

TYNDALL AFB, FL	
Latitude = 30.07 N	Station ID = ICAO_KPAM
Longitude = 85.58 W	Elevation = 17 Feet
Period of Record = 1988 To 2017	Average Pressure = 30.03 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	95	79	122	8.5	W
0.4% Occurrence	91	79	129	9.7	WSW
1.0% Occurrence	90	79	130	9.6	WSW
2.0% Occurrence	89	78	130	9.7	WSW
Mean Daily Range	16	-	-	-	N
97.5% Occurrence	40	37	26	6.8	N
99.0% Occurrence	36	33	22	6.7	N
99.6% Occurrence	32	29	17	7.9	N
Median of Extreme Lows	27	25	13	8.4	N

	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	84	88	165	9.5	WSW
0.4% Occurrence	82	87	153	9	WSW
1.0% Occurrence	81	86	148	8.8	WSW
2.0% Occurrence	80	86	143	8.5	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	169	86	1.12	9.9	WSW
0.4% Occurrence	159	85	1.05	8.5	W
1.0% Occurrence	153	85	1.01	8.8	W
2.0% Occurrence	149	84	0.99	7.7	W

Air Conditioning/ Humid Area Criteria	Threshold	T ≥ 93 °F	T ≥ 80 °F	Twb ≥ 73 °F	Twb ≥ 67 °F
	# of Hours	20	1942	2810	4313

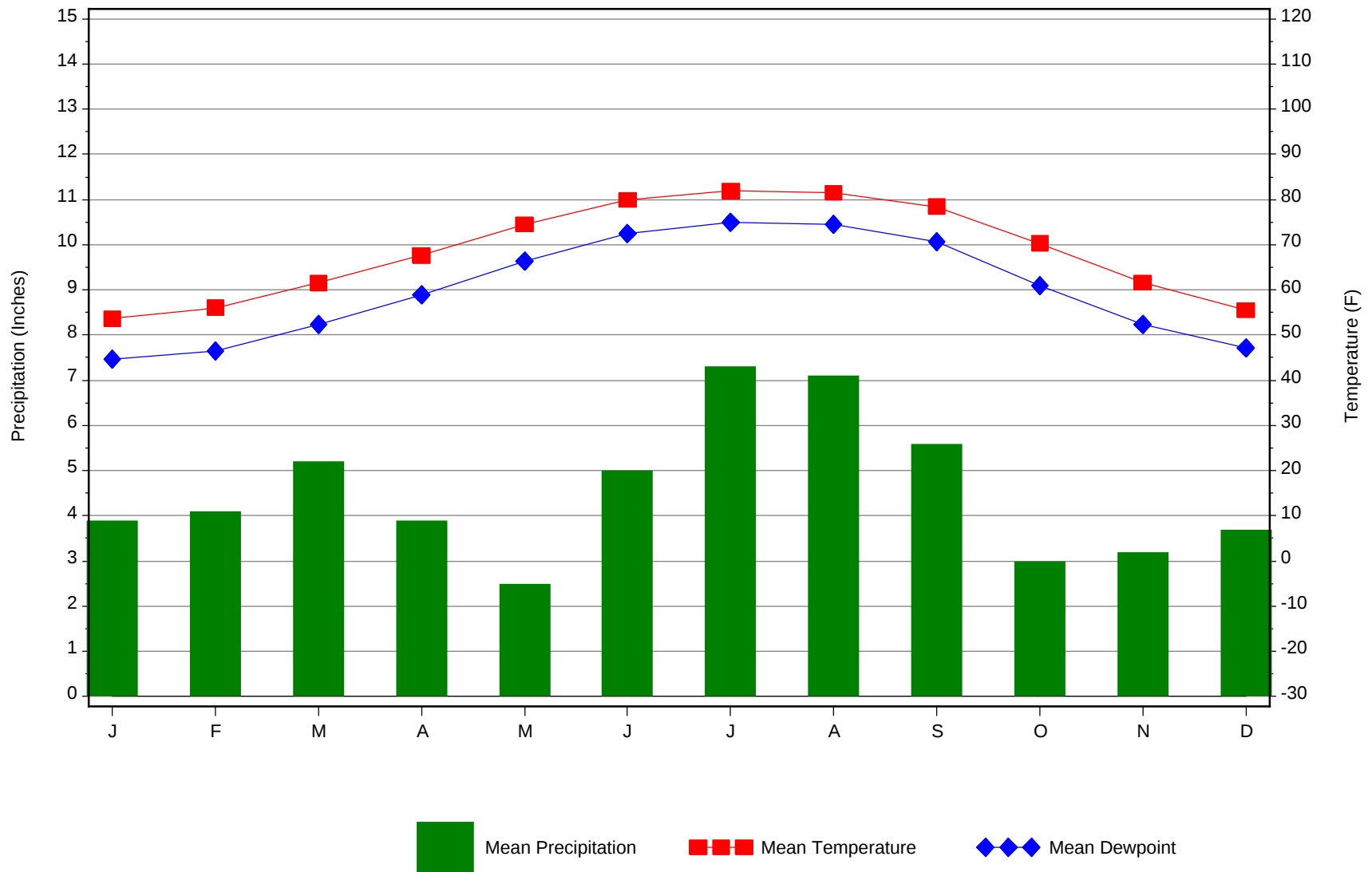
Other Site Data

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	4.8	130	10.5 + 1.9
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 (#)
71.1	0	0	4

