

MALCOLM MCKINNON, GA

Latitude = 31.15 N

Longitude = 81.39 W

Period of Record = 1988 To 2017

Station ID = ICAO_KSSI

Elevation = 19 Feet

Average Pressure = 30.04 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	78	115	9.7	WSW
0.4% Occurrence	93	78	120	9.5	WSW
1.0% Occurrence	91	78	124	9.5	WSW
2.0% Occurrence	89	78	125	9.8	SSE
Mean Daily Range	15	-	-	-	N
97.5% Occurrence	39	36	26	6.5	N
99.0% Occurrence	35	32	21	6.3	N
99.6% Occurrence	31	28	17	6.2	N
Median of Extreme Lows	27	25	13	6.9	WNW

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	83	90	154	10.2	SSE
0.4% Occurrence	81	88	145	9.9	SSE
1.0% Occurrence	80	87	139	9.7	SSE
2.0% Occurrence	79	85	136	9.4	SSE

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	161	88	1.07	9.8	SSE
0.4% Occurrence	151	86	1	9.3	SSE
1.0% Occurrence	145	85	0.97	9.2	SSE
2.0% Occurrence	140	84	0.94	8.8	SSE

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	42	1774	2584	4034

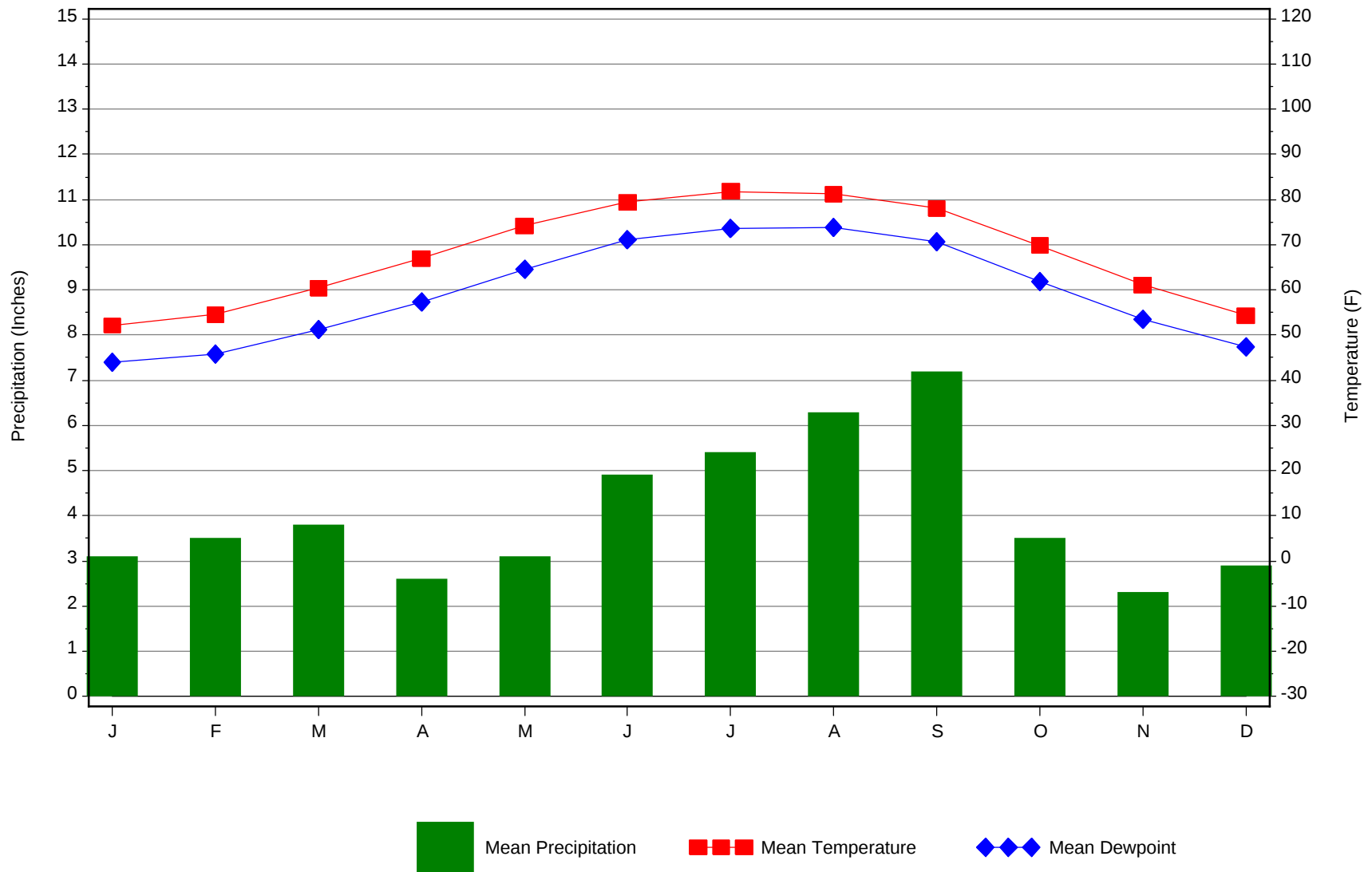
Other Site Data

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
10	4.3	120	9.1 + 1.7
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 (#)
70.3	N/A	N/A	6

