

CAMP CASEY/TONGDUCH, KS

Latitude = 37.92 N

Longitude = 127.05 E

Period of Record = 1988 To 2006

Station ID = ICAO_RKST

Elevation = 197 Feet

Average Pressure = 29.80 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	97	79	124	5.2	N
0.4% Occurrence	95	79	123	5.1	NNW
1.0% Occurrence	91	76	115	5.1	N
2.0% Occurrence	88	75	110	5.1	SSW
Mean Daily Range	19	-	-	-	N
97.5% Occurrence	16	14	9	2.3	N
99.0% Occurrence	12	11	7	1.9	N
99.6% Occurrence	9	9	6	1.3	N
Median of Extreme Lows	6	5	6	1.5	N

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	81	92	143	5.1	SW
0.4% Occurrence	81	92	143	5.1	SW
1.0% Occurrence	79	87	136	4.9	SSW
2.0% Occurrence	78	85	133	4.9	SSW

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	152	87	0.99	5	SSW
0.4% Occurrence	144	84	0.94	4.4	SSW
1.0% Occurrence	142	85	0.94	4.5	SSW
2.0% Occurrence	134	83	0.88	4.4	SSW

Air Conditioning/ Humid Area Criteria	Threshold	$T \geq 93^{\circ}\text{F}$	$T \geq 80^{\circ}\text{F}$	$T_{wb} \geq 73^{\circ}\text{F}$	$T_{wb} \geq 67^{\circ}\text{F}$
	# of Hours	56	561	571	1162

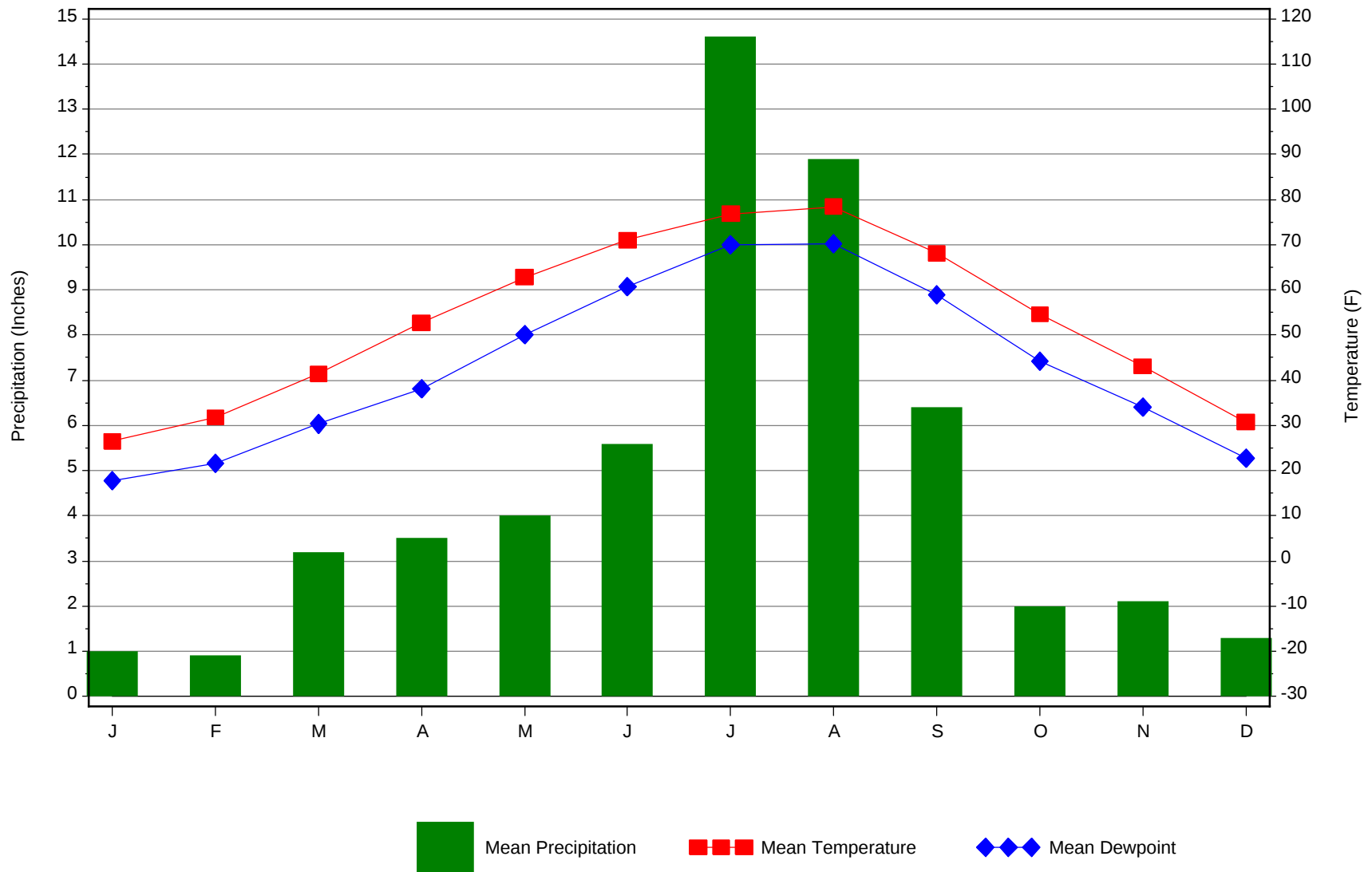
Other Site Data

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	105	4.2 + 0.8
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 (#)
56	48	20	49

