

SUWON, KS	
Latitude = 37.24 N	Station ID = ICAO_RKSW
Longitude = 127.01 E	Elevation = 88 Feet
Period of Record = 1988 To 2017	Average Pressure = 29.92 inches Hg

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	93	79	129	5.5	W
0.4% Occurrence	91	78	123	6.3	WNW
1.0% Occurrence	90	77	123	6.3	WNW
2.0% Occurrence	88	76	118	6.2	W
Mean Daily Range	18	-	-	-	NNW
97.5% Occurrence	20	18	11	4.1	NNW
99.0% Occurrence	16	14	9	4.3	NNW
99.6% Occurrence	13	12	8	3.2	NNW
Median of Extreme Lows	10	9	6	3.4	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	82	90	149	6	WNW
0.4% Occurrence	80	88	140	6.1	W
1.0% Occurrence	79	86	137	5.4	W
2.0% Occurrence	78	85	134	5.2	W

	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	151	85	0.99	5.2	WNW
0.4% Occurrence	144	85	0.94	6.2	S
1.0% Occurrence	141	83	0.94	4.7	S
2.0% Occurrence	134	82	0.88	4.5	S

Air Conditioning/ Humid Area Criteria	Threshold	T ≥ 93 °F	T ≥ 80 °F	Twb ≥ 73 °F	Twb ≥ 67 °F
	# of Hours	33	560	743	1459

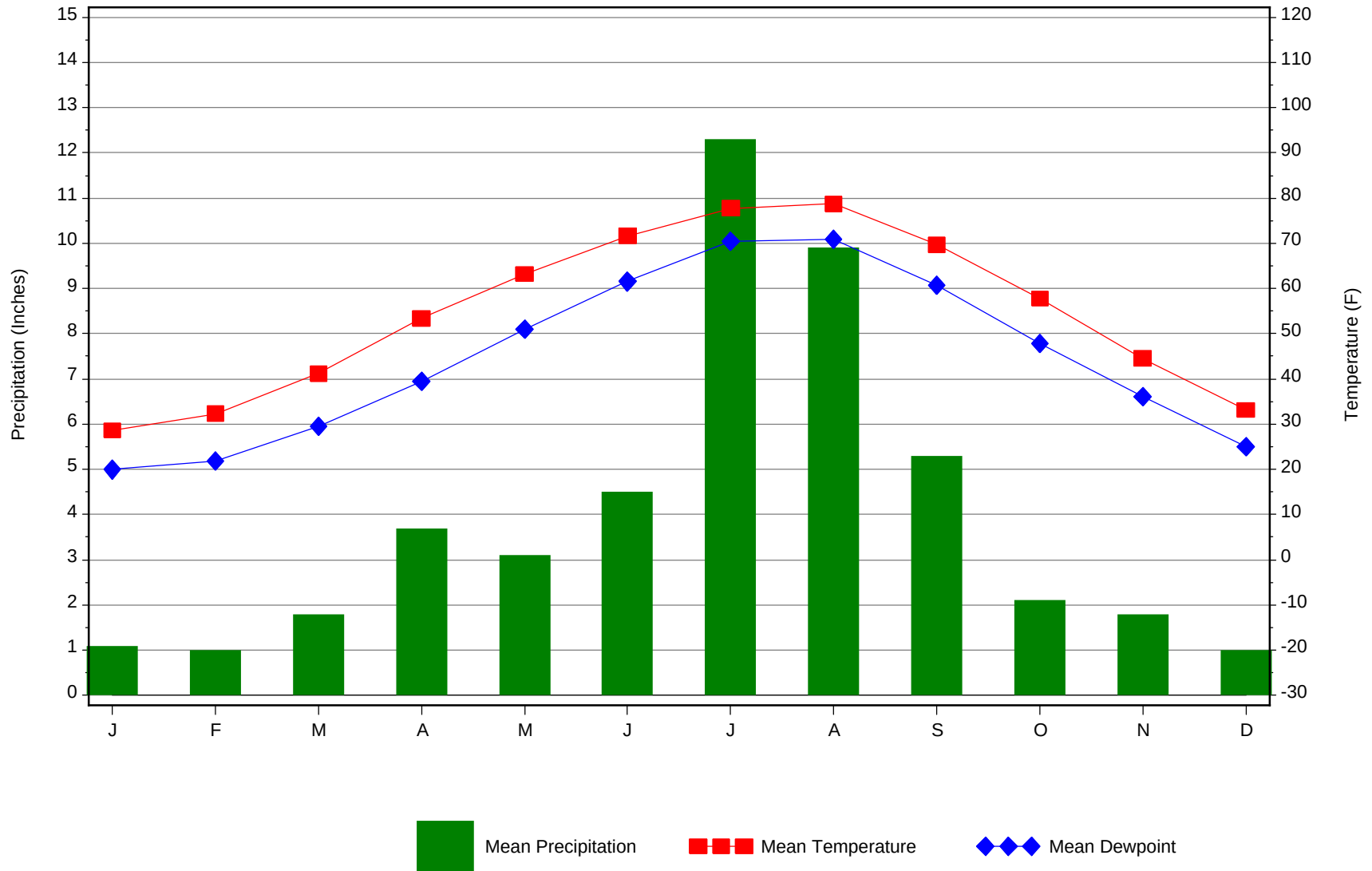
Other Site Data

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
8	N/A	N/A	4.5 + 0.7
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 (#)
58.3	N/A	N/A	49

