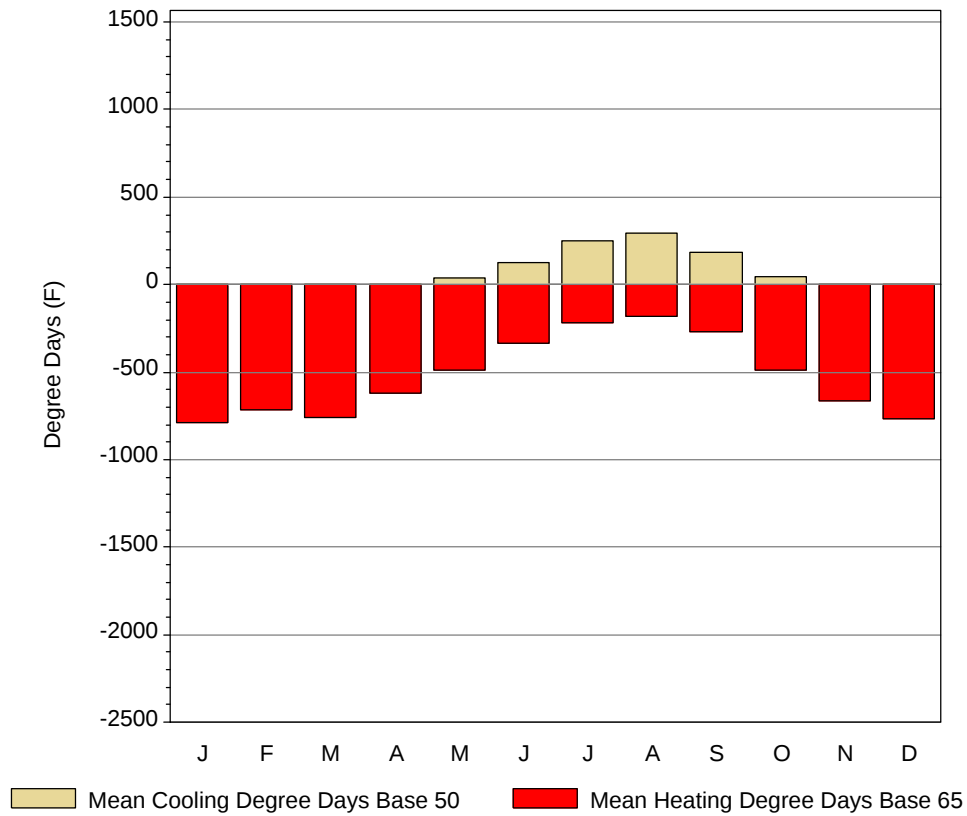
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