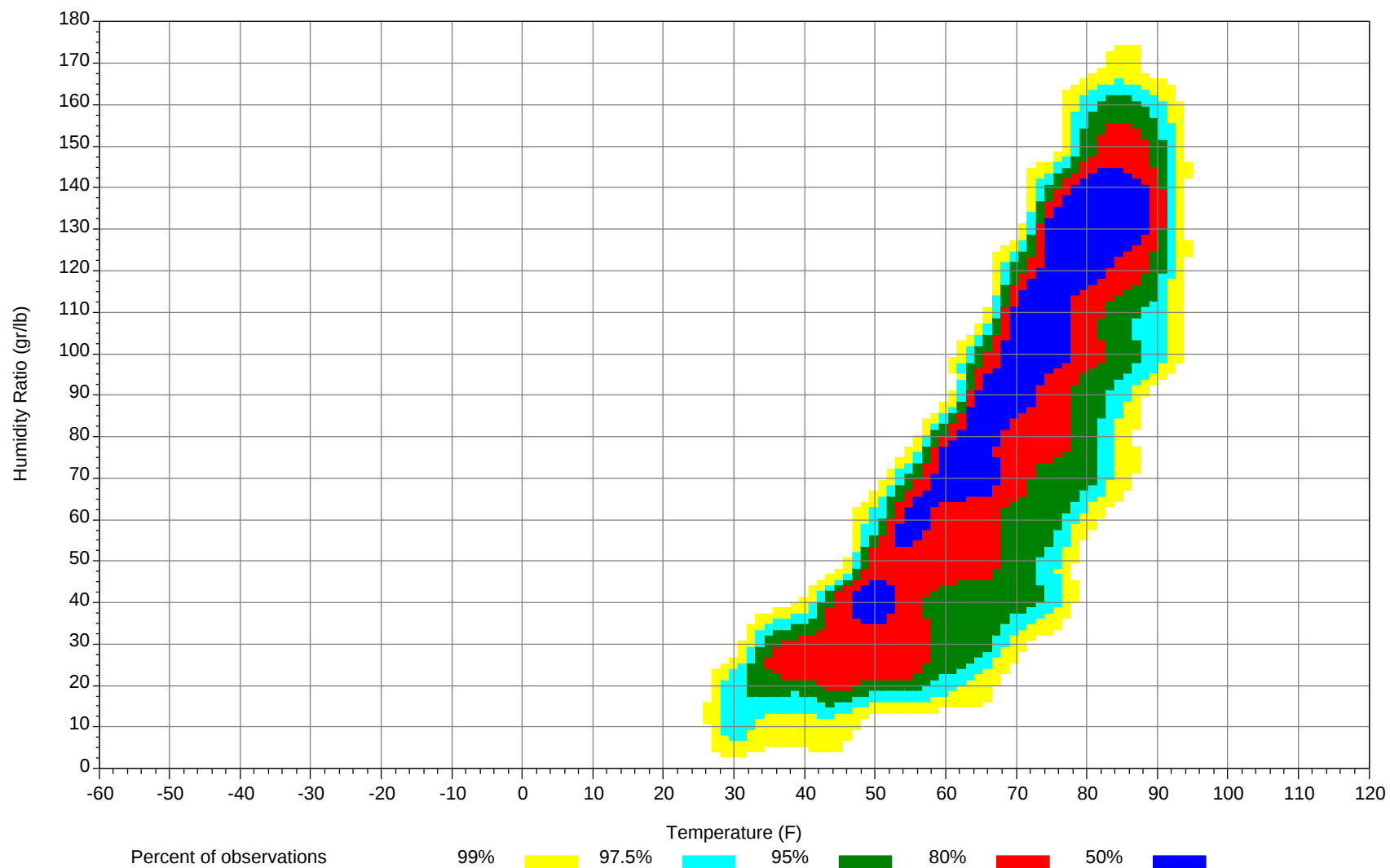
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