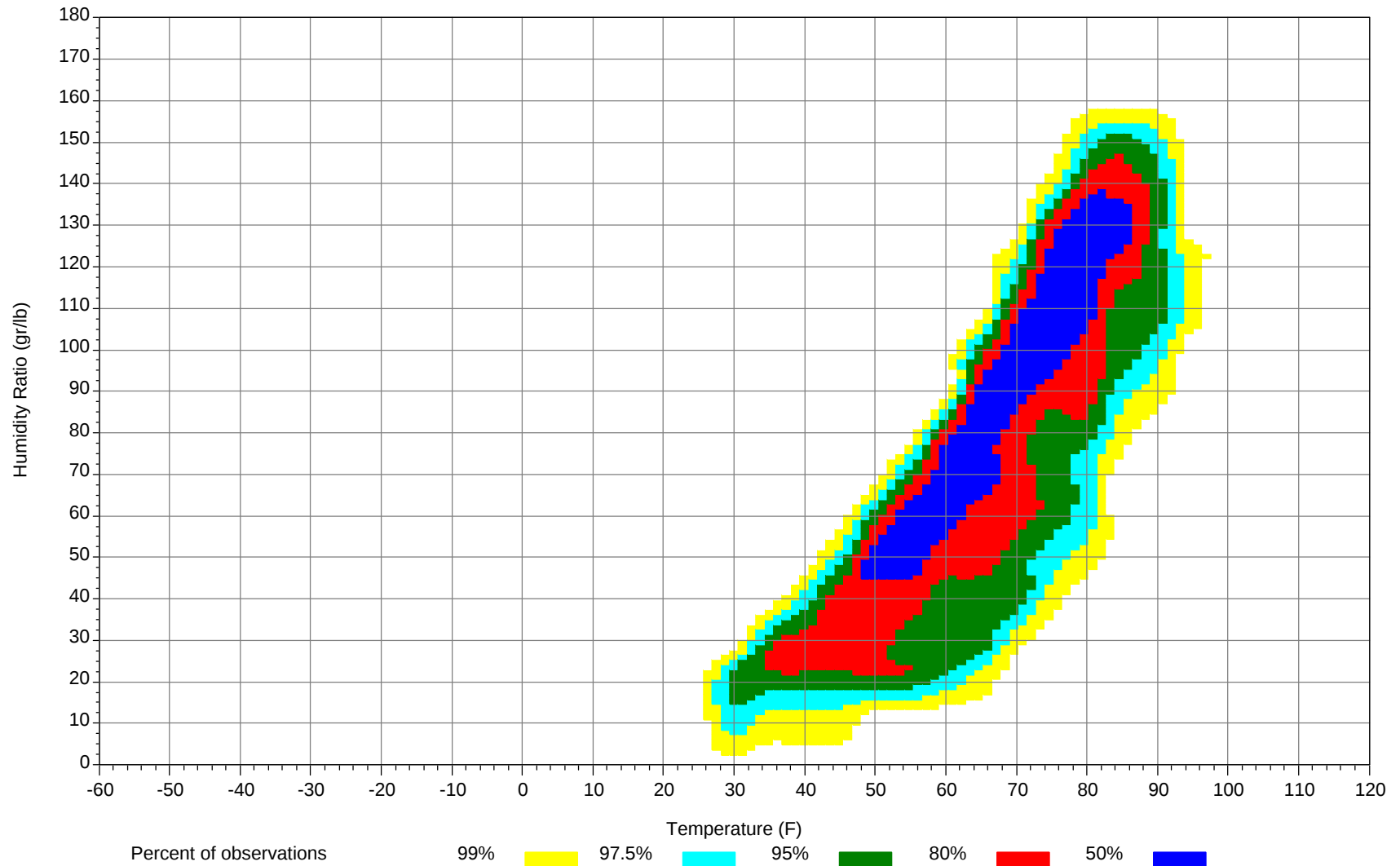
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