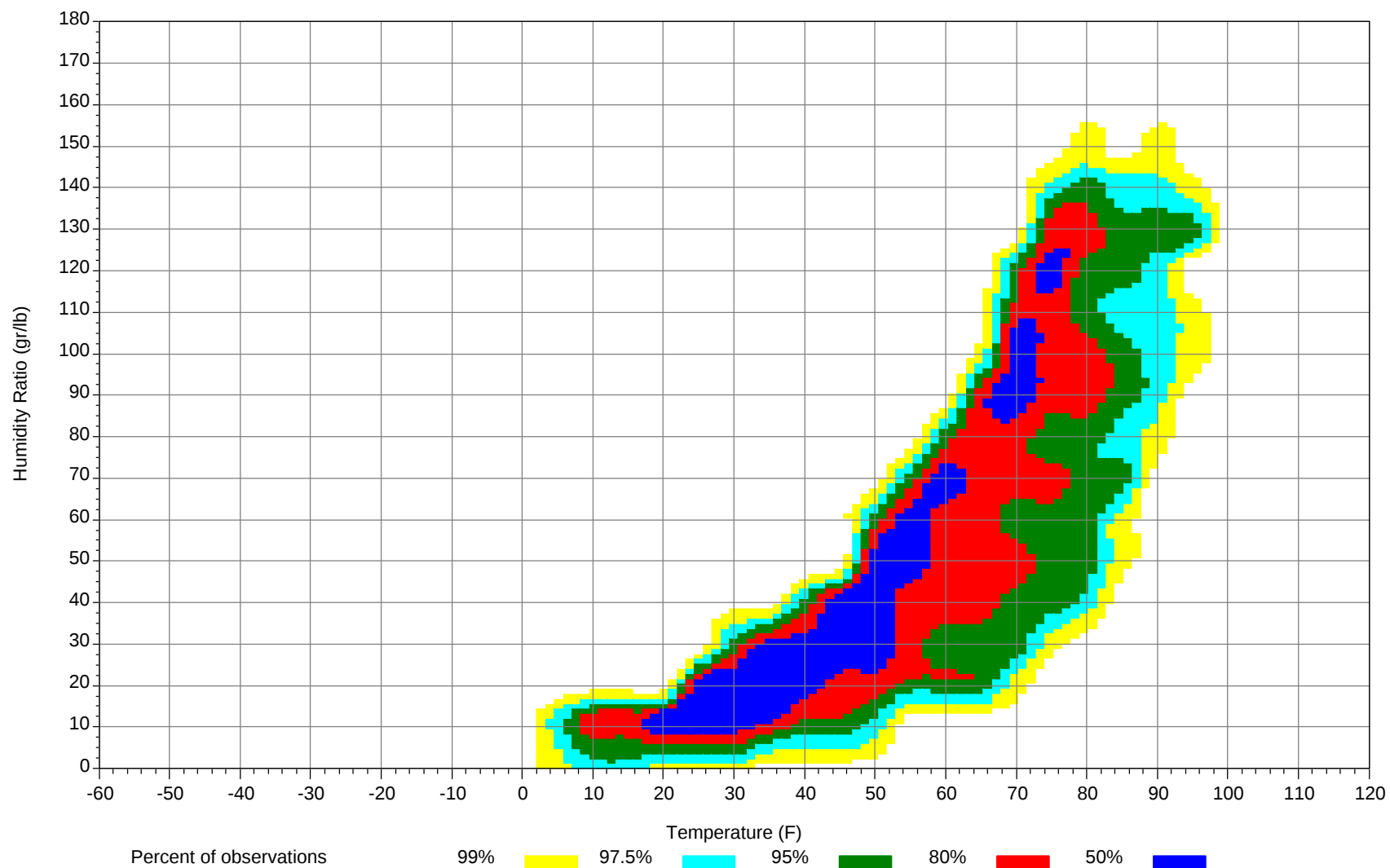
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