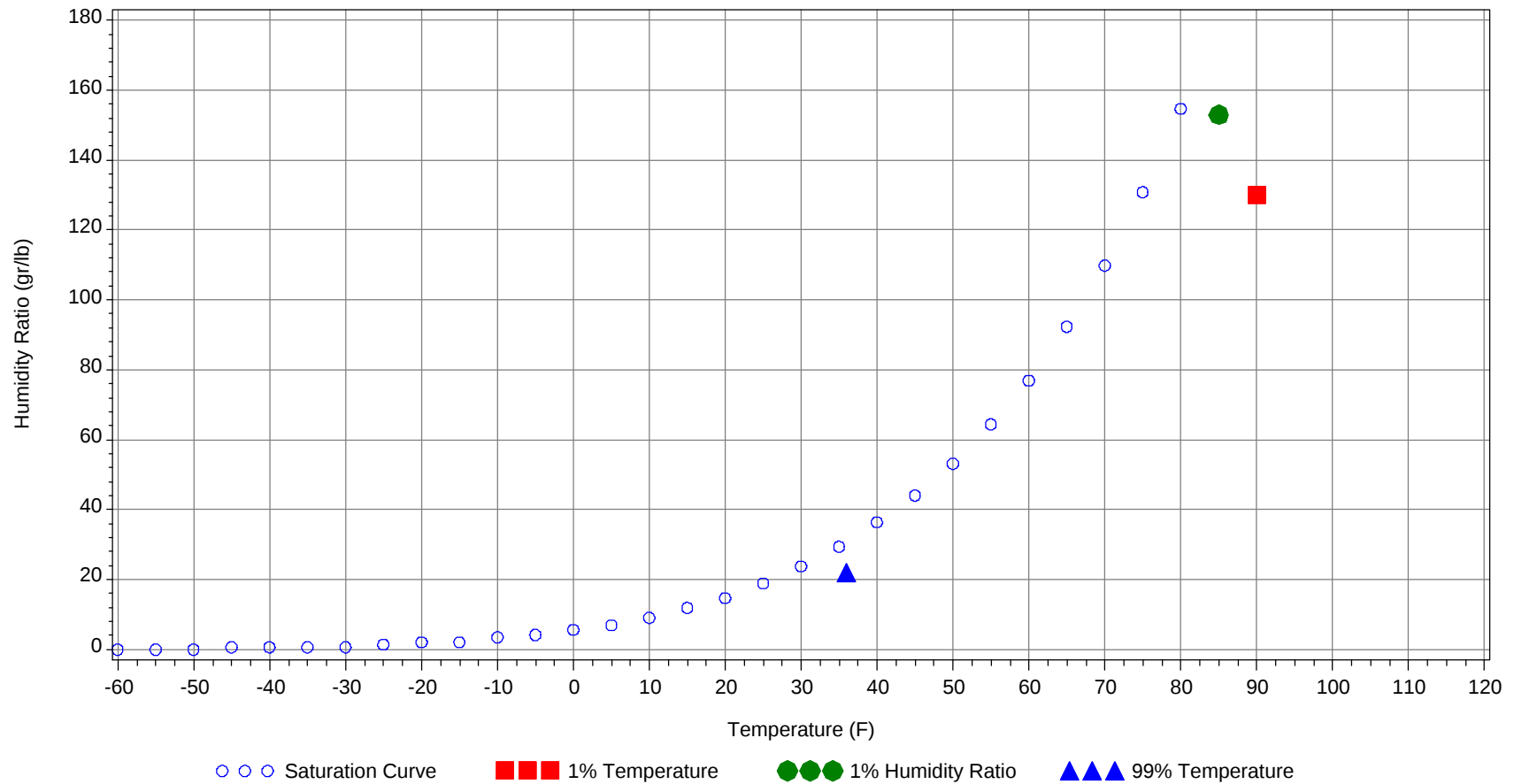
Average Annual Climate



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		79		130.0	42.0
99.0% Dry Bulb	36.0				22.0	11.9
1.0% Humidity Ratio	153.0	85.0	81	79.5		44.5

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						0	0		0	67.4		2		2	67.9
75/ 79		5	0	5	69	0	5	0	5	66.1	0	39	1	40	67.7
70/ 74	2	30	4	36	66.6	1	36	4	41	65.2	11	70	24	105	65.5
65/ 69	16	38	21	75	63.6	18	43	25	86	62.7	38	52	55	145	62.8
60/ 64	34	49	46	129	58.9	36	53	52	141	58.2	56	42	72	170	58.3
55/ 59	33	47	46	126	52.8	35	35	45	115	52.6	47	23	46	116	52.6
50/ 54	35	35	43	113	47.7	36	27	43	106	47.4	42	12	29	83	47.7
45/ 49	41	25	40	106	42.6	43	14	32	89	42.6	31	5	14	50	42.7
40/ 44	30	11	24	65	38.1	26	6	13	45	38.1	15	2	5	22	38.3
35/ 39	34	6	16	56	33.8	19	2	7	28	33.9	6	1	1	8	33.8
30/ 34	17	2	6	25	28.9	8	1	2	11	28.9	2	0	0	2	29
25/ 29	6	1	1	8	24.5	2	0	0	2	24.1	1			1	24
20/ 24	1	0		1	19	0	0	0	0	19.6					
15/ 19	0			0	16	0			0	15.7					

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															
95/ 99							0	0	0	75		1		1	78.1
90/ 94							2	0	2	74.5	0	19	0	19	78.1
85/ 89		1	0	1	68.8	0	27	1	28	74.7	5	103	11	119	77.4
80/ 84	0	23	0	23	71.2	10	119	21	150	73.5	58	91	98	247	76.1
75/ 79	7	93	16	116	69.3	54	74	92	220	71.5	99	21	96	216	74
70/ 74	44	73	74	191	66.6	82	20	85	187	68.4	68	6	32	106	70.4
65/ 69	58	29	67	154	63.1	53	4	32	89	64.3	10	0	2	12	64.5
60/ 64	57	14	49	120	58.6	33	1	14	48	59.4	1	0	0	1	60.6
55/ 59	40	6	23	69	53.3	13	0	3	16	54.5					
50/ 54	24	1	9	34	48.5	2	0	0	2	50.6					
45/ 49	9	0	2	11	43.6	1		0	1	46.8					
40/ 44	1		0	1	40.5										
35/ 39	0			0	38.5										
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	77.1										
95/ 99		2		2	79.5	0	1		1	77.7		0		0	75.7
90/ 94	0	43	2	45	79.5	0	54	1	55	79.4		21	0	21	76.6
85/ 89	15	129	34	178	78.9	11	113	34	158	78.6	1	93	9	103	76.8
80/ 84	96	51	127	274	77.4	73	55	109	237	77.3	24	82	67	173	75.4
75/ 79	103	19	74	196	74.9	124	22	92	238	74.9	96	34	108	238	73.4
70/ 74	33	3	12	48	71.7	39	3	11	53	71.4	88	8	45	141	69.7
65/ 69	1	0	0	1	66.7	1	0	0	1	66.5	20	2	8	30	63.3
60/ 64	0			0	62.2	0			0	62	9	0	2	11	58.9
55/ 59											1		0	1	54.9
50/ 54											0			0	53
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		1		1	76.5										
85/ 89	0	20	0	20	75.2		0		0	76					
80/ 84	3	70	9	82	72.7		12		12	72.4		0		0	72.7
75/ 79	22	82	48	152	70.2	4	48	6	58	69.1	0	15	0	15	70
70/ 74	58	44	76	178	67.1	19	61	30	110	66.2	10	42	13	65	67.5
65/ 69	53	17	49	119	62.8	26	39	43	108	62.3	21	37	29	87	63.8
60/ 64	52	11	38	101	58	42	40	48	130	57.5	28	44	38	110	58.5
55/ 59	35	3	19	57	52.8	48	23	47	118	52.7	36	43	41	120	52.9
50/ 54	16	1	6	23	48	44	11	36	91	47.8	40	34	45	119	47.7
45/ 49	7	0	2	9	43.1	31	4	21	56	43	42	20	45	107	42.9
40/ 44	1	0	0	1	38.9	17	1	7	25	38.5	33	7	21	61	38.6
35/ 39						7	0	2	9	34.9	27	3	12	42	34.4
30/ 34						1		0	1	30.1	9	1	3	13	29
25/ 29											2	0	1	3	24.2
20/ 24											0	0	0	0	18.9
15/ 19											0			0	15