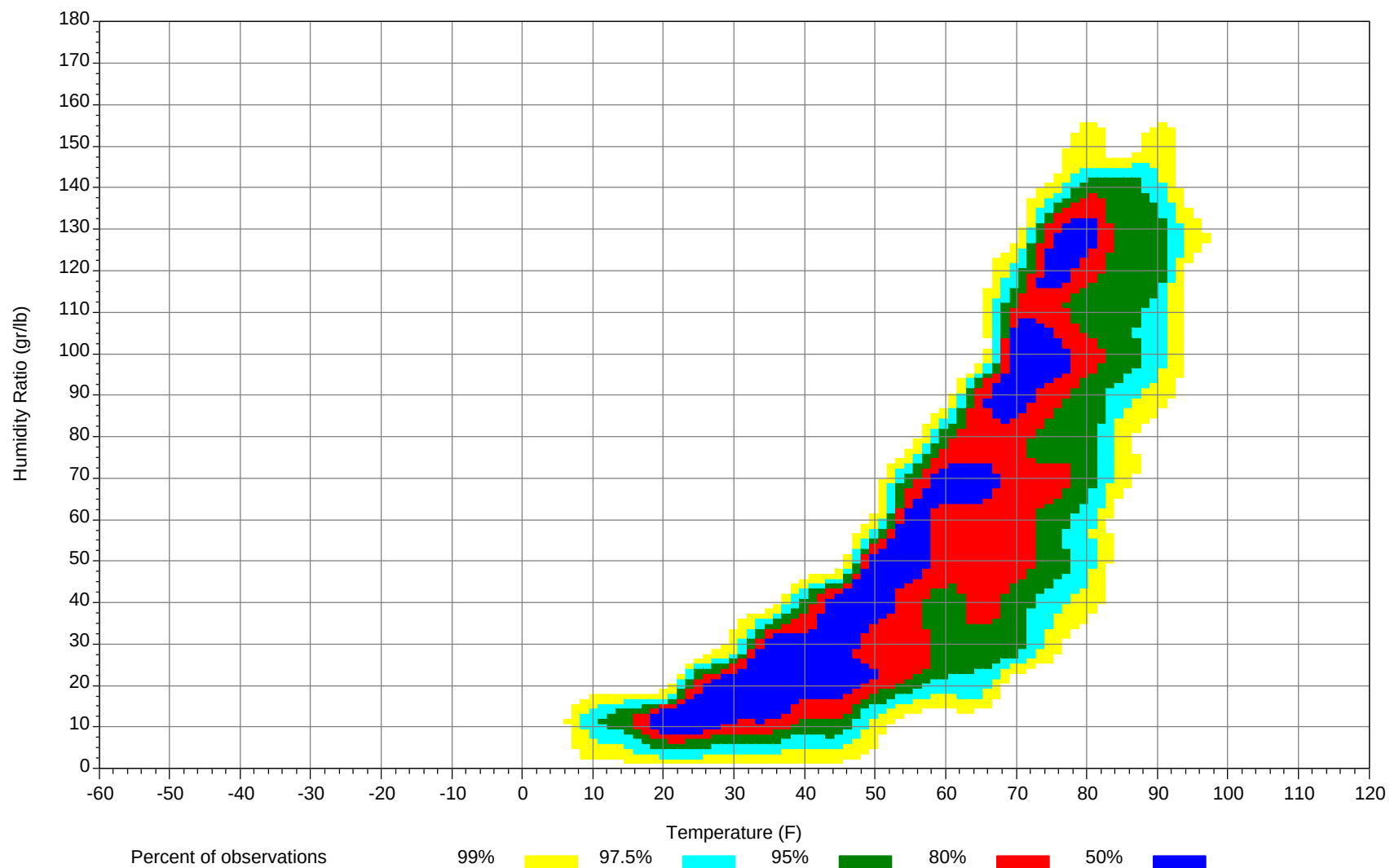
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