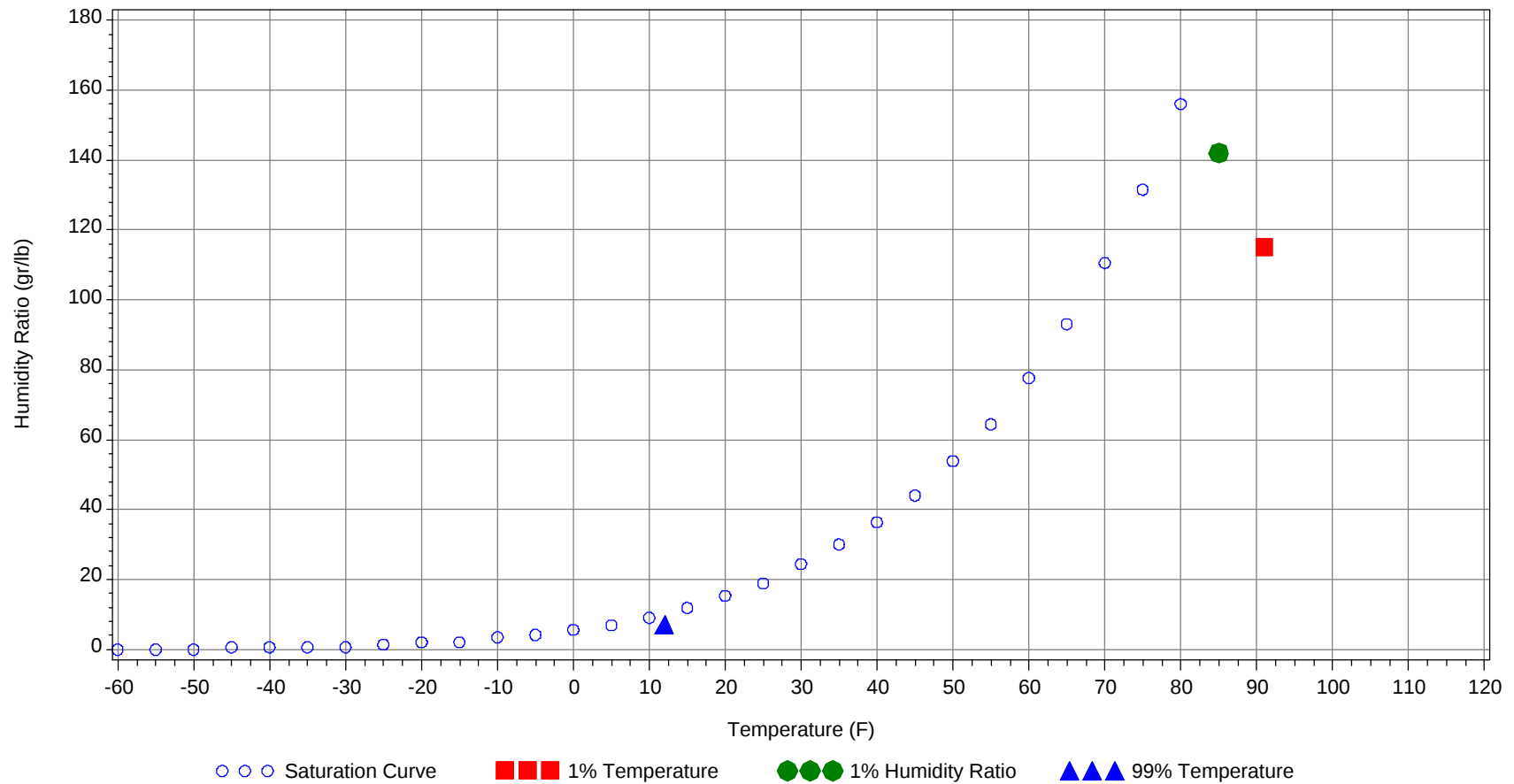
Average Annual Climate



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	91.0		76		115.0	40.1
99.0% Dry Bulb	12.0				7.0	4.0
1.0% Humidity Ratio	142.0	85.0	79.1	77.0		42.7

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)
100/104															
95/ 99															
90/ 94															
85/ 89															
80/ 84															
75/ 79												0	0	0	54.3
70/ 74												0	0	0	58.3
65/ 69												5	1	6	52
60/ 64							1		1	52		13	5	18	48.8
55/ 59							3	2	5	49.8		30	14	44	46.5
50/ 54		1	0	1	43.4	1	16	5	22	42.9	3	53	32	88	44
45/ 49	1	9	3	13	40	2	33	18	53	39.1	16	56	56	128	41.1
40/ 44	4	18	8	30	36.9	7	29	22	58	36.4	26	33	51	110	37.9
35/ 39	14	64	35	113	33.1	28	54	51	133	33.6	68	34	52	154	34.5
30/ 34	31	62	66	159	29.4	37	35	54	126	29.2	71	19	26	116	30.2
25/ 29	34	41	59	134	24.2	42	23	42	107	24.5	43	4	9	56	25.4
20/ 24	33	19	38	90	20	41	14	17	72	20.5	17	1	1	19	21
15/ 19	58	19	26	103	16	39	11	9	59	16.2	5			5	15.9
10/ 14	48	10	9	67	11.1	21	5	3	29	11.2					
5/ 9	19	3	2	24	6.8	7	1	1	9	6.4					
0/ 4	3	1	2	6	1.8	0			0	3					
-5/ -1	1	0	0	1	-4										
-10/ -6	2	0		2	-6.8										

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												1	0	1	71.6
90/ 94							2	1	3	67		7	3	10	70
85/ 89		1	0	1	59		6	3	9	64.5		22	7	29	69.7
80/ 84		5	2	7	59.3		22	8	30	63.3		56	25	81	68.7
75/ 79		15	5	20	58.3		49	20	69	61.8	2	62	44	108	67.3
70/ 74		24	12	36	55.1	0	58	32	90	59.7	31	57	71	159	66.2
65/ 69	0	28	16	44	53.5	3	37	39	79	58.1	65	21	57	143	63.7
60/ 64	2	43	28	73	51.3	35	39	65	139	56.8	95	13	29	137	60.3
55/ 59	11	50	45	106	49.1	90	28	53	171	53.4	42	1	5	48	55.8
50/ 54	39	39	56	134	46.6	80	6	22	108	49.6	5			5	50.7
45/ 49	56	22	41	119	42.5	30	0	6	36	44.6	0			0	45.3
40/ 44	46	8	24	78	39	8		0	8	40.6					
35/ 39	57	3	10	70	35.1	2			2	37.3					
30/ 34	24	0	1	25	30.4										
25/ 29	4	0		4	25.3										
20/ 24	0			0	22										
15/ 19															
10/ 14															
5/ 9															
0/ 4															
-5/ -1															
-10/ -6															