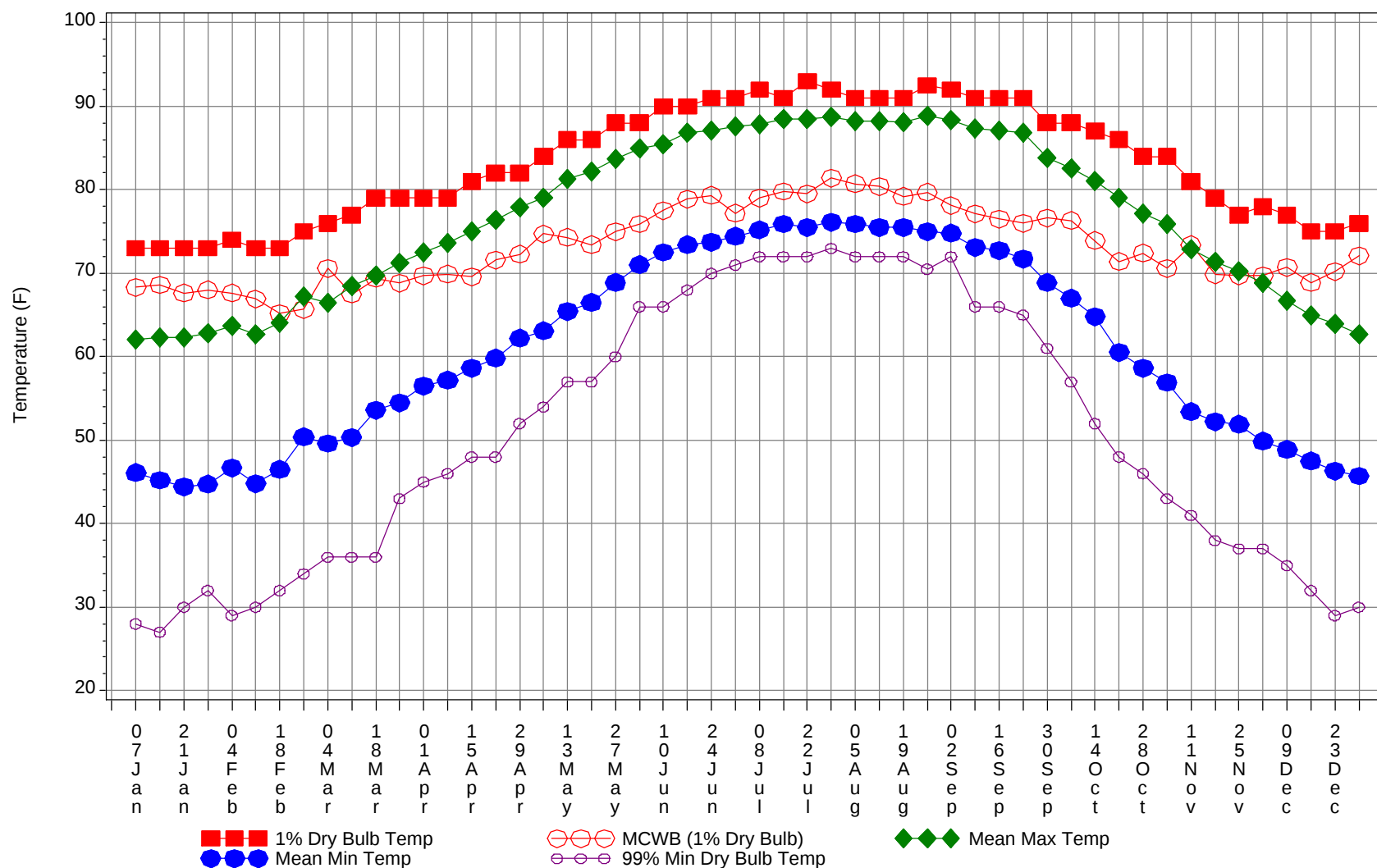
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Dry-Bulb Temperature Hours For An Average Year