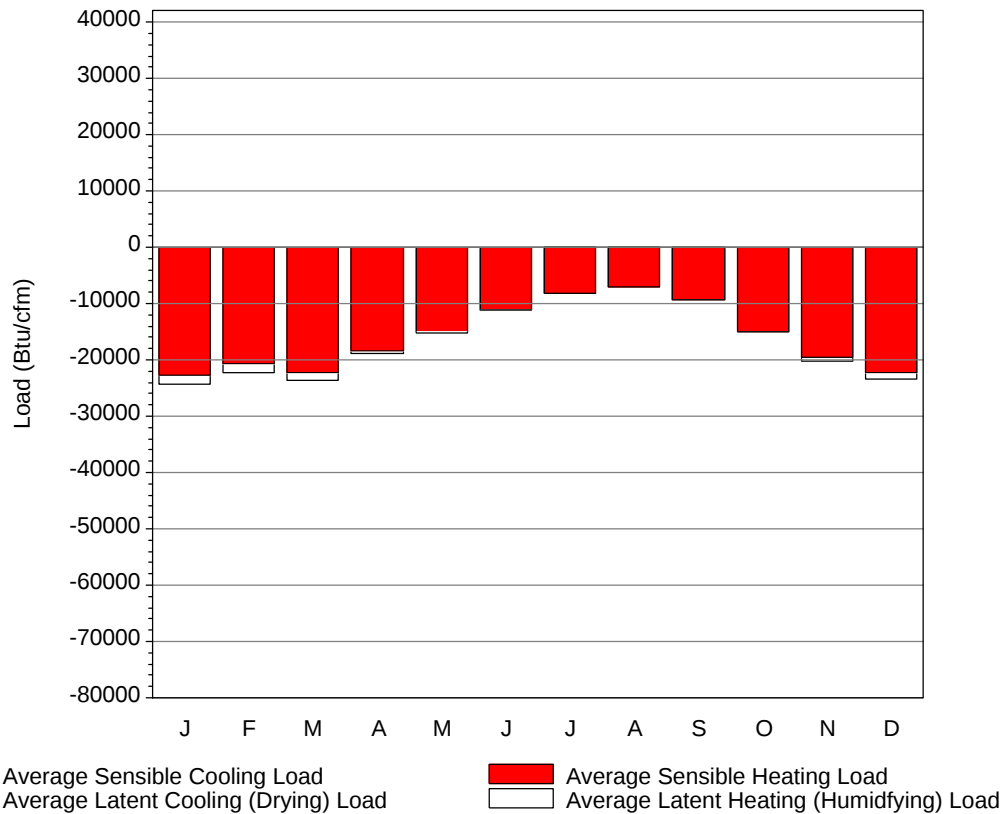
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	50	48.6	42.4	35.8	26	49.7	49.8	36.2	26.5
14-Jan	50	48	42.5	36	25	48.3	48.1	36.4	27.3
21-Jan	50	48.9	43.4	36.3	18	49.7	49.9	37.9	27.9
28-Jan	50	48	43.2	36.2	25	49	48.6	37.1	27.2
4-Feb	50	46.9	42.9	35.8	18	47.6	48.4	36.4	26.8
11-Feb	48	46.4	43.3	36.1	27	46.9	48.2	36	26.7
18-Feb	50	47.5	43.5	36.4	28	47.6	48.5	35.7	26.8
25-Feb	48	46.4	42.8	35.1	27	46.9	47.9	34.2	25.3
4-Mar	48	45.4	43.3	35.8	27	46.2	48	34.7	25.6
11-Mar	50	47.8	43.3	35	25	46.9	48.6	35.2	25
18-Mar	50	47.2	44.6	36.1	28	46.9	48.5	36.2	26.1
25-Mar	50	46.9	45	36.7	30	46.9	48.5	36.6	26.7
1-Apr	52	48.2	46.3	37.8	34	47.6	48.7	37.6	28.1
8-Apr	50	46.5	46.8	37.8	34	49	49.8	37.5	27.6
15-Apr	52	46.9	47.8	39.3	34	47.6	48.6	39.2	29.1
22-Apr	54	49.5	48.9	40.5	36	50.4	50.5	41.4	30.9
29-Apr	55	49.3	50.5	41.5	37	50.4	50.9	42.8	31.8
6-May	56	50.8	51	42.4	37	53.2	52.6	43.4	32.6
13-May	59	52.4	52.3	43.5	37	54.6	52.5	44.7	33.2
20-May	61	53.7	53.6	45.3	40	57.4	55.3	46.9	36.1
27-May	63	54.7	55.2	46.9	43	60.9	56	50.2	39
4-Jun	64	55.4	55.8	47.8	43	61.6	55.8	52.4	40.9
10-Jun	64	56.6	57.2	48.8	45	61.6	57.9	53.3	41.6
17-Jun	64	57	57.2	49.8	46	63	57.4	54.8	43.6
24-Jun	70	60	58.4	50.9	46	67.9	60	56.8	46
1-Jul	65	58.2	59.1	51.6	48	70	61.8	58.6	47.4
8-Jul	70	61.3	60.6	53	50	70.7	62.3	60.6	49.2
15-Jul	66	59.6	61.6	53.9	50	74.2	63.4	62.9	51.5
22-Jul	70	61.2	63.1	54.9	52	77	64.8	65.9	53.3
29-Jul	72	62.7	63.4	55.3	52	74.9	65.5	66.2	53.6
5-Aug	72	62	64.2	55.5	52	79.1	64.7	67.1	54.2
12-Aug	71	62.3	64.5	55.9	52	84	67.8	69.1	56
19-Aug	70	62.4	64.3	56	52	79.8	65.3	69.7	56.1
26-Aug	69	61.5	63	54.9	52	79.1	64.4	66.9	52.6
2-Sep	67	59.5	62	53.6	50	74.9	62	65.4	52.2
9-Sep	66	59.8	61.6	53.6	50	74.9	61.7	64.9	50.8
16-Sep	66	59.9	60.9	52.4	48	74.9	62.2	61.8	48.1
23-Sep	64	59	59.6	51	46	74.9	60.8	61.2	46.8
30-Sep	63	58.1	58.1	49.8	45	73.5	60.1	58.9	45
7-Oct	61	57	56	47.9	43	67.2	59.1	55	41.7
14-Oct	59	56.7	54.5	46.3	41	68.6	58.9	53.2	39.8
21-Oct	57	53.4	52.9	44.8	39	62.3	55	51.2	38.2
28-Oct	57	54.8	51.4	43.6	37	61.6	55.3	48.4	35.5
4-Nov	55	51.9	49.9	41.8	36	57.4	53.9	45.3	33.1
11-Nov	52	49.3	47.8	40	34	53.9	51	42.7	31.8
18-Nov	52	50.3	46.5	38.7	30	54.6	51	41.5	30.3
25-Nov	52	49.8	44.9	37.6	26	53.2	51.1	39.3	28.8
2-Dec	52	49.2	44.5	37.3	23	50.4	50.5	38.5	27.9
9-Dec	50	48.7	44.1	37	27	51.8	50.2	38.5	28.2
16-Dec	50	48.4	44.1	36.7	28	53.2	50.7	38.6	28
23-Dec	50	48.7	43.5	36.5	25	51.1	50.2	38	27.4
31-Dec	50	48.8	42.7	35.9	21	47.6	48.1	36.5	27