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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		1	0	1	78.8		1	0	1	80.3					
95/ 99		8	3	11	79.7		18	5	23	79.2					
90/ 94		19	7	26	77.5		42	18	60	77.7		3		3	71.9
85/ 89		32	18	50	76		48	23	71	76.1		11	2	13	71.8
80/ 84	7	72	51	130	74.6	4	63	57	124	74.7		57	15	72	68.8
75/ 79	66	74	100	240	73.4	76	45	78	199	72.9	3	66	31	100	66.9
70/ 74	114	37	55	206	69.7	109	27	54	190	69.6	20	51	56	127	65.7
65/ 69	41	5	11	57	65.5	44	2	12	58	66	43	23	53	119	63.9
60/ 64	17	0	2	19	61.5	12	0	1	13	61.6	69	19	50	138	59.9
55/ 59	2			2	55.8	2			2	55.7	58	7	27	92	55
50/ 54						1			1	50.5	36	2	6	44	50.8
45/ 49											11	0		11	46.4
40/ 44															
35/ 39															
30/ 34															
25/ 29															
20/ 24															
15/ 19															
10/ 14															
5/ 9															
0/ 4															
-5/ -1															
-10/ -6															

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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		0		0	66										
80/ 84		2	0	2	64.7										
75/ 79		17	2	19	60.4										
70/ 74		51	8	59	58.1		2		2	59.1					
65/ 69		36	14	50	56		8	0	8	54.6					
60/ 64	3	52	42	97	54.5	0	30	5	35	53.3					
55/ 59	22	40	62	124	52	4	36	22	62	50.5		2	0	2	49.8
50/ 54	55	27	60	142	48.6	21	54	45	120	47.4	5	16	6	27	46.5
45/ 49	68	13	37	118	44.7	34	43	46	123	42.5	6	27	13	46	41.7
40/ 44	50	6	17	73	40.8	27	19	34	80	39	11	30	15	56	38.2
35/ 39	35	3	5	43	36.3	42	22	40	104	34.7	18	60	45	123	33.9
30/ 34	14	0	1	15	31.3	54	17	32	103	30.2	41	51	61	153	29.8
25/ 29	0			0	28	38	7	13	58	25.1	49	31	59	139	24.6
20/ 24						13	2	3	18	20.3	49	15	26	90	20.2
15/ 19						6	0	1	7	16.3	42	10	15	67	16
10/ 14						1			1	11.6	20	4	7	31	11.4
5/ 9											6	1	1	8	7
0/ 4											2	0		2	1.4
-5/ -1															
-10/ -6															

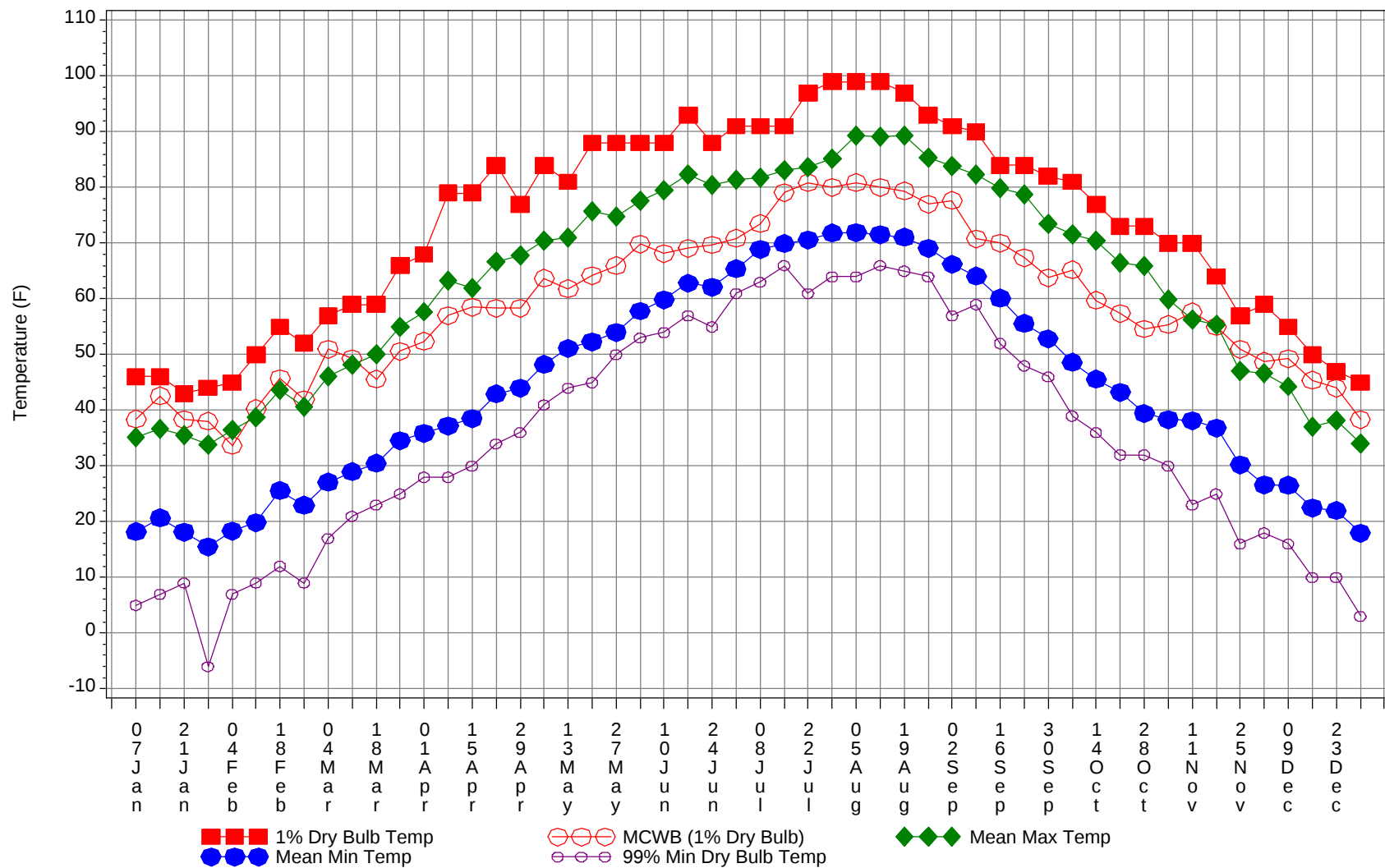
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary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