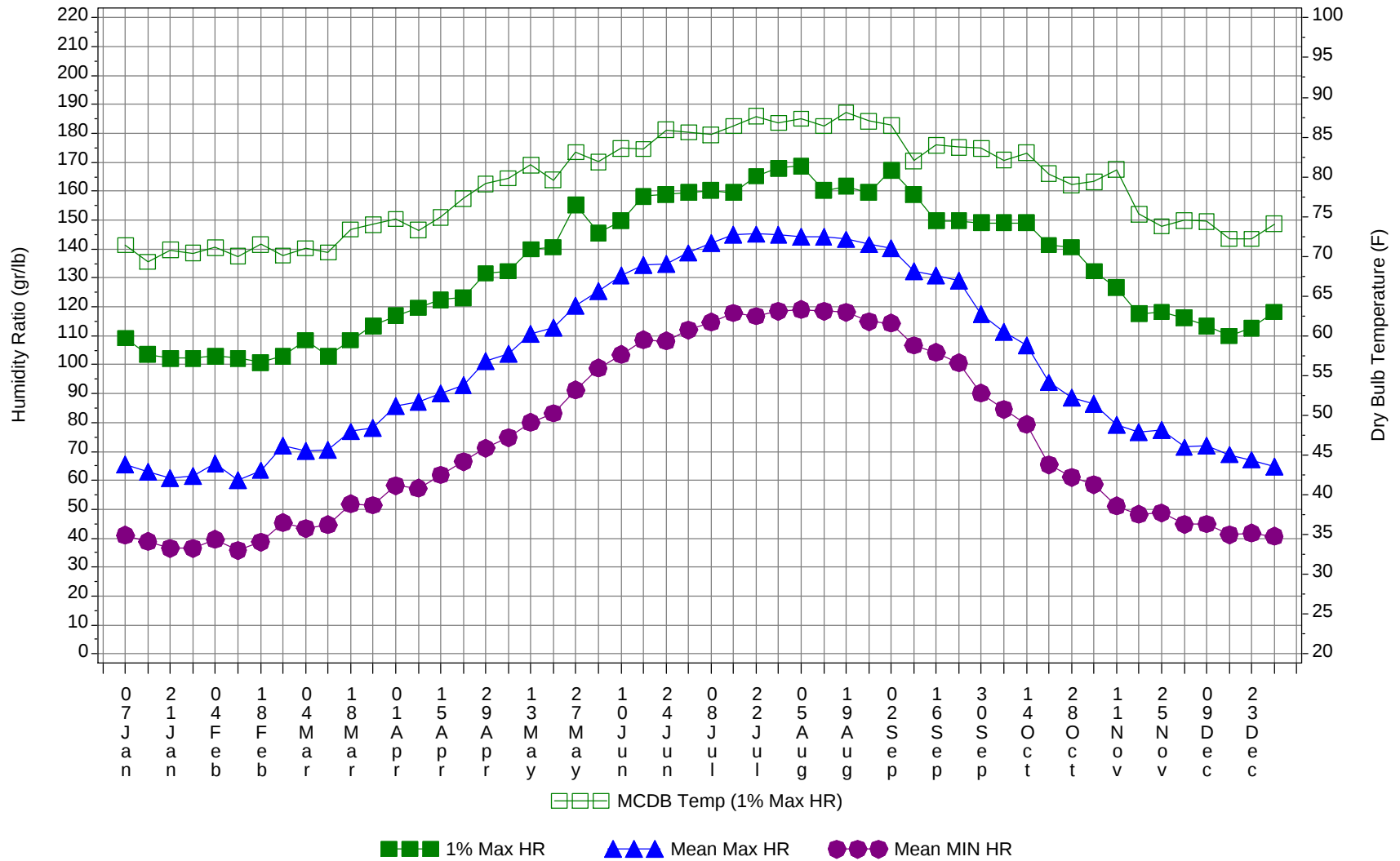
	Annual				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
100/104		0		0	77.1
95/ 99	0	4	0	4	78.5
90/ 94	1	141	4	146	78.7
85/ 89	32	486	89	607	77.8
80/ 84	265	506	433	1204	75.8
75/ 79	510	457	535	1502	72.6
70/ 74	456	396	411	1263	67.9
65/ 69	315	262	332	909	63.1
60/ 64	348	254	358	960	58.4
55/ 59	288	181	269	738	52.8
50/ 54	238	121	212	571	47.7
45/ 49	202	68	156	426	42.8
40/ 44	124	27	70	221	38.3
35/ 39	92	12	38	142	34.1
30/ 34	37	4	11	52	29
25/ 29	10	1	2	13	24.4
20/ 24	1	0	0	1	19.1
15/ 19	1			1	15.4

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



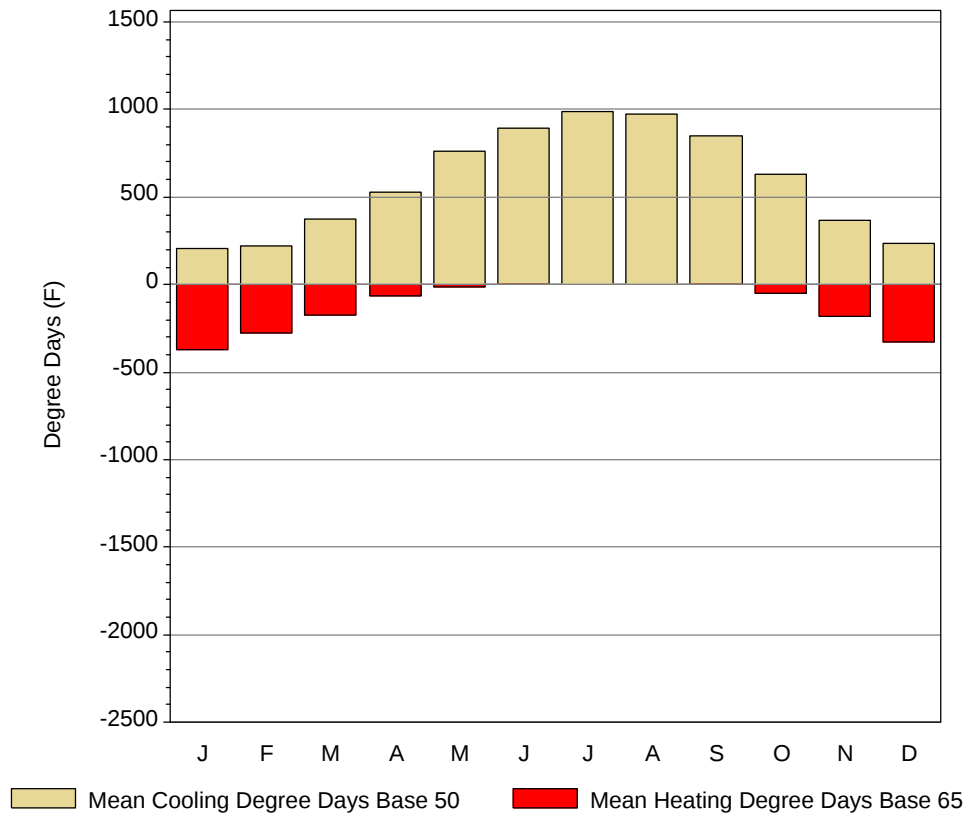
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