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	0.2	0	784.6
FEB	0.1	0	716
MAR	0.4	0	761.5
APR	3.8	0	621.8
MAY	41.5	0.1	486.7
JUN	122.4	1.1	336
JUL	248.7	4.6	221.1
AUG	292	6.6	179.7
SEP	182.8	0.7	271.8
OCT	43.8	0	485
NOV	2.5	0	661.1
DEC	0.6	0	763.7
ANN	938.8	13.1	6289

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	0	-22748	0	-1511
FEB	0	-20757	0	-1449
MAR	0	-22149	0	-1444
APR	0	-18450	0	-480
MAY	0	-15025	0	-108
JUN	0	-11023	0	-1
JUL	2	-8065	4	0
AUG	1	-6943	30	0
SEP	0	-9363	3	-3
OCT	0	-14983	0	-106
NOV	0	-19468	0	-682
DEC	0	-22206	0	-1271
ANN	3	-191180	37	-7055

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													

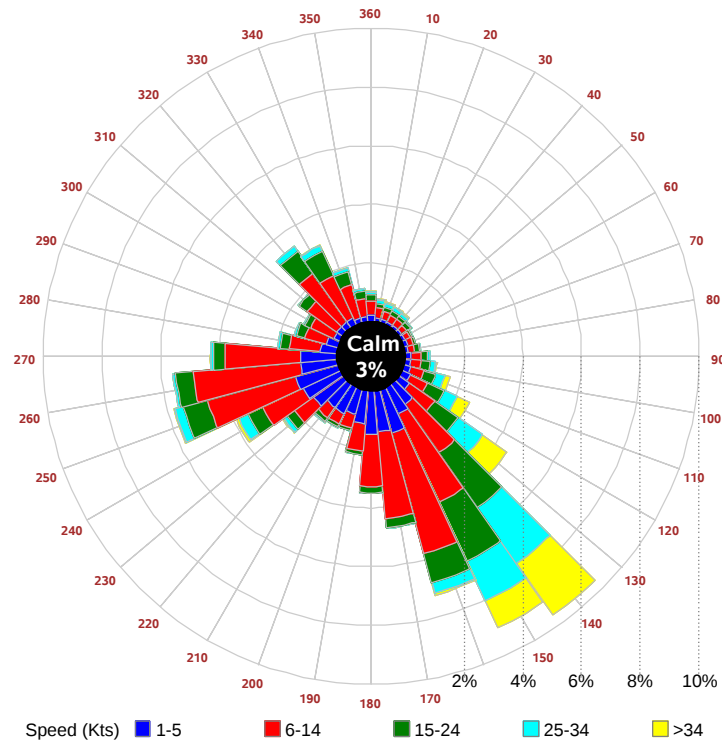
Average Annual Solar Radiation - Nearest Available Site Source: National Renewable Energy Laboratory, Golden CO, 1995