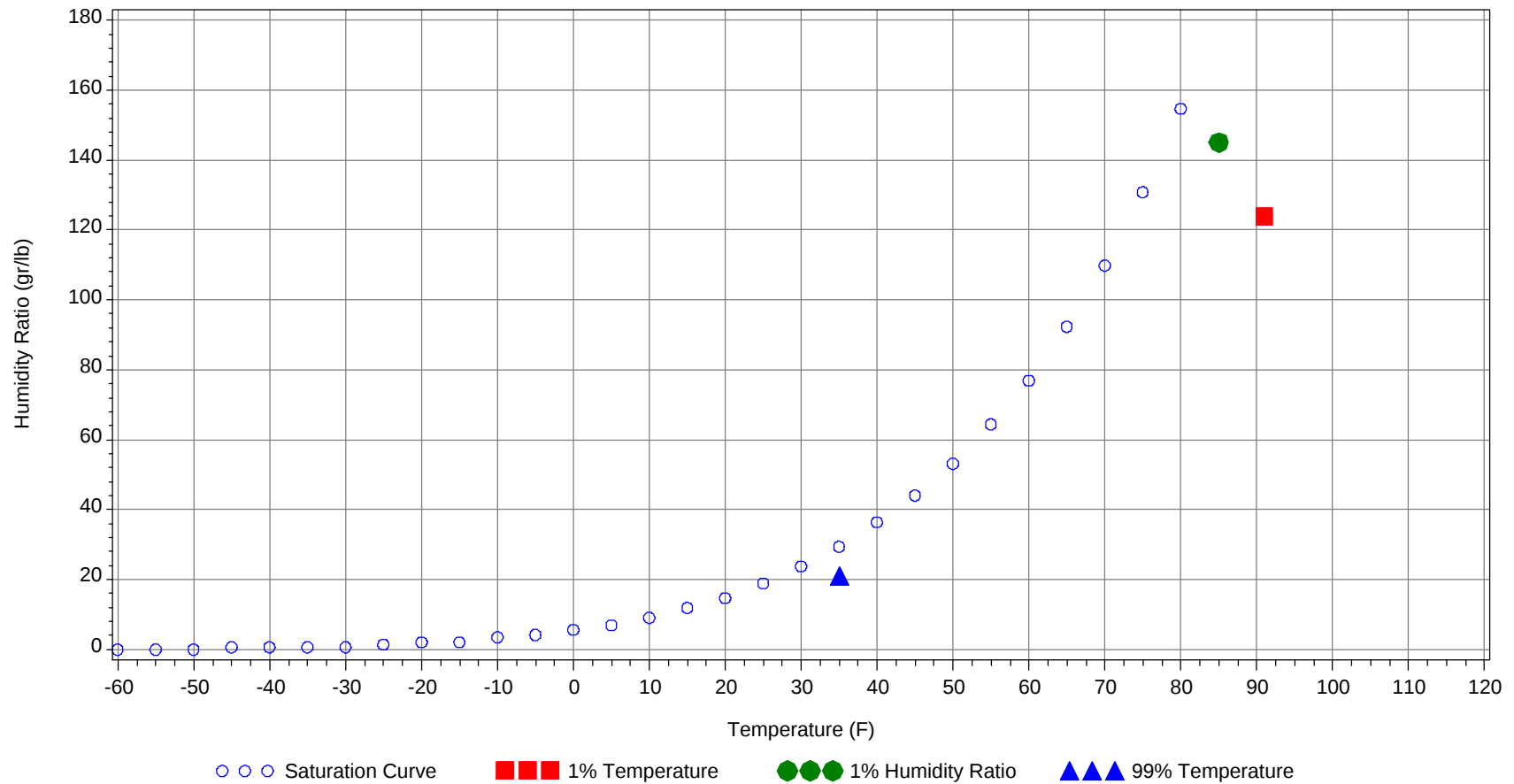
Average Annual Climate



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		78		124.0	41.1
99.0% Dry Bulb	35.0				21.0	11.8
1.0% Humidity Ratio	145.0	85.0	79.7	78.0		43.0

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												0		0	60
85/ 89												1	0	1	65.2
80/ 84		0	0	0	64.6		2	0	2	67.5		5	1	6	66.8
75/ 79	0	3	0	3	65.7		5	1	6	65.3		22	5	27	65.1
70/ 74	0	18	2	20	63.8	1	22	6	29	62.7	4	58	22	84	63.7
65/ 69	4	25	10	39	61.5	4	29	15	48	60.9	23	48	42	113	62
60/ 64	30	53	45	128	58.6	33	49	49	131	58.1	71	52	78	201	58.5
55/ 59	42	46	53	141	53.5	39	43	47	129	52.9	55	31	50	136	53
50/ 54	40	42	47	129	48.3	46	36	49	131	48.2	38	17	27	82	47.8
45/ 49	42	32	44	118	42.9	42	23	35	100	43.2	31	9	15	55	42.8
40/ 44	29	15	21	65	38.5	23	8	12	43	38.7	15	3	5	23	38.3
35/ 39	30	10	18	58	34	23	5	8	36	34.4	10	1	2	13	34.3
30/ 34	22	4	6	32	29.3	9	1	2	12	29.2	2	0	0	2	29.5
25/ 29	8	1	1	10	24.4	3	0	0	3	24.7	0	0		0	23.5
20/ 24	0	0		0	18.9	0	0		0	19.7					
15/ 19	0			0	16	0			0	17					

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.

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												0	0	0	78.3
95/ 99							0		0	74.3		4	1	5	78
90/ 94		1	0	1	70.8		7	1	8	73.7		25	3	28	76.9
85/ 89		4	1	5	69.9		18	3	21	73	0	57	11	68	76.8
80/ 84		17	4	21	69.3	2	85	24	111	72.2	26	115	88	229	75.1
75/ 79	2	60	17	79	67.9	42	89	92	223	70.3	131	30	108	269	73
70/ 74	41	86	76	203	65.5	113	35	93	241	67.3	73	7	26	106	70.2
65/ 69	57	34	61	152	62.6	50	9	25	84	63.1	8	1	2	11	64.9
60/ 64	67	27	52	146	58.1	27	2	8	37	58.7	2	0	0	2	61.5
55/ 59	35	7	18	60	52.7	12	1	1	14	54.1					
50/ 54	23	4	8	35	48.4	3	1	0	4	50.4					
45/ 49	12	1	2	15	43.6	0		0	0	46.3					
40/ 44	2		0	2	40										
35/ 39	0			0	35.1										
30/ 34															
25/ 29															
20/ 24															
15/ 19															

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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		0		0	79		0		0	83					
95/ 99		6	1	7	78.1		4	0	4	78.7		0		0	76.4
90/ 94		50	7	57	78.8		36	3	39	79		6	1	7	75.8
85/ 89	0	99	32	131	78.1	0	91	25	116	78.2		49	4	53	76.6
80/ 84	67	78	129	274	76.2	67	95	135	297	76.4	26	116	91	233	75.1
75/ 79	152	13	72	237	74.2	139	20	72	231	74.5	108	48	97	253	73.1
70/ 74	28	1	8	37	71.7	40	2	11	53	71.7	81	17	39	137	69.8
65/ 69	0		0	0	67	1		0	1	67.3	15	3	6	24	64.4
60/ 64								0	0	64	9	1	2	12	59.9
55/ 59											1		0	1	54.8
50/ 54															
45/ 49															
40/ 44															
35/ 39															
30/ 34															
25/ 29															
20/ 24															
15/ 19															

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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		0	0	0	76.3										
85/ 89		4	0	4	75.2										
80/ 84	2	55	10	67	73.3		4	0	4	70.3		0		0	69.8
75/ 79	32	79	57	168	70.8	1	30	4	35	68.8		7	0	7	68.7
70/ 74	58	61	82	201	67.4	18	63	33	114	66.3	2	27	7	36	66.2
65/ 69	48	28	43	119	63.2	32	43	46	121	63.2	15	30	23	68	63.7
60/ 64	49	16	33	98	58.5	50	48	60	158	58.4	38	54	49	141	59
55/ 59	30	4	16	50	53.3	41	28	43	112	53.1	38	46	49	133	53.3
50/ 54	19	1	7	27	48.9	40	15	29	84	48.5	40	39	46	125	48.6
45/ 49	8	0	1	9	43.2	32	7	18	57	43.9	37	26	39	102	43.2
40/ 44	1	0	0	1	39	16	2	5	23	39.5	31	10	20	61	39.3
35/ 39						9	0	2	11	35.3	31	6	13	50	34.8
30/ 34						2		0	2	29.9	12	1	3	16	29.8
25/ 29											3	0	1	4	24.9
20/ 24											1	0	0	1	20.8
15/ 19											0	0	0	0	18