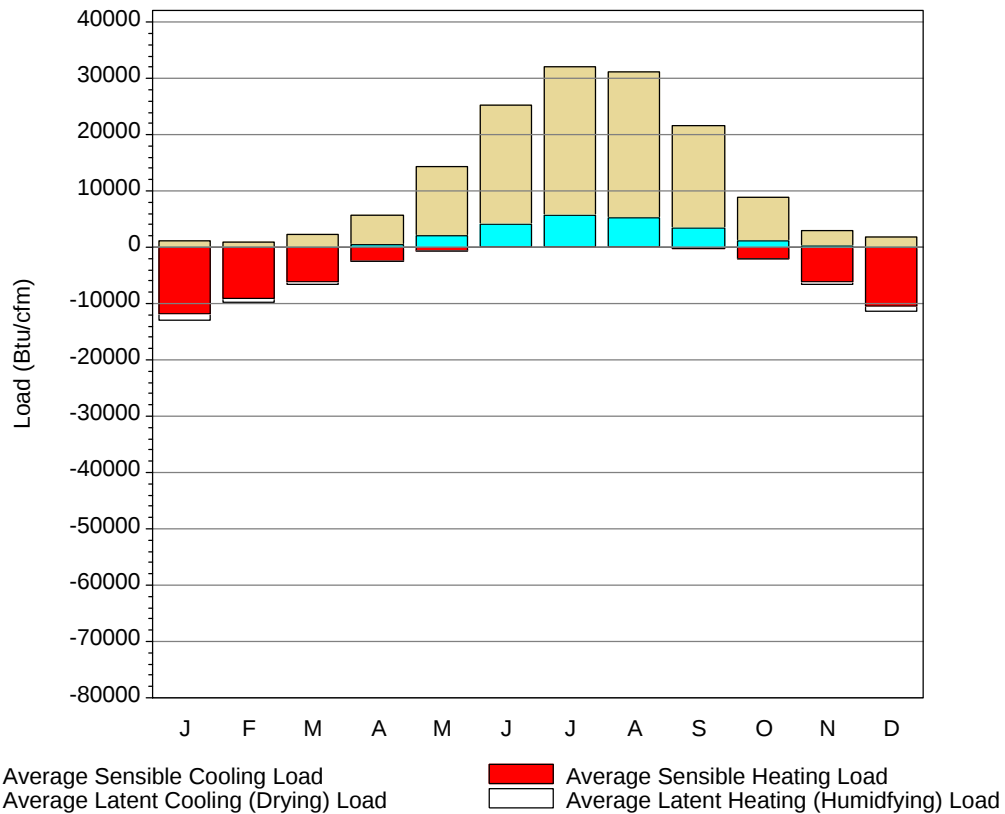
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	73	68.3	62.1	46.1	28	109.2	71.4	65.5	41
14-Jan	73	68.6	62.3	45.2	27	103.6	69.3	62.9	38.9
21-Jan	73	67.6	62.3	44.4	30	102.2	70.8	60.9	36.5
28-Jan	73	68	62.8	44.7	32	102.2	70.4	61.5	36.5
4-Feb	74	67.6	63.7	46.7	29	102.9	71.1	65.9	39.6
11-Feb	73	66.9	62.7	44.8	30	102.2	70	60	35.8
18-Feb	73	65.2	64.1	46.5	32	100.8	71.5	63.5	38.7
25-Feb	75	65.7	67.2	50.4	34	102.9	70.1	71.9	45.4
4-Mar	76	70.6	66.5	49.6	36	108.5	71	70.1	43.4
11-Mar	77	67.5	68.5	50.3	36	102.9	70.5	70.5	44.7
18-Mar	79	69.4	69.7	53.6	36	108.5	73.4	76.9	51.9
25-Mar	79	68.8	71.2	54.5	43	113.4	74	78.1	51.4
1-Apr	79	69.7	72.5	56.5	45	116.9	74.7	85.6	58.2
8-Apr	79	69.9	73.6	57.2	46	119.7	73.3	87.2	57.3
15-Apr	81	69.6	75	58.6	48	122.5	74.9	90.2	61.9
22-Apr	82	71.6	76.4	59.8	48	123.2	77.3	92.9	66.5
29-Apr	82	72.3	77.9	62.2	52	131.6	79.1	101.4	71.1
6-May	84	74.7	79	63.1	54	132.3	79.8	103.9	74.8
13-May	86	74.3	81.3	65.4	57	140	81.5	110.8	80
20-May	86	73.4	82.2	66.5	57	140.7	79.6	112.8	83.2
27-May	88	75	83.7	68.9	60	155.4	83.1	120.3	91.3
4-Jun	88	75.9	84.9	71	66	145.6	81.9	125.6	98.9
10-Jun	90	77.5	85.5	72.5	66	149.8	83.6	131	103.5
17-Jun	90	78.9	86.8	73.4	68	158.2	83.5	134.4	108.6
24-Jun	91	79.3	87.1	73.7	70	158.9	85.9	134.9	108.3
1-Jul	91	77.2	87.6	74.4	71	159.6	85.6	138.7	112
8-Jul	92	79	87.9	75.2	72	160.3	85.3	142	114.7
15-Jul	91	79.8	88.5	75.9	72	159.6	86.4	145	117.9
22-Jul	93	79.5	88.5	75.5	72	165.2	87.6	145.2	116.8
29-Jul	92	81.4	88.7	76.1	73	168	86.8	144.9	118.6
5-Aug	91	80.7	88.2	75.9	72	168.7	87.3	144.3	119
12-Aug	91	80.4	88.2	75.5	72	160.3	86.4	144.2	118.6
19-Aug	91	79.2	88.1	75.5	72	161.7	88.1	143.4	118.2
26-Aug	92.5	79.7	88.8	75	70.5	159.6	87	141.6	114.9
2-Sep	92	78.1	88.4	74.8	72	167.3	86.5	140.4	114.4
9-Sep	91	77.1	87.4	73.1	66	158.9	82	132.4	106.7
16-Sep	91	76.5	87.1	72.7	66	149.8	84	131	104.2
23-Sep	91	76	86.8	71.7	65	149.8	83.7	129.2	100.7
30-Sep	88	76.6	83.8	68.9	61	149.1	83.6	117.6	90.2
7-Oct	88	76.3	82.6	67	57	149.1	82.1	111.3	84.6
14-Oct	87	73.9	81	64.8	52	149.1	83	106.6	79.4
21-Oct	86	71.4	79.1	60.5	48	141.4	80.4	93.9	65.4
28-Oct	84	72.4	77.2	58.6	46	140.7	79	88.6	61.1
4-Nov	84	70.6	75.9	56.9	43	132.3	79.4	86.4	58.5
11-Nov	81	73.4	72.9	53.4	41	126.7	80.9	79.2	51.1
18-Nov	79	69.8	71.4	52.2	38	117.6	75.3	76.6	48.3
25-Nov	77	69.7	70.2	51.9	37	118.3	73.8	77.4	48.7
2-Dec	78	69.7	68.9	49.9	37	116.2	74.5	71.5	44.8
9-Dec	77	70.7	66.7	48.9	35	113.4	74.4	72	44.9
16-Dec	75	68.9	65	47.5	32	109.9	72.2	68.9	41.2
23-Dec	75	70.2	63.9	46.3	29	112.7	72.2	67.1	41.7
31-Dec	76	72.1	62.7	45.7	30	118.3	74.1	64.9	40.7