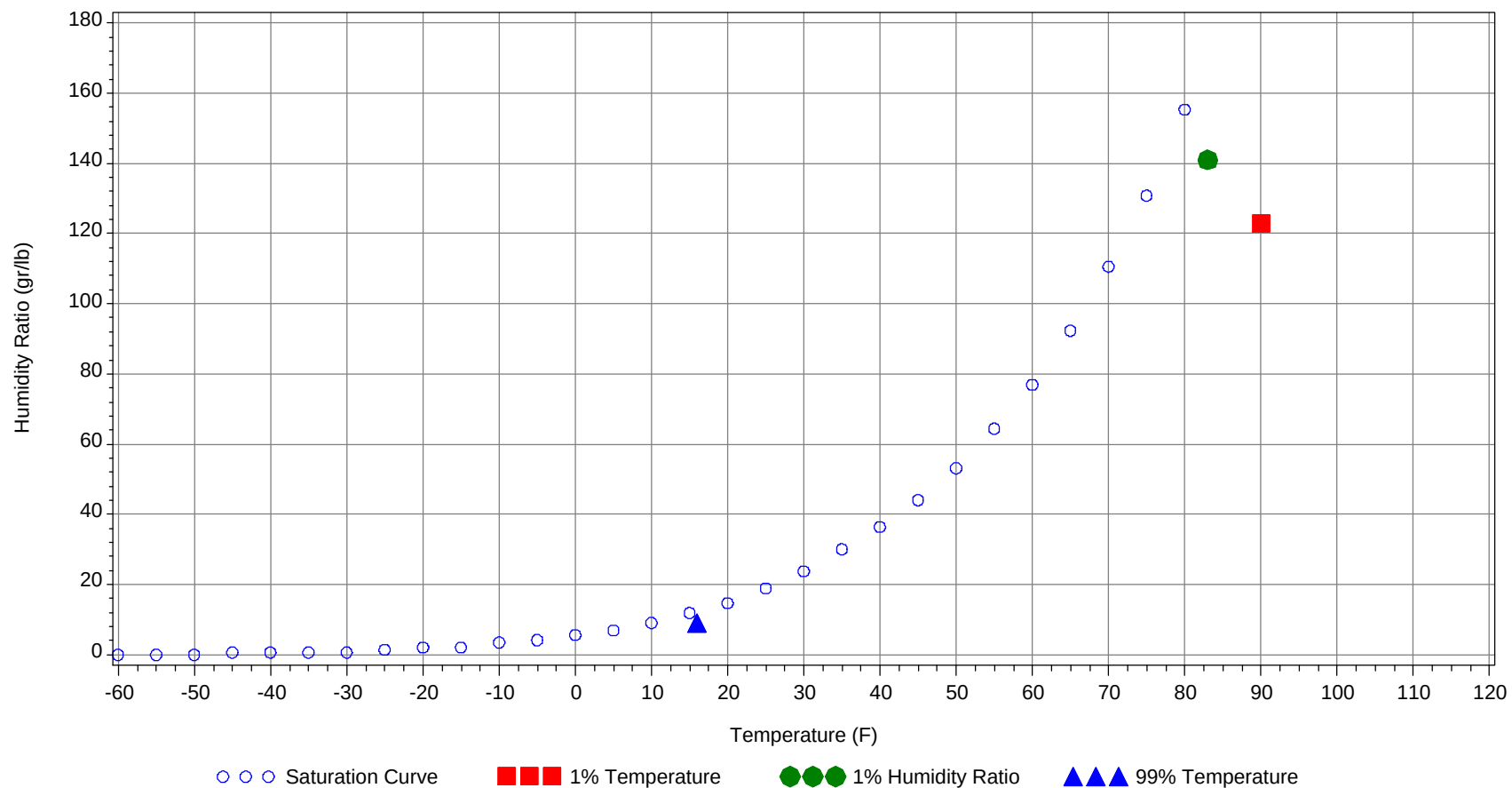
Average Annual Climate



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	90.0		77		123.0	40.6
99.0% Dry Bulb	16.0				9.0	5.2
1.0% Humidity Ratio	141.0	83.0	78.7	77.0		42.1

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)
100/104															
95/ 99															
90/ 94															
85/ 89															
80/ 84															
75/ 79															
70/ 74												1		1	52.1
65/ 69												2	1	3	51
60/ 64							0		0	49.8		11	3	14	48.6
55/ 59							3	0	3	46.1	0	30	11	41	46.3
50/ 54	0	4	0	4	44.6	1	14	5	20	42.9	5	51	28	84	43.7
45/ 49	2	13	5	20	40.7	4	33	15	52	39.7	16	60	53	129	40.6
40/ 44	6	28	14	48	37.2	7	37	22	66	36.6	29	43	53	125	37.6
35/ 39	24	59	40	123	33.1	25	50	49	124	33.1	70	35	59	164	34
30/ 34	35	59	60	154	28.8	43	42	57	142	28.7	78	13	31	122	29.7
25/ 29	50	46	66	162	24	52	26	45	123	24.2	38	2	8	48	24.9
20/ 24	51	20	34	105	20	39	11	18	68	20.1	10	0	1	11	20.3
15/ 19	46	13	25	84	15.9	34	6	8	48	16.1	1			1	17.4
10/ 14	28	4	3	35	11.5	16	1	2	19	11.1					
5/ 9	5	1	1	7	6.1	3	0		3	7					
0/ 4	1	0	0	1	1.4	0			0	3					
-5/ -1	1			1	-3.6										

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

	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)
100/104															
95/ 99												0		0	75
90/ 94							0	0	0	65.5		3	1	4	71.7
85/ 89		0	0	0	66		1	0	1	64.9		17	3	20	70.6
80/ 84		2	0	2	61.8		16	4	20	63.9	0	57	22	79	68.8
75/ 79		13	3	16	61.1		42	16	58	61.9	4	76	56	136	67.6
70/ 74		29	8	37	56.6	3	68	36	107	59.9	63	57	85	205	66.4
65/ 69	2	32	17	51	54.5	15	45	42	102	58.5	78	19	46	143	63.6
60/ 64	7	49	32	88	52.1	51	48	76	175	57.1	73	10	23	106	59.9
55/ 59	22	51	50	123	49.4	91	22	54	167	53.8	21	1	3	25	55.9
50/ 54	41	37	58	136	46.6	66	5	17	88	49.9	1		0	1	52.1
45/ 49	60	20	43	123	42.7	18	0	2	20	45.1					
40/ 44	48	7	20	75	38.9	3		0	3	41.1					
35/ 39	44	1	8	53	35	0		0	0	38					
30/ 34	15		1	16	30.3										
25/ 29	1			1	27.1										
20/ 24															
15/ 19															
10/ 14															
5/ 9															
0/ 4															
-5/ -1															