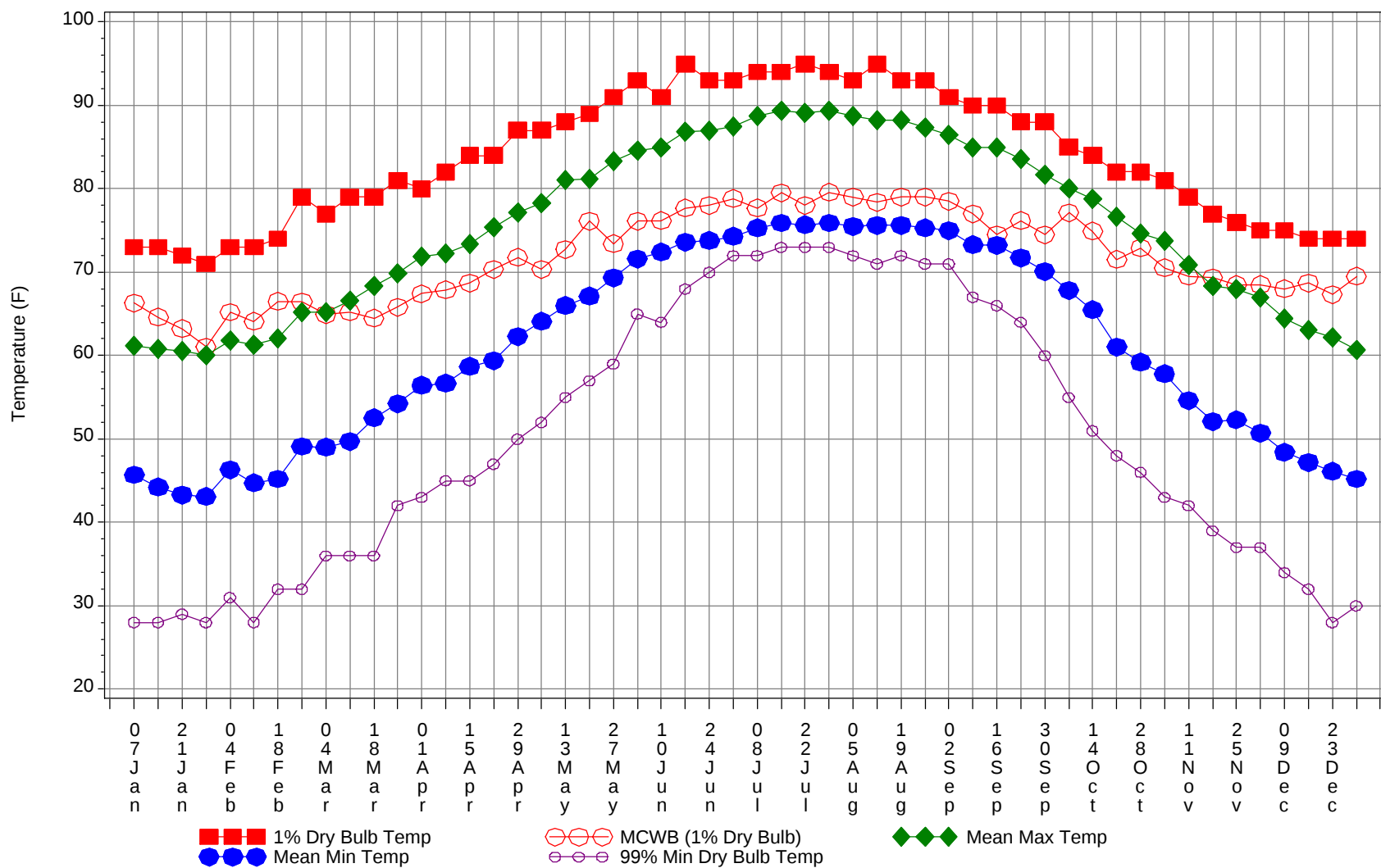
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Dry-Bulb Temperature Hours For An Average Year