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	202.7	17.2	370.2
FEB	220	20	276.7
MAR	373.4	60.3	171.5
APR	529.3	139.3	61.7
MAY	759.4	305.3	11
JUN	895.2	445.3	0.1
JUL	988.9	523.9	0
AUG	976.4	511.4	0
SEP	850.6	401.9	1.4
OCT	629.5	212.3	49.4
NOV	366.7	76.1	179.6
DEC	238.2	31.8	329.7
ANN	7030.3	2744.8	1451.3

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	3	-11730	1075	-1210
FEB	7	-9057	974	-786
MAR	68	-6091	2171	-405
APR	367	-2530	5234	-60
MAY	1954	-581	12282	-1
JUN	4169	-14	21011	0
JUL	5658	-2	26489	0
AUG	5350	-1	25913	0
SEP	3434	-107	18124	0
OCT	1173	-2032	7745	-36
NOV	181	-6181	2807	-307
DEC	22	-10518	1772	-802
ANN	22386	-48844	125597	-3607

Station Information		Shading Geometry in Dimensionless Units	
City, State, WBAN	TALLAHASSEE, FL 93805	Window:	1.000
Lat, Lon, Elev	30.38N 84.37W 69ft	Overhang:	0.892
Press, Stn_Type	14.7psia Primary	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	910	1170	1490	1870	1980	1940	1840	1730	1560	1370	1050	860	1480
	Std.Dev.	75	101	109	122	112	128	120	111	133	104	87	66	45
	Minimum	800	970	1260	1600	1710	1720	1610	1470	1090	1170	820	730	1370
	Maximum	1060	1380	1680	2130	2190	2220	2040	1960	1800	1570	1190	970	1570
	Diffuse	400	490	620	720	850	930	940	870	740	530	420	380	660
Clear Day	Global	1280	1600	1990	2330	2510	2550	2480	2310	2020	1650	1310	1170	1940
NORTH	Global	260	320	390	470	570	620	590	500	430	350	280	250	420
	Diffuse	260	320	390	450	510	540	530	480	430	350	280	250	400
Clear Day	Global	240	290	360	440	590	690	630	490	400	330	260	230	410
EAST	Global	550	680	840	1010	1050	1040	1020	990	890	810	630	520	840
	Diffuse	310	380	470	560	620	650	640	610	540	430	340	290	490
Clear Day	Global	860	1020	1200	1320	1340	1330	1300	1250	1150	1000	850	780	1120
SOUTH	Global	1160	1190	1090	910	690	600	620	760	970	1260	1270	1170	970
	Diffuse	410	460	520	540	540	540	540	560	570	520	450	400	510
Clear Day	Global	1990	1890	1570	1100	750	620	670	930	1340	1700	1880	1950	1360
WEST	Global	590	730	880	1040	1040	970	920	890	840	820	660	550	830
	Diffuse	320	390	490	580	630	640	630	600	540	440	350	300	490
Clear Day	Global	860	1020	1200	1320	1340	1330	1300	1250	1150	1000	850	780	1120

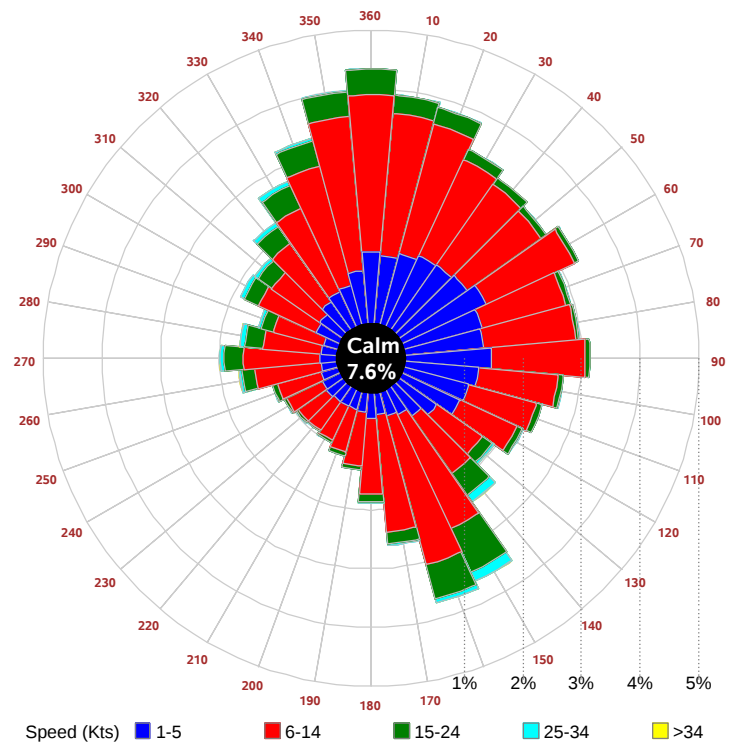
Average Annual Solar Radiation - Nearest Available Site Source: National Renewable Energy Laboratory, Golden CO, 1995