Dry-Bulb Temperature Hours For An Average Year

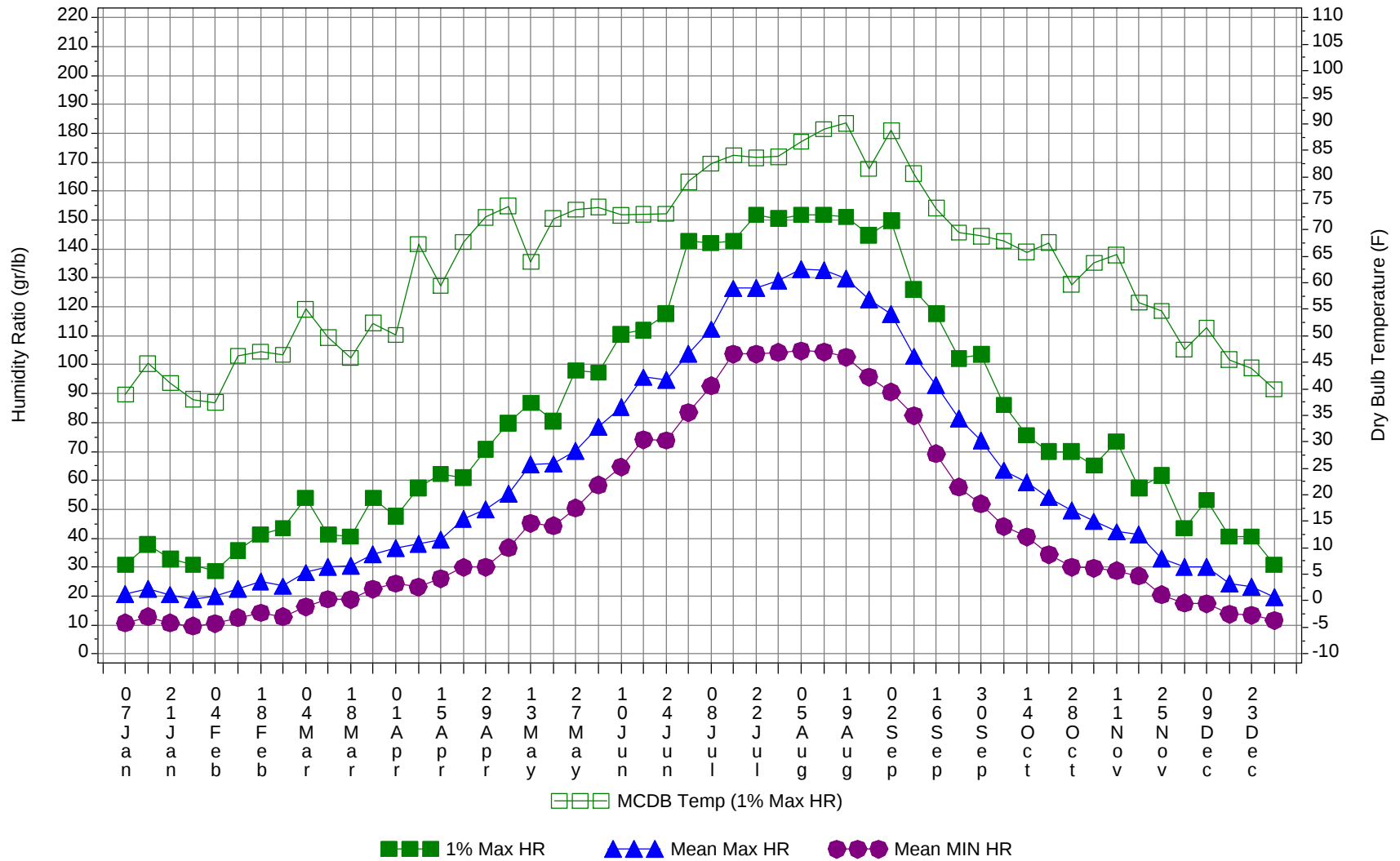
	Annual				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
100/104		3	1	4	79.6
95/ 99		27	8	35	79
90/ 94		75	29	104	76.4
85/ 89		123	54	177	73.8
80/ 84	12	281	162	455	71.5
75/ 79	145	331	283	759	69.6
70/ 74	274	309	294	877	65.9
65/ 69	201	165	208	574	61.6
60/ 64	244	210	229	683	57
55/ 59	237	196	226	659	52
50/ 54	246	211	226	683	47.4
45/ 49	220	204	218	642	42.3
40/ 44	176	142	170	488	38.4
35/ 39	264	239	237	740	34.2
30/ 34	270	183	238	691	29.7
25/ 29	206	106	180	492	24.6
20/ 24	150	51	83	284	20.3
15/ 19	147	40	51	238	16
10/ 14	89	18	20	127	11.2
5/ 9	32	5	4	41	6.7
0/ 4	5	1	2	8	1.8
-5/ -1	1	0	0	1	-4
-10/ -6	2	0		2	-6.8

Caution: This summary reflects the typical distribtion of temperature in a typical year. It does not reflect the typical mositure 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