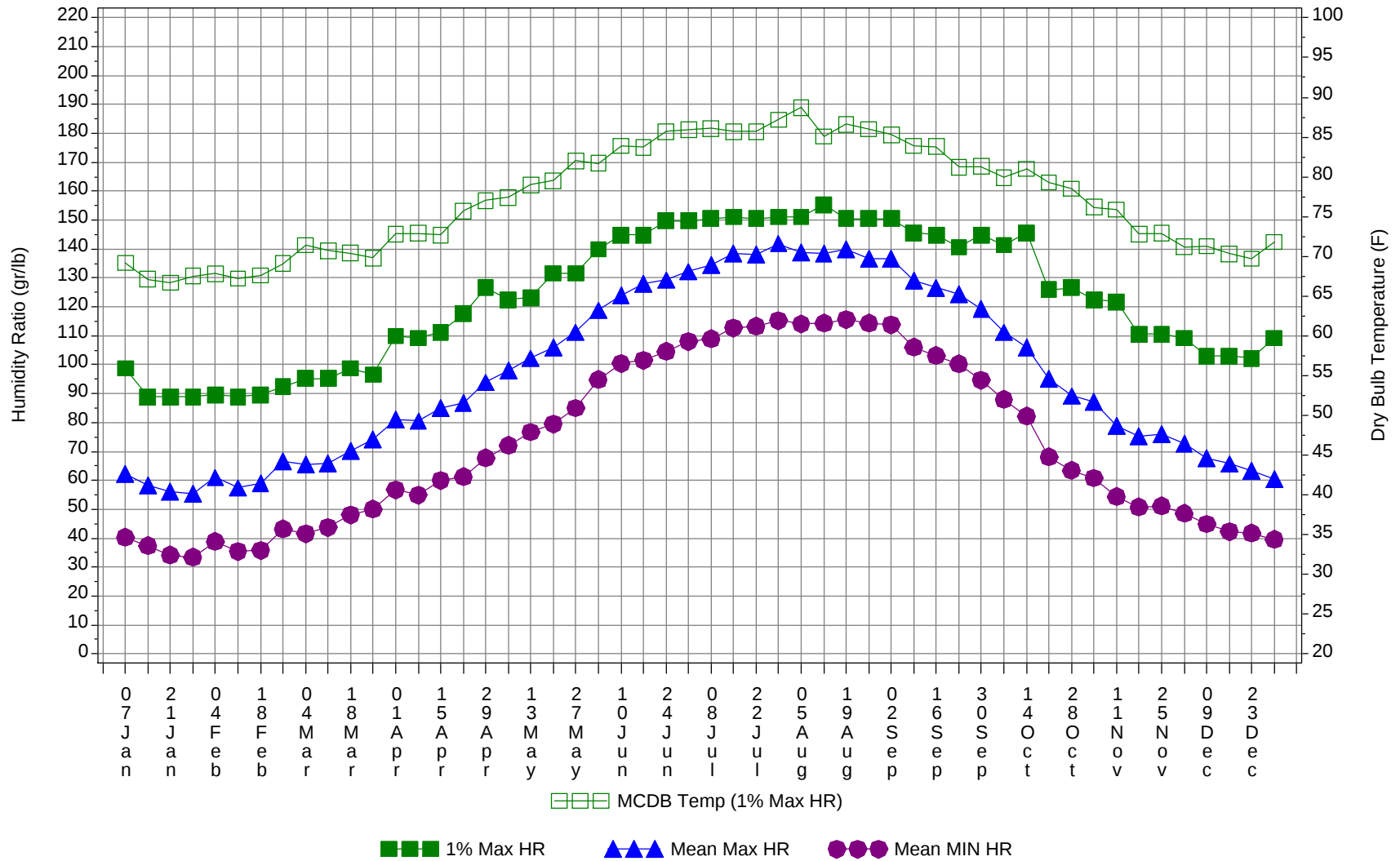
	Annual				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
100/104		1	0	1	78.9
95/ 99		14	2	16	78.2
90/ 94		125	16	141	77.9
85/ 89	1	321	76	398	77.3
80/ 84	190	569	481	1240	75.1
75/ 79	604	403	522	1529	72.2
70/ 74	455	399	402	1256	67.3
65/ 69	257	251	273	781	62.8
60/ 64	377	305	378	1060	58.5
55/ 59	295	208	279	782	53.2
50/ 54	251	156	216	623	48.4
45/ 49	206	99	154	459	43.2
40/ 44	119	38	63	220	38.9
35/ 39	104	23	43	170	34.4
30/ 34	46	6	11	63	29.4
25/ 29	15	1	2	18	24.5
20/ 24	2	0	0	2	19.9
15/ 19	0	0	0	0	17.8

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Annual Summary of Temperatures



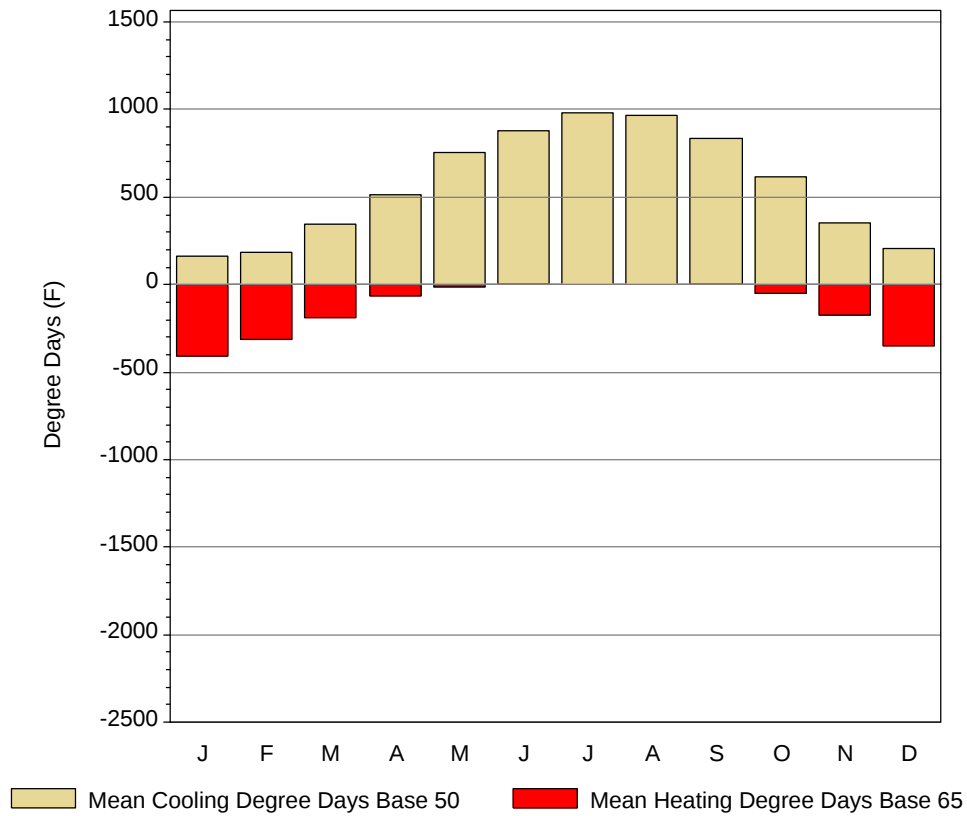
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