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	1070	1360	1450	1410	1340	1260	1120	980	730	590	1060
NORTH	Unshaded	180	220	270	320	370	400	390	340	300	240	200	170	280
	Shaded	160	190	240	280	320	340	330	300	260	220	170	150	250
EAST	Unshaded	380	480	590	720	750	740	730	700	630	570	440	360	590
	Shaded	320	400	490	590	610	600	590	570	520	480	380	310	490
SOUTH	Unshaded	850	850	720	550	420	380	390	470	630	870	930	870	660
	Shaded	800	690	410	330	330	330	330	340	350	620	850	840	520
WEST	Unshaded	410	510	620	740	740	690	640	630	600	580	460	380	580
	Shaded	350	440	520	610	610	560	530	510	500	490	400	330	490

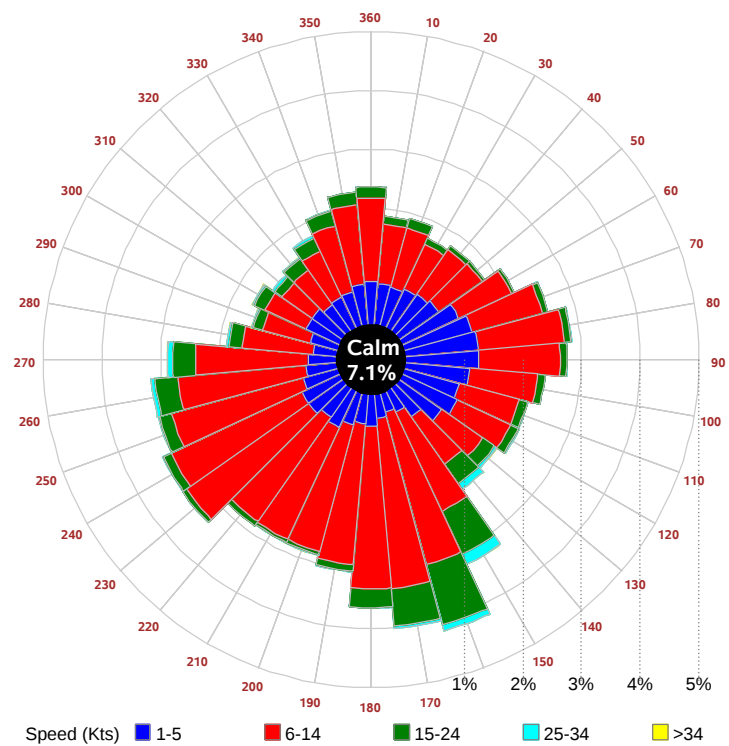
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS Percentage Uncertainty = 9												
		March					June					
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm	
HORIZ.	M.Clear	32	74	93	81	45	29	74	99	100	75	
	M.Cloudy	18	45	61	54	29	21	54	77	78	53	
NORTH	M.Clear	9	14	16	15	11	21	19	18	18	18	
	M.Cloudy	8	16	18	17	11	14	19	20	19	17	
EAST	M.Clear	70	69	24	15	11	54	76	46	18	18	
	M.Cloudy	22	36	22	17	11	27	50	38	19	17	
SOUTH	M.Clear	25	58	73	64	36	10	17	29	30	18	
	M.Cloudy	12	31	44	39	20	9	18	27	27	17	
WEST	M.Clear	9	14	16	59	77	10	17	18	40	71	
	M.Cloudy	8	16	18	37	36	9	18	20	34	46	
M.Clear	(% hrs)	38	40	36	38	39	42	39	32	26	28	

		Sept					Dec					
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm	
HORIZ.	M.Clear	16	62	89	88	60	14	50	64	50	16	
	M.Cloudy	10	41	66	66	43	8	29	38	32	10	
NORTH	M.Clear	7	15	18	18	16	5	11	13	11	6	
	M.Cloudy	5	15	19	19	15	4	11	14	12	5	
EAST	M.Clear	39	74	44	18	16	42	53	14	11	6	
	M.Cloudy	15	40	35	19	15	11	24	14	12	5	
SOUTH	M.Clear	9	41	62	61	41	31	76	91	77	35	
	M.Cloudy	6	25	44	44	27	9	31	40	35	12	
WEST	M.Clear	7	15	18	42	70	5	11	13	51	45	
	M.Cloudy	5	15	19	33	41	4	11	14	26	14	
M.Clear	(% hrs)	46	44	35	32	35	36	37	37	38	41	

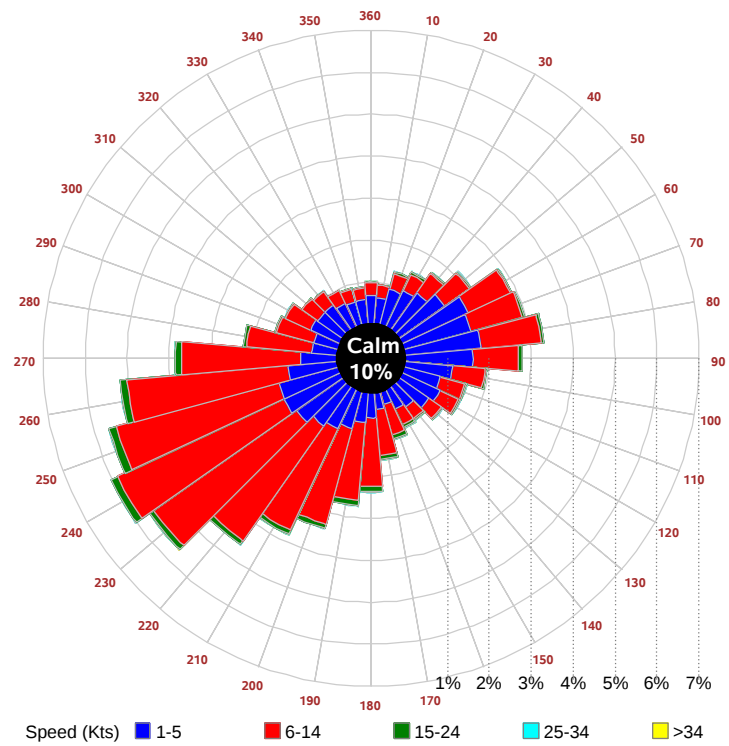
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