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)
100/104		0		0	80										
95/ 99		4	0	4	79.5		4	1	5	79.5					
90/ 94		21	7	28	78.7	0	43	12	55	78.3		3	1	4	72.4
85/ 89	0	42	19	61	76.6	0	53	25	78	76.4		15	3	18	73.6
80/ 84	11	80	63	154	74.9	13	74	68	155	75	0	43	18	61	71.1
75/ 79	98	72	100	270	73.2	114	53	94	261	73.3	14	75	46	135	68.4
70/ 74	104	26	50	180	69.4	91	19	44	154	69.5	36	60	68	164	65.8
65/ 69	30	3	8	41	65.5	25	2	4	31	65.5	56	27	48	131	63.4
60/ 64	5		0	5	60.6	4	0	0	4	61.4	71	15	39	125	59.9
55/ 59	0			0	58	0			0	57.5	35	3	15	53	54.8
50/ 54											24		3	27	50.5
45/ 49											3			3	46.6
40/ 44															
35/ 39															
30/ 34															
25/ 29															
20/ 24															
15/ 19															
10/ 14															
5/ 9															
0/ 4															
-5/ -1															

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)
100/104															
95/ 99															
90/ 94															
85/ 89															
80/ 84		1	0	1	64.4										
75/ 79		22	3	25	62.8										
70/ 74	1	52	16	69	60.3		2		2	58.7					
65/ 69	3	52	27	82	58.3		7	1	8	56					
60/ 64	29	56	61	146	56.5	0	32	8	40	53.5		0		0	48.3
55/ 59	49	35	64	148	53.1	10	43	26	79	51		5	1	6	48.2
50/ 54	64	19	44	127	49	17	50	44	111	47	0	19	6	25	44.4
45/ 49	55	8	22	85	44.4	35	41	51	127	42.7	7	35	19	61	41.1
40/ 44	28	2	8	38	40.1	38	25	38	101	39	12	39	24	75	37.4
35/ 39	15	1	3	19	35.8	61	25	40	126	34.8	30	57	54	141	33.6
30/ 34	4		0	4	31.2	47	10	24	81	30.1	59	49	66	174	29.3
25/ 29	0			0	28.7	23	4	6	33	25.2	63	28	50	141	24.8
20/ 24						6	0	1	7	20.9	40	11	21	72	20.5
15/ 19						1		0	1	16.8	28	5	7	40	16.2
10/ 14						0		0	0	12	8	1	0	9	12.1
5/ 9											1			1	7.6
0/ 4															
-5/ -1															

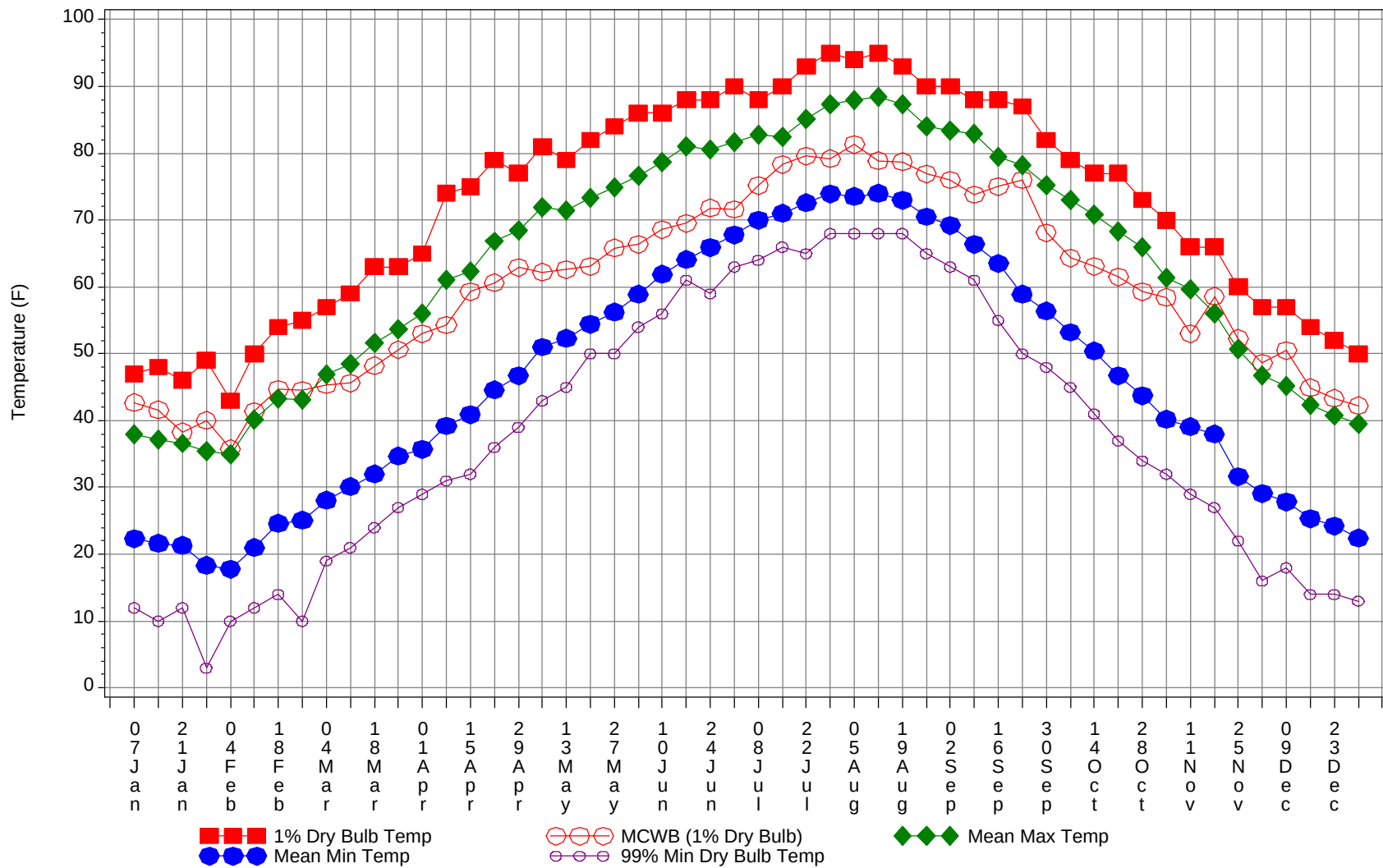
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary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