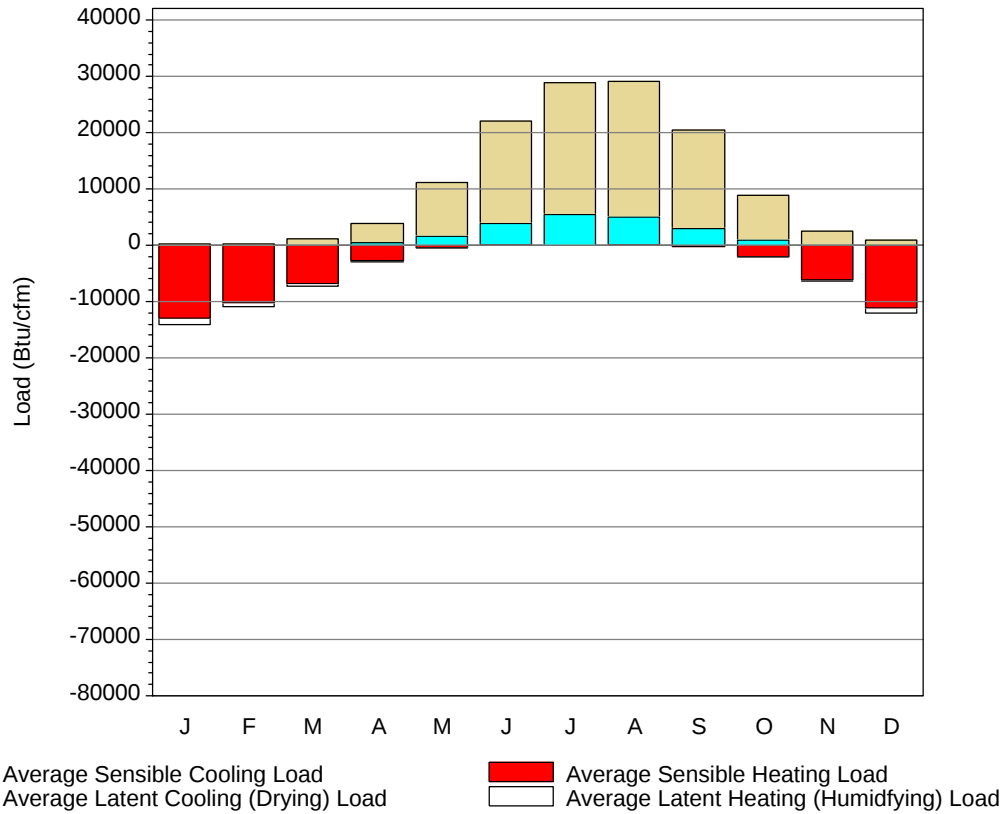
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	73	66.3	61.2	45.7	28	98.7	69.2	62.3	40.3
14-Jan	73	64.6	60.8	44.2	28	88.9	67.1	58.4	37.4
21-Jan	72	63.2	60.6	43.3	29	88.9	66.7	56.1	34.1
28-Jan	71	61	60.1	43.1	28	88.9	67.5	55.3	33.4
4-Feb	73	65.2	61.8	46.3	31	89.6	67.8	61	38.9
11-Feb	73	64.1	61.3	44.7	28	88.9	67.2	57.4	35.4
18-Feb	74	66.5	62.1	45.2	32	89.6	67.6	59.1	35.7
25-Feb	79	66.4	65.2	49.1	32	92.4	69.1	66.5	43.2
4-Mar	77	64.9	65.2	49	36	95.2	71.4	65.6	41.5
11-Mar	79	65.2	66.6	49.7	36	95.2	70.7	66	43.7
18-Mar	79	64.5	68.4	52.5	36	98.7	70.4	70.3	48.1
25-Mar	81	65.8	69.9	54.2	42	96.6	69.8	74.2	50.1
1-Apr	80	67.4	71.9	56.4	43	109.9	72.8	81.1	56.7
8-Apr	82	67.9	72.3	56.7	45	109.2	72.9	80.5	54.9
15-Apr	84	68.7	73.4	58.7	45	111.3	72.7	85	60
22-Apr	84	70.3	75.4	59.4	47	117.6	75.7	86.8	61.3
29-Apr	87	71.8	77.1	62.3	50	126.7	77	93.9	67.7
6-May	87	70.3	78.3	64.1	52	122.5	77.4	97.9	72.1
13-May	88	72.7	81.1	66	55	123.2	79	102.2	76.7
20-May	89	76.1	81.2	67.1	57	131.6	79.5	105.9	79.5
27-May	91	73.4	83.3	69.3	59	131.6	82	111.2	85
4-Jun	93	76.1	84.6	71.6	65	140	81.7	118.8	94.8
10-Jun	91	76.2	85	72.4	64	144.9	83.9	124.1	100.5
17-Jun	95	77.7	86.8	73.6	68	144.9	83.7	128.1	101.6
24-Jun	93	78	87	73.8	70	149.8	85.7	129.3	104.6
1-Jul	93	78.8	87.5	74.3	72	149.8	85.9	132.2	108.1
8-Jul	94	77.7	88.7	75.3	72	150.5	86.1	134.4	109
15-Jul	94	79.5	89.4	75.9	73	151.2	85.7	138.5	112.8
22-Jul	95	78	89.1	75.7	73	150.5	85.7	138	113.3
29-Jul	94	79.6	89.3	75.9	73	151.2	87.2	141.9	115.3
5-Aug	93	79	88.7	75.5	72	151.2	88.7	138.8	114.1
12-Aug	95	78.4	88.2	75.6	71	155.4	85.1	138.5	114.4
19-Aug	93	79	88.2	75.6	72	150.5	86.6	139.8	115.7
26-Aug	93	79	87.4	75.3	71	150.5	86	136.7	114.4
2-Sep	91	78.5	86.5	75	71	150.5	85.3	136.6	113.8
9-Sep	90	77	84.9	73.3	67	145.6	83.9	129.1	106
16-Sep	90	74.5	84.9	73.2	66	144.9	83.8	126.7	103.1
23-Sep	88	76.2	83.6	71.7	64	140.7	81.2	124.3	100.3
30-Sep	88	74.5	81.7	70.1	60	144.9	81.3	119.3	94.7
7-Oct	85	77.1	80	67.8	55	141.4	79.9	111.2	88
14-Oct	84	74.9	78.8	65.5	51	145.6	81	106.1	82.2
21-Oct	82	71.5	76.6	61	48	126	79.3	95.2	68.1
28-Oct	82	72.9	74.6	59.2	46	126.7	78.5	89.2	63.5
4-Nov	81	70.5	73.7	57.8	43	122.5	76.2	87.2	60.8
11-Nov	79	69.5	70.8	54.6	42	121.8	75.9	78.9	54.4
18-Nov	77	69.3	68.4	52.1	39	110.6	72.8	75.4	50.8
25-Nov	76	68.5	68	52.3	37	110.6	72.9	75.9	51.2
2-Dec	75	68.5	67	50.7	37	109.2	71.2	72.8	48.6
9-Dec	75	68	64.4	48.4	34	102.9	71.3	67.6	44.9
16-Dec	74	68.7	63	47.2	32	102.9	70.3	65.7	42.2
23-Dec	74	67.3	62.2	46.1	28	102.2	69.7	63.3	41.7
31-Dec	74	69.5	60.7	45.2	30	109.2	71.8	60.5	39.5