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													

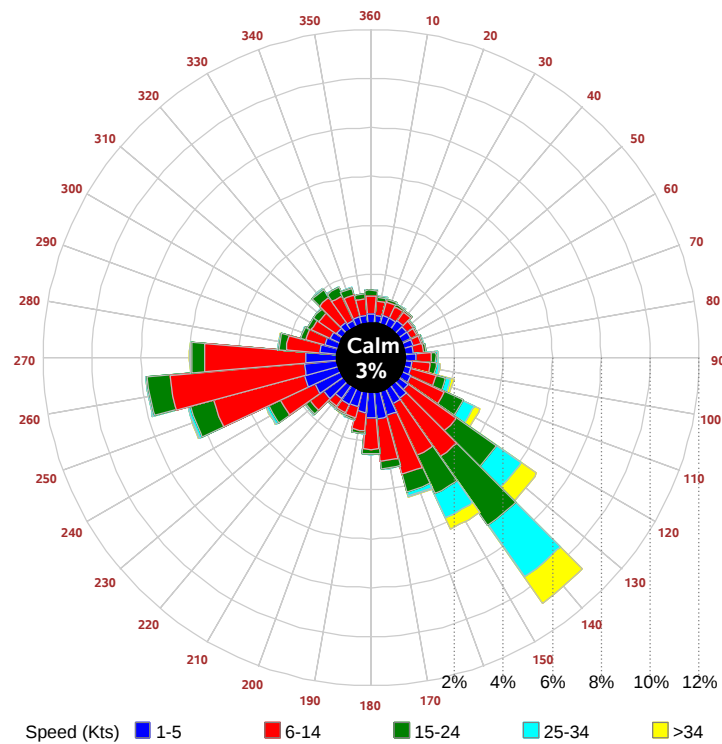
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9												
				March						June		
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm	
HORIZ.	M.Clear											
	M.Cloudy											
NORTH	M.Clear											
	M.Cloudy											
EAST	M.Clear			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

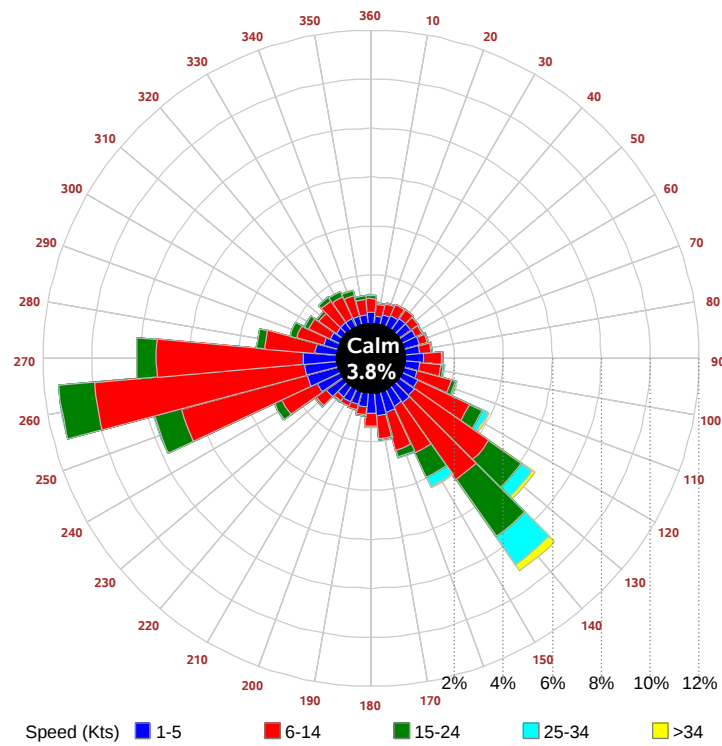
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