Dry-Bulb Temperature Hours For An Average Year

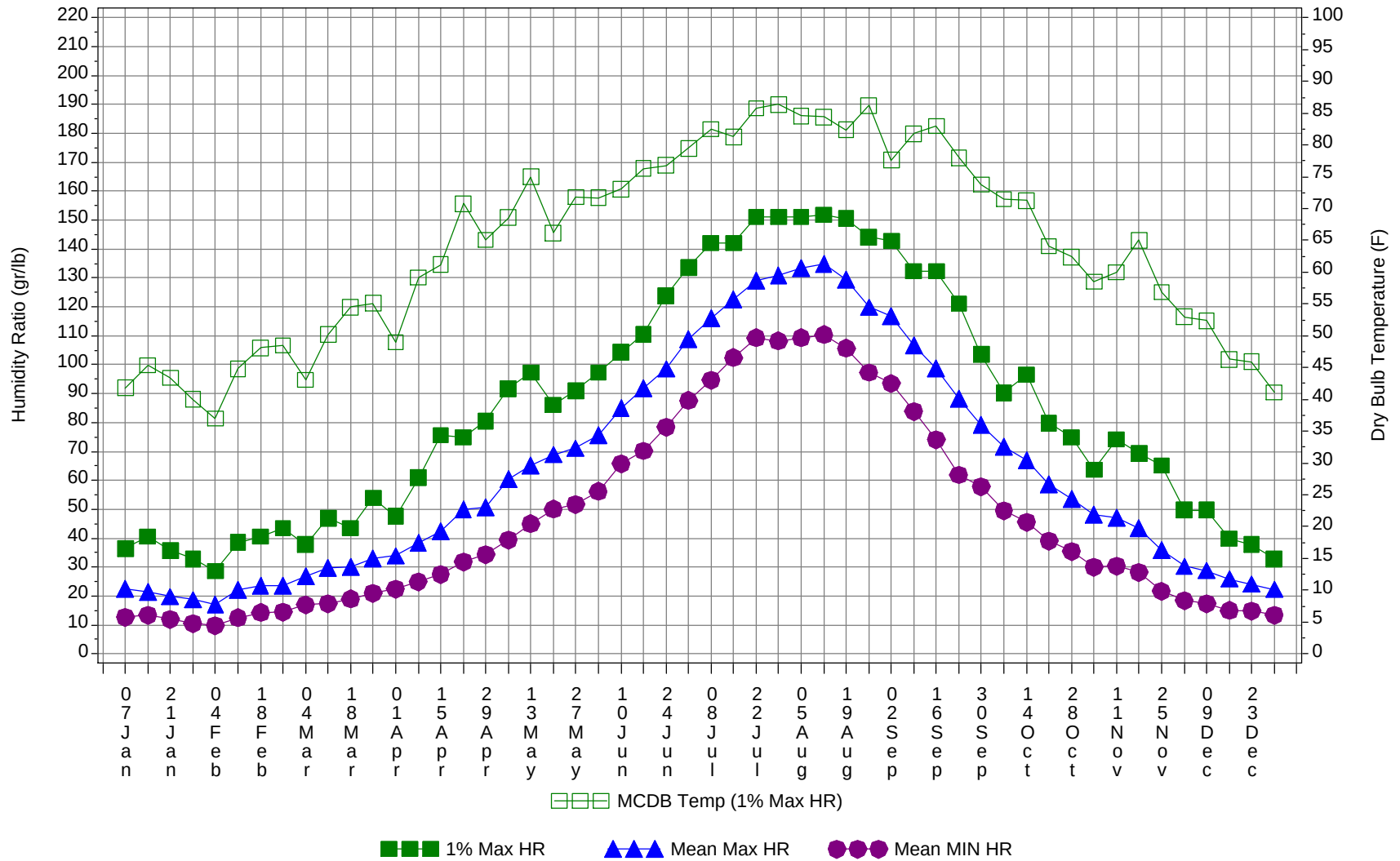
	Annual				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
100/104		0		0	80
95/ 99		9	1	10	79.4
90/ 94	0	75	21	96	77.9
85/ 89	0	138	53	191	75.4
80/ 84	27	294	188	509	72.9
75/ 79	250	377	341	968	70.5
70/ 74	326	333	327	986	65.8
65/ 69	225	198	205	628	61.3
60/ 64	258	227	255	740	57
55/ 59	246	193	229	668	52.1
50/ 54	231	192	204	627	47.3
45/ 49	200	199	203	602	42.2
40/ 44	166	167	170	503	38.1
35/ 39	254	207	235	696	33.9
30/ 34	259	154	218	631	29.3
25/ 29	203	93	158	454	24.5
20/ 24	127	37	68	232	20.2
15/ 19	95	21	36	152	16
10/ 14	45	5	5	55	11.5
5/ 9	7	1	1	9	6.5
0/ 4	1	0	0	1	1.5
-5/ -1	1			1	-3.6

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.