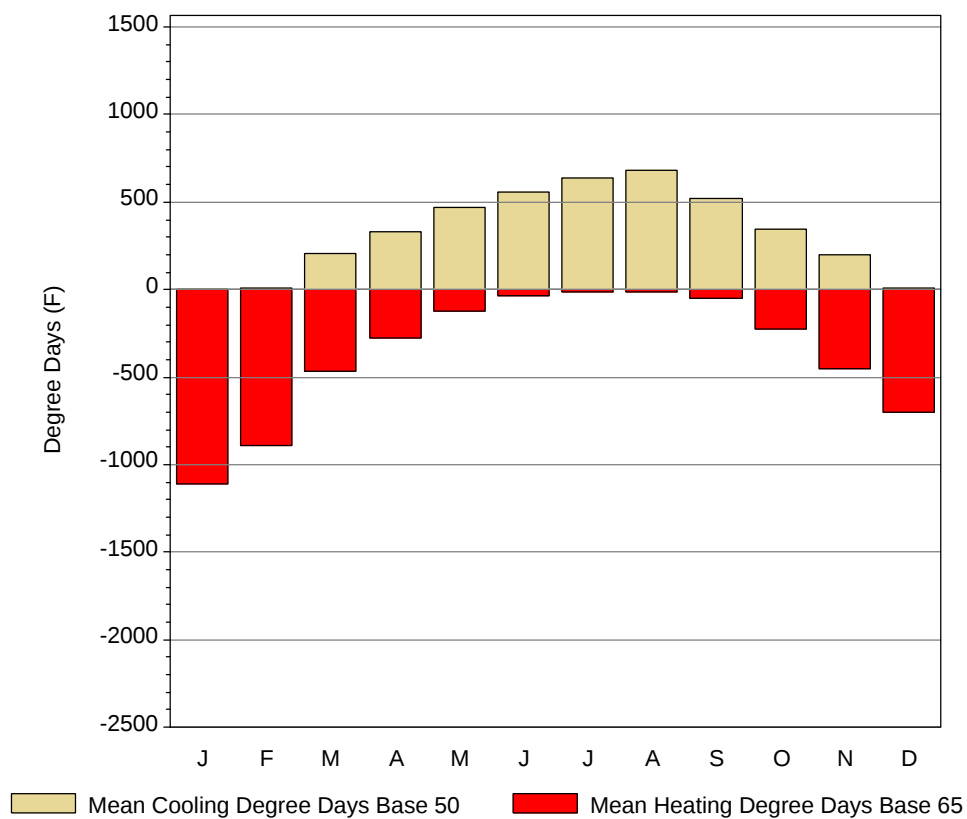
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