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	165.6	9.2	409.3
FEB	184	14.9	313
MAR	344.8	48.9	192.2
APR	512.6	126.4	66.6
MAY	753	297.8	9.7
JUN	882.1	432.3	0.2
JUL	984	519	0
AUG	966	501	0
SEP	838.2	389.7	1.5
OCT	616.8	198.9	48.7
NOV	353.5	60	177.5
DEC	209.3	18.1	349.8
ANN	6809.9	2616.2	1568.5

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	5	-12879	309	-1228
FEB	21	-10111	308	-780
MAR	101	-6805	1110	-434
APR	369	-2754	3497	-85
MAY	1694	-509	9384	-1
JUN	3810	-24	18166	0
JUL	5494	0	23504	0
AUG	5089	-1	24029	0
SEP	3065	-108	17497	0
OCT	834	-2002	7987	-34
NOV	78	-6197	2484	-212
DEC	10	-11212	967	-742
ANN	20570	-52602	109242	-3516

Station Information		Shading Geometry in Dimensionless Units	
City, State, WBAN	JACKSONVILLE, FL 13889	Window:	1.000
Lat, Lon, Elev	30.50N 81.70W 30ft	Overhang:	0.897
Press, Stn Type	14.7psia Secondary	Vert Gap:	0.651

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	920	1160	1500	1860	1940	1900	1850	1710	1470	1250	1010	850	1450
	Std.Dev.	68	90	99	115	131	123	99	97	129	97	83	73	37
	Minimum	820	1020	1280	1630	1570	1670	1550	1480	1140	1060	790	690	1380
	Maximum	1100	1350	1640	2180	2250	2170	2030	1870	1710	1420	1190	1000	1530
	Diffuse	380	460	580	670	790	870	870	810	710	550	410	360	620
Clear Day	Global	1280	1600	1990	2340	2510	2550	2490	2320	2020	1650	1310	1160	1930
NORTH	Global	250	310	380	450	560	610	580	490	410	340	270	240	410
	Diffuse	250	310	380	440	490	520	510	470	410	340	270	240	390
Clear Day	Global	240	290	360	440	590	690	630	490	390	320	260	230	410
EAST	Global	570	700	870	1040	1050	1030	1030	980	860	760	620	530	840
	Diffuse	310	370	460	550	600	620	620	590	520	430	340	290	470
Clear Day	Global	850	1020	1190	1320	1350	1340	1300	1250	1150	1010	850	780	1120
SOUTH	Global	1200	1190	1110	910	670	580	610	740	920	1130	1230	1170	950
	Diffuse	410	450	510	530	520	520	520	540	540	510	440	390	490
Clear Day	Global	1990	1890	1570	1090	750	620	680	930	1340	1710	1890	1940	1360
WEST	Global	580	710	870	1030	1030	950	910	870	810	740	630	540	810
	Diffuse	310	370	470	550	600	610	600	570	510	430	340	290	470
Clear Day	Global	850	1020	1190	1320	1350	1340	1300	1250	1150	1010	850	780	1120

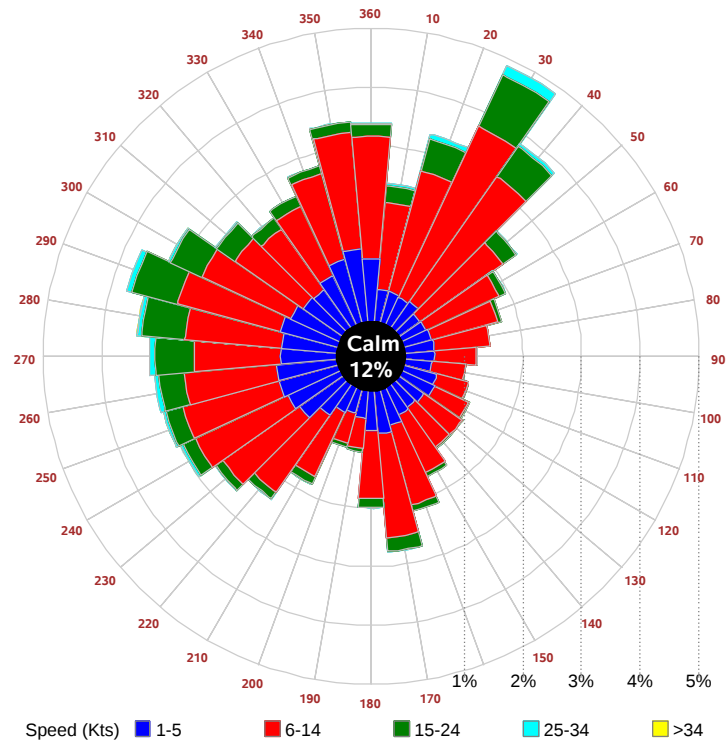
Average Annual Solar Radiation - Nearest Available Site Source: National Renewable Energy Laboratory, Golden CO, 1995