Annual Summary of Temperatures



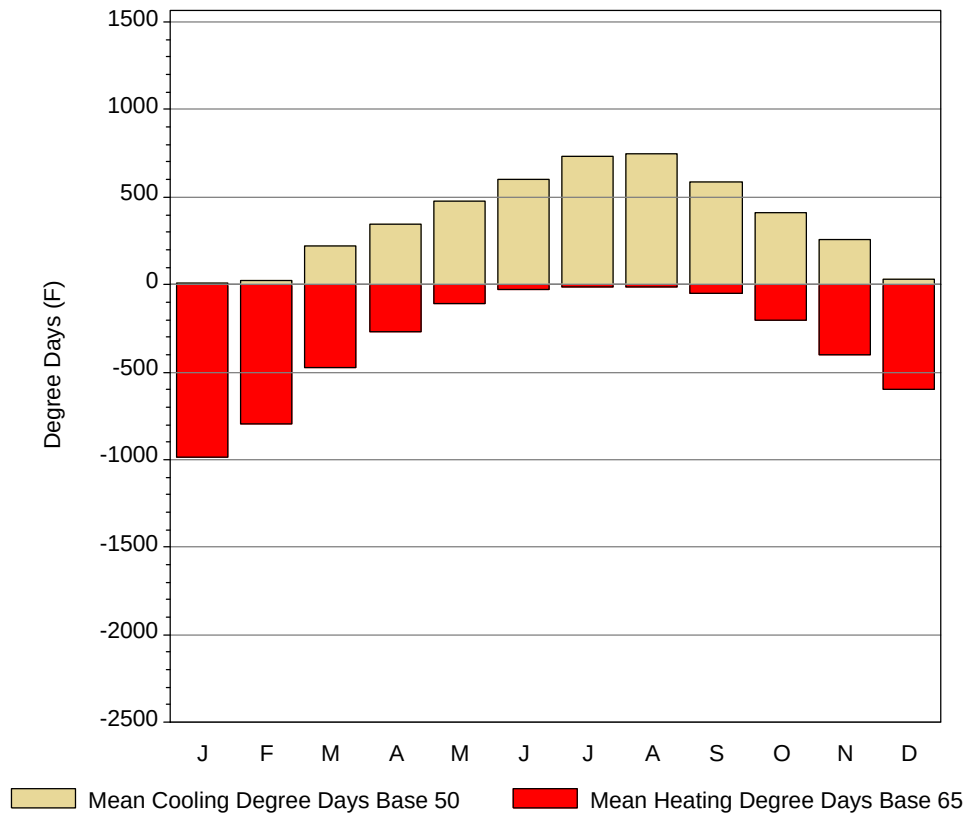
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