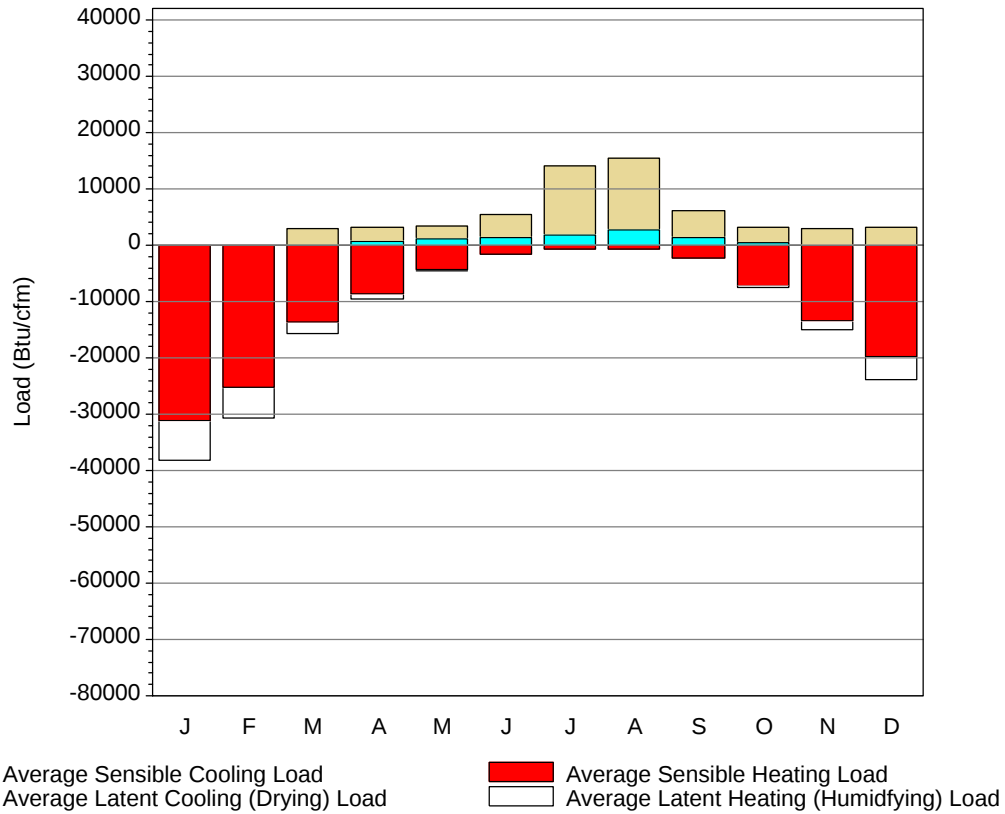
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	46	38.4	35.2	18.2	5	30.8	38.9	20.7	10.7
14-Jan	46	42.6	36.6	20.7	7	37.8	44.8	22.5	12.9
21-Jan	43	38.3	35.5	18.1	9	32.9	41.1	20.5	10.6
28-Jan	44	38	33.8	15.5	-6	30.8	38	18.9	9.6
4-Feb	45	33.7	36.4	18.3	7	28.7	37.4	19.9	10.4
11-Feb	50	40.3	38.8	19.8	9	35.7	46.2	22.6	12.4
18-Feb	55	45.7	43.7	25.6	12	41.3	47	24.9	14.2
25-Feb	52	41.9	40.7	22.9	9	43.4	46.4	23.4	12.8
4-Mar	57	51	46.1	27.1	17	53.9	55	28.1	16.2
11-Mar	59	49.3	48.2	29	21	41.3	49.7	30.2	18.9
18-Mar	59	45.6	50.1	30.5	23	40.6	45.8	30.5	18.8
25-Mar	66	50.6	54.9	34.5	25	53.9	52.4	34.3	22.4
1-Apr	68	52.4	57.7	35.9	28	47.6	50.2	36.6	24.3
8-Apr	79	57	63.3	37.2	28	57.4	67.3	38.1	23.2
15-Apr	79	58.5	61.9	38.5	30	62.3	59.4	39.6	26
22-Apr	84	58.3	66.7	42.9	34	60.9	67.7	46.8	29.9
29-Apr	77	58.3	67.8	44	36	70.7	72.4	50.1	30
6-May	84	63.7	70.4	48.2	41	79.8	74.5	55.5	36.7
13-May	81	61.8	71.1	51.1	44	86.8	64	65.6	45.1
20-May	88	64.2	75.8	52.3	45	80.5	72.1	65.7	44.3
27-May	88	66	74.8	54	50	98	73.8	70.1	50.4
4-Jun	88	69.8	77.6	57.8	53	97.3	74.3	78.6	58.3
10-Jun	88	68.1	79.5	59.8	54	110.6	72.8	85.4	64.6
17-Jun	93	69.1	82.4	62.8	57	112	72.9	95.7	74
24-Jun	88	69.7	80.5	62.1	55	117.6	73	94.9	73.8
1-Jul	91	70.9	81.3	65.4	61	142.8	79.1	103.8	83.4
8-Jul	91	73.5	81.8	68.9	63	142.1	82.5	112.3	92.7
15-Jul	91	79.1	83.1	69.9	66	142.8	84.1	126.4	103.7
22-Jul	97	80.9	83.6	70.6	61	151.9	83.6	126.7	103.7
29-Jul	99	80	85.2	71.8	64	150.5	83.8	129.1	104.3
5-Aug	99	80.9	89.3	71.9	64	151.9	86.6	133.1	104.8
12-Aug	99	80	89.1	71.5	66	151.9	89	132.6	104.4
19-Aug	97	79.4	89.4	71.1	65	151.2	90.1	129.9	102.7
26-Aug	93	77	85.4	69.1	64	144.9	81.5	122.6	95.7
2-Sep	91	77.7	83.8	66.2	57	149.8	88.7	117.6	90.6
9-Sep	90	70.8	82.3	64.1	59	126	80.6	102.9	82.4
16-Sep	84	70	79.8	60.1	52	117.6	74.1	93	69.2
23-Sep	84	67.4	78.7	55.6	48	102.2	69.5	81.3	57.7
30-Sep	82	63.8	73.5	52.8	46	103.6	68.8	73.7	51.9
7-Oct	81	65.2	71.6	48.6	39	86.1	67.9	63.5	44
14-Oct	77	59.7	70.5	45.6	36	75.6	65.8	59.3	40.5
21-Oct	73	57.4	66.4	43.2	32	70	67.6	54.1	34.4
28-Oct	73	54.6	65.9	39.4	32	70	59.7	49.5	30
4-Nov	70	55.4	59.9	38.3	30	65.1	63.8	45.8	29.7
11-Nov	70	57.7	56.2	38.1	23	73.5	65.3	42.2	28.7
18-Nov	64	55	55.4	36.8	25	57.4	56.3	41.4	26.9
25-Nov	57	51	47	30.2	16	61.6	54.7	32.9	20.4
2-Dec	59	48.8	46.7	26.6	18	43.4	47.4	30	17.5
9-Dec	55	49.3	44.3	26.5	16	53.2	51.5	30.1	17.3
16-Dec	50	45.4	37	22.5	10	40.6	45.5	24.3	13.7
23-Dec	47	44	38.2	22	10	40.6	43.9	23.3	13.4
31-Dec	45	38.3	34	17.9	3	30.8	39.9	19.6	11.6

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	2.4	0	1108.5
FEB	8.9	0	887.2
MAR	207.7	61.7	464.5
APR	328.9	105.2	276.6
MAY	472.4	147.3	121.5
JUN	557.7	186.3	31.8
JUL	635.3	244.3	13.8
AUG	680.6	287.2	11.1
SEP	521.1	175	51.3
OCT	348.1	102.1	224.2
NOV	199.6	48.9	453.8
DEC	9.4	1.3	701.6
ANN	3972.1	1359.3	4345.9

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	-31118	0	-6962
FEB	0	-25196	0	-5578
MAR	75	-13660	2880	-2041
APR	779	-8668	2377	-782
MAY	1142	-4394	2396	-30
JUN	1361	-1537	4086	0
JUL	1869	-756	12304	0
AUG	2777	-618	12806	0
SEP	1427	-2178	4726	0
OCT	560	-7248	2618	-181
NOV	0	-13416	2873	-1661
DEC	0	-19859	3122	-3912
ANN	9990	-128648	50188	-21147