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	630	820	1080	1360	1420	1380	1350	1240	1060	890	700	570	1040
NORTH	Unshaded	180	210	260	310	360	390	370	330	280	240	190	170	270
	Shaded	150	190	230	280	310	330	320	290	250	210	170	140	240
EAST	Unshaded	400	490	610	740	750	730	730	700	610	540	430	370	590
	Shaded	340	420	520	610	610	600	600	580	500	450	370	320	490
SOUTH	Unshaded	890	850	730	550	400	370	380	450	590	780	900	870	650
	Shaded	840	690	410	320	320	320	320	320	330	560	820	840	510
WEST	Unshaded	410	500	620	740	730	670	640	610	570	520	440	370	570
	Shaded	350	430	520	610	600	540	520	500	470	440	370	320	470

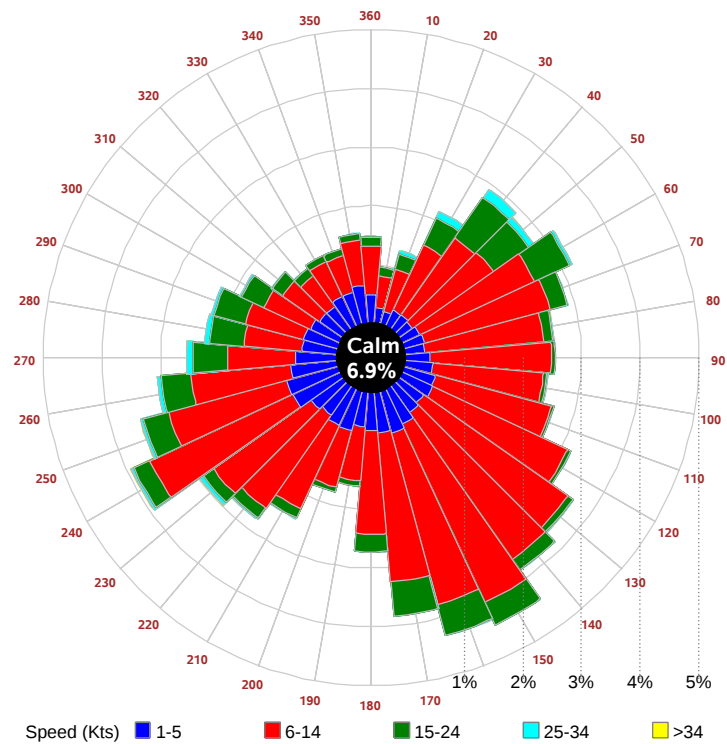
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS Percentage Uncertainty = 9												
		March					June					
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm	
HORIZ.	M.Clear	36	77	92	79	40	34	77	100	99	74	
	M.Cloudy	21	49	60	52	26	24	55	76	74	48	
NORTH	M.Clear	9	15	16	15	10	23	18	18	18	18	
	M.Cloudy	9	16	18	16	10	15	18	19	19	17	
EAST	M.Clear	75	67	19	15	10	62	76	42	18	17	
	M.Cloudy	27	38	19	16	10	32	50	34	19	16	
SOUTH	M.Clear	30	61	73	62	33	11	17	30	29	17	
	M.Cloudy	14	35	44	38	18	10	17	27	26	16	
WEST	M.Clear	9	15	16	62	76	11	17	18	44	75	
	M.Cloudy	9	16	18	38	35	10	17	19	35	43	
M.Clear	(% hrs)	41	42	39	39	38	43	35	29	25	30	

		Sept					Dec					
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm	
HORIZ.	M.Clear	20	65	90	86	58	18	52	63	48	13	
	M.Cloudy	14	45	64	61	38	10	31	38	29	8	
NORTH	M.Clear	8	16	18	18	15	6	11	13	11	5	
	M.Cloudy	6	15	19	18	14	5	12	14	11	4	
EAST	M.Clear	47	73	40	18	15	48	51	13	11	5	
	M.Cloudy	20	43	31	18	14	14	24	14	11	4	
SOUTH	M.Clear	12	43	62	59	38	37	80	91	75	29	
	M.Cloudy	7	29	44	41	24	12	33	41	32	10	
WEST	M.Clear	8	16	18	46	72	6	11	16	53	39	
	M.Cloudy	6	15	19	33	38	5	12	15	25	12	
M.Clear	(% hrs)	42	29	24	24	29	37	37	36	37	40	

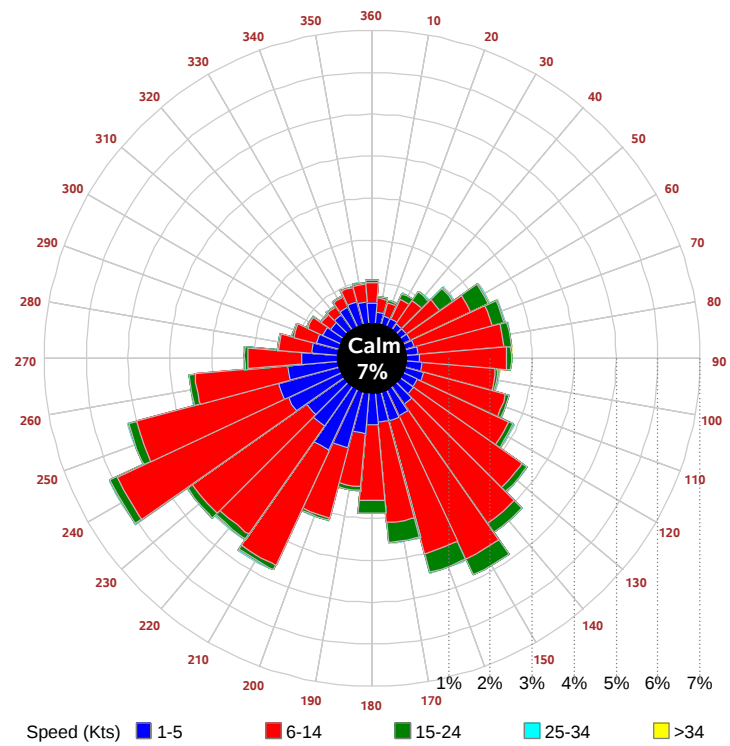
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