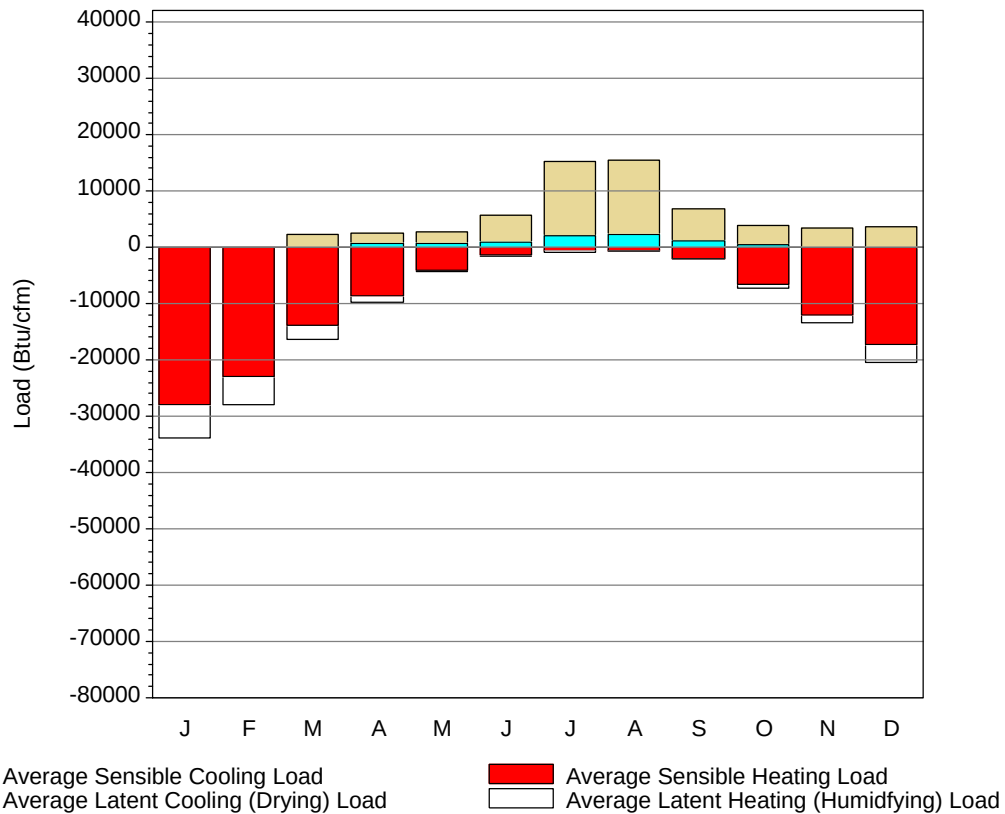
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	47	42.7	37.9	22.3	12	36.4	41.8	22.5	12.7
14-Jan	48	41.6	37.2	21.6	10	40.6	45.4	21.5	13.3
21-Jan	46	38.3	36.6	21.3	12	35.7	43.4	19.8	11.9
28-Jan	49	40	35.4	18.3	3	32.9	40	18.7	10.5
4-Feb	43	35.8	34.9	17.8	10	28.7	37	17.2	9.7
11-Feb	50	41.4	40.1	21	12	38.5	44.8	22.1	12.5
18-Feb	54	44.7	43.3	24.6	14	40.6	48.1	23.5	14.3
25-Feb	55	44.5	43.1	25.1	10	43.4	48.5	23.5	14.4
4-Mar	57	45.4	46.9	28.1	19	37.8	43.1	26.7	16.9
11-Mar	59	45.6	48.5	30.1	21	46.9	50.2	29.8	17.4
18-Mar	63	48.2	51.6	32	24	43.4	54.5	30.2	19
25-Mar	63	50.6	53.6	34.7	27	53.9	55.1	32.9	20.9
1-Apr	65	53	56	35.7	29	47.6	49	33.9	22.4
8-Apr	74	54.3	61.1	39.2	31	60.9	59.2	38.4	25
15-Apr	75	59.3	62.3	40.9	32	75.6	61.2	42.3	27.4
22-Apr	79	60.6	66.8	44.6	36	74.9	70.8	49.9	31.8
29-Apr	77	62.9	68.4	46.7	39	80.5	65.1	50.8	34.4
6-May	81	62.2	71.9	51	43	91.7	68.6	60.5	39.4
13-May	79	62.6	71.4	52.3	45	97.3	75	65	45
20-May	82	63.1	73.3	54.4	50	86.1	66.2	68.9	50.1
27-May	84	65.8	74.9	56.2	50	91	71.8	71.1	51.7
4-Jun	86	66.4	76.6	58.9	54	97.3	71.7	75.7	56.2
10-Jun	86	68.6	78.7	61.9	56	104.3	73.1	84.9	65.7
17-Jun	88	69.5	81	64.1	61	110.6	76.3	91.9	70.2
24-Jun	88	71.8	80.6	65.9	59	123.9	76.8	98.6	78.4
1-Jul	90	71.6	81.6	67.8	63	133.7	79.5	108.8	87.7
8-Jul	88	75.2	82.8	70	64	142.1	82.5	116.1	94.6
15-Jul	90	78.3	82.5	71	66	142.1	81.3	122.7	102.4
22-Jul	93	79.6	85.1	72.6	65	151.2	85.8	129.2	109.3
29-Jul	95	79.2	87.3	73.9	68	151.2	86.4	130.9	108.2
5-Aug	94	81.3	87.9	73.5	68	151.2	84.6	133.5	109.3
12-Aug	95	78.9	88.4	74	68	151.9	84.4	134.9	110.4
19-Aug	93	78.7	87.4	73	68	150.5	82.4	129.5	105.7
26-Aug	90	76.9	84	70.5	65	144.2	86.2	119.9	97.3
2-Sep	90	76	83.4	69.2	63	142.8	77.6	116.9	93.5
9-Sep	88	73.8	82.9	66.4	61	132.3	81.8	106.6	83.9
16-Sep	88	75	79.4	63.5	55	132.3	83	98.7	74
23-Sep	87	76	78.2	58.9	50	121.1	78	88.3	61.9
30-Sep	82	68.1	75.2	56.4	48	103.6	73.8	79.1	57.8
7-Oct	79	64.3	73	53.2	45	90.3	71.5	71.6	49.5
14-Oct	77	63.1	70.8	50.4	41	96.6	71.3	66.9	45.5
21-Oct	77	61.5	68.3	46.7	37	79.8	64.1	58.7	39
28-Oct	73	59.3	66	43.7	34	74.9	62.4	53.6	35.4
4-Nov	70	58.4	61.3	40.2	32	63.7	58.5	48.1	30
11-Nov	66	53	59.7	39.1	29	74.2	60	47	30.3
18-Nov	66	58.6	56	38	27	69.3	65	43.5	28.2
25-Nov	60	52.3	50.7	31.6	22	65.1	56.9	36	21.6
2-Dec	57	48.6	46.8	29.1	16	49.7	53	30.3	18.4
9-Dec	57	50.5	45.1	27.8	18	49.7	52.4	28.8	17.3
16-Dec	54	44.9	42.4	25.3	14	39.9	46.3	25.9	15
23-Dec	52	43.3	40.8	24.2	14	37.8	45.9	24.1	14.8
31-Dec	50	42.2	39.5	22.4	13	32.9	41.1	22.3	13.4

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	5.9	0	984.7
FEB	26.8	0.1	799.1
MAR	219	42.3	470.6
APR	347.8	101.3	272.2
MAY	475.1	126.6	108.7
JUN	603.5	196.4	29.1
JUL	730.6	295.8	15.2
AUG	747.2	309.8	12.6
SEP	587.8	197.7	47.5
OCT	410.5	115	202.7
NOV	255.5	60	402.1
DEC	30.9	1.9	601.3
ANN	4440.6	1446.9	3945.8

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	-27826	0	-6124
FEB	0	-22909	0	-5138
MAR	0	-13876	2393	-2542
APR	685	-8591	1919	-1172
MAY	658	-4076	2052	-230
JUN	1038	-1342	4750	-173
JUL	2033	-655	13135	-152
AUG	2335	-582	13106	-126
SEP	1225	-1934	5546	-115
OCT	394	-6597	3464	-572
NOV	0	-11997	3318	-1426
DEC	0	-17249	3741	-3144
ANN	8368	-117634	53424	-20914