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													

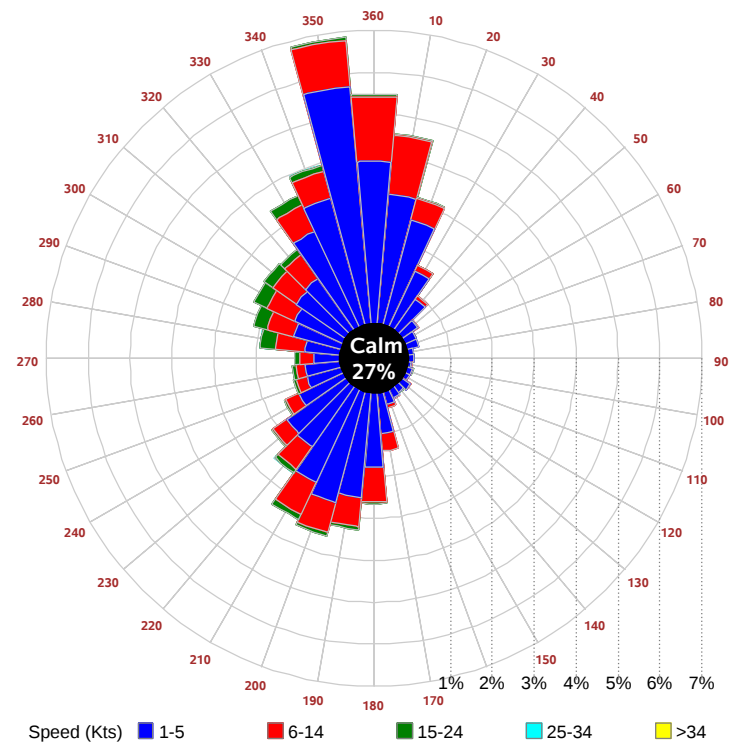
Average Annual Solar Radiation - Nearest Available Site Source: National Renewable Energy Laboratory, Golden CO, 1995

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													

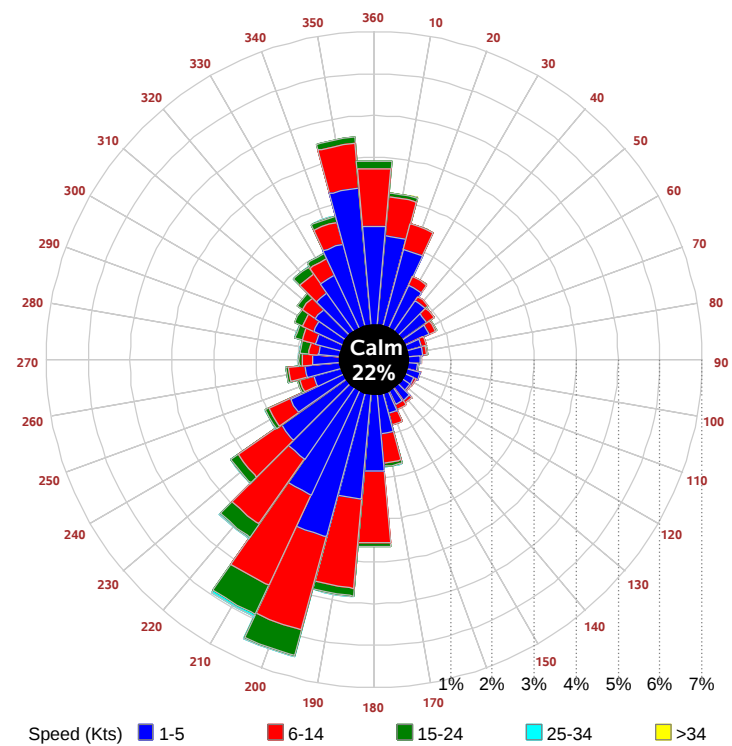
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9												
		March						June				
		9am	11am	1pm	3pm	5pm		9am	11am	1pm	3pm	5pm
HORIZ.	M.Clear											
	M.Cloudy											
NORTH	M.Clear											
	M.Cloudy											
EAST	M.Clear			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

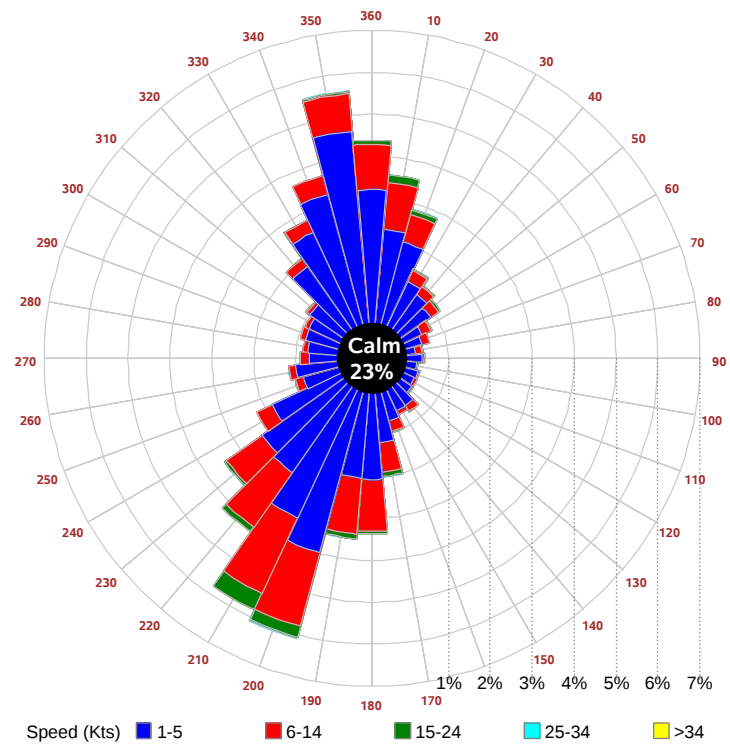
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