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													

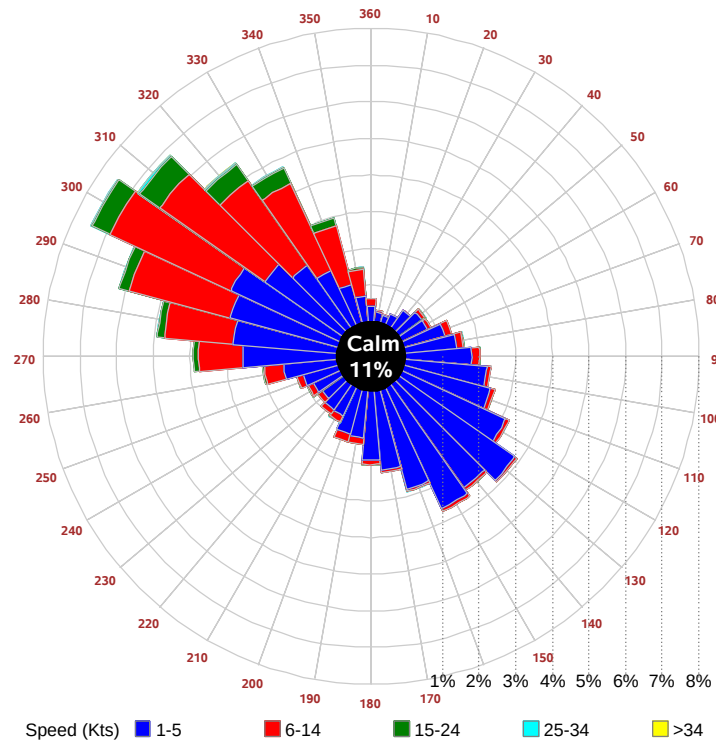
Average Annual Solar Radiation - Nearest Available Site Source: National Renewable Energy Laboratory, Golden CO, 1995

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													

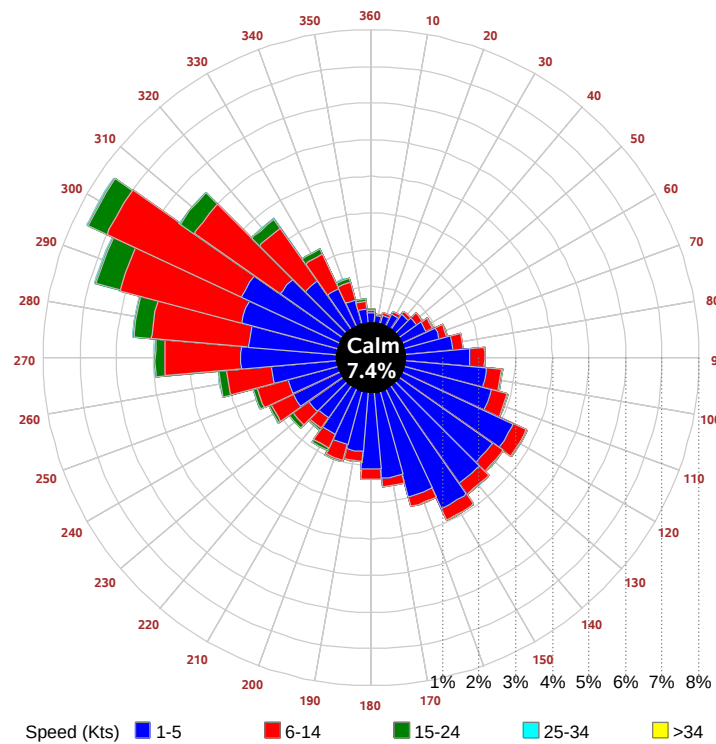
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9												
				March						June		
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm	
HORIZ.	M.Clear											
	M.Cloudy											
NORTH	M.Clear											
	M.Cloudy											
EAST	M.Clear			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

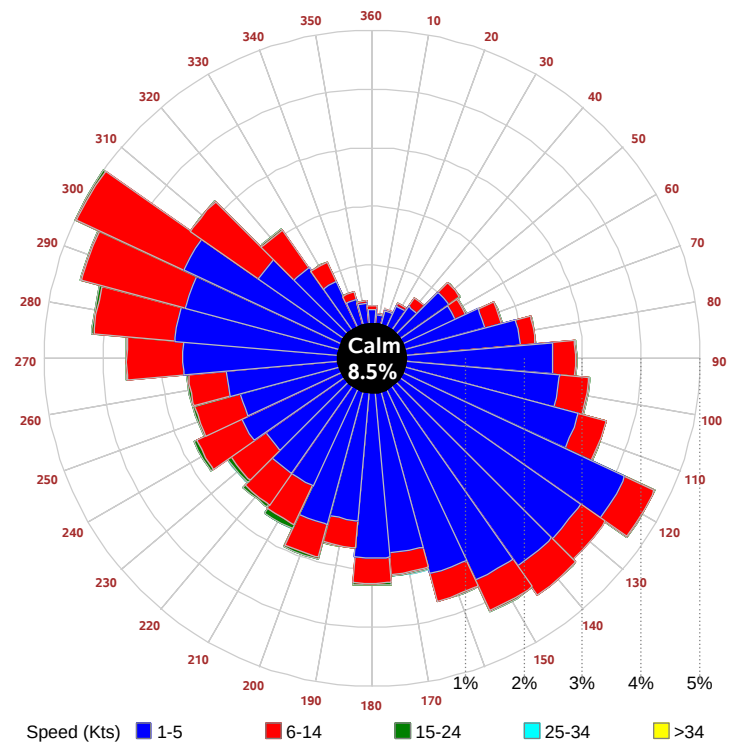
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

