

ABIDJAN FELIX HOUPHOUET, IV

Latitude = 5.26 N

Longitude = 3.93 W

Period of Record = 1988 To 2017

Station ID = ICAO_DIAP

Elevation = 21 Feet

Average Pressure = 29.84 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	93	82	149	8	SW
0.4% Occurrence	91	81	145	9.1	SW
1.0% Occurrence	90	81	145	8.8	SW
2.0% Occurrence	90	81	145	8.8	SW
Mean Daily Range	10	-	-	-	SW
97.5% Occurrence	73	72	117	3.9	SW
99.0% Occurrence	72	72	114	3.9	SW
99.6% Occurrence	70	69	104	2.8	NNE
Median of Extreme Lows	67	66	93	2.5	NNE

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	85	88	172	9.7	SW
0.4% Occurrence	84	88	167	8.8	SW
1.0% Occurrence	83	87	160	8.4	SW
2.0% Occurrence	82	86	156	7.8	SW

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	177	88	1.17	6.2	S
0.4% Occurrence	170	86	1.12	9.3	SW
1.0% Occurrence	169	86	1.12	9.2	SW
2.0% Occurrence	160	84	1.05	7	SW

Air Conditioning/ Humid Area Criteria	Threshold	T ≥ 93 °F	T ≥ 80 °F	Twb ≥ 73 °F	Twb ≥ 67 °F
	# of Hours	11	4812	8086	8446

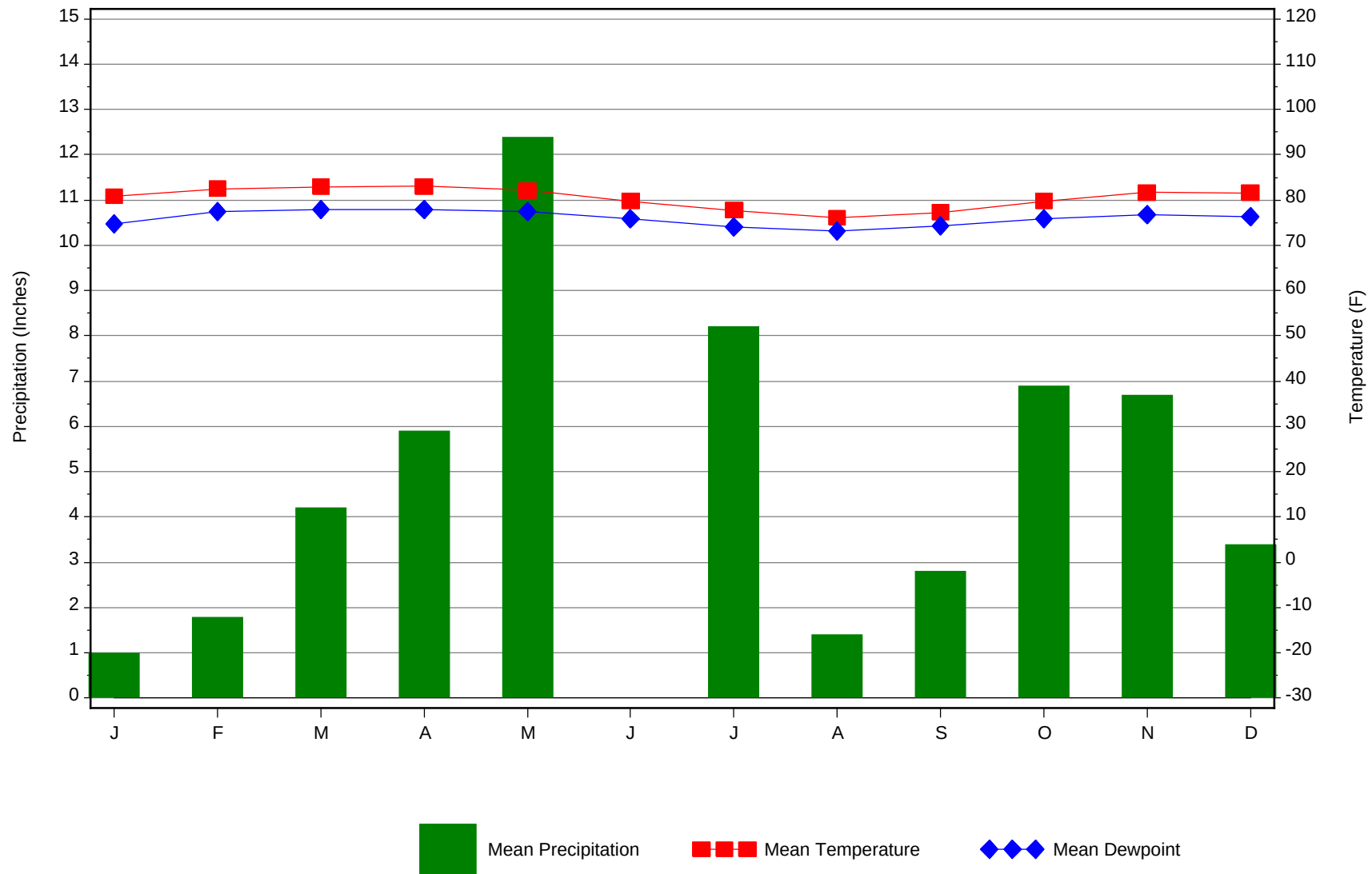
Other Site Data

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	N/A	N/A	28.5 + 4.4
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 (#)
82.9	N/A	N/A	0

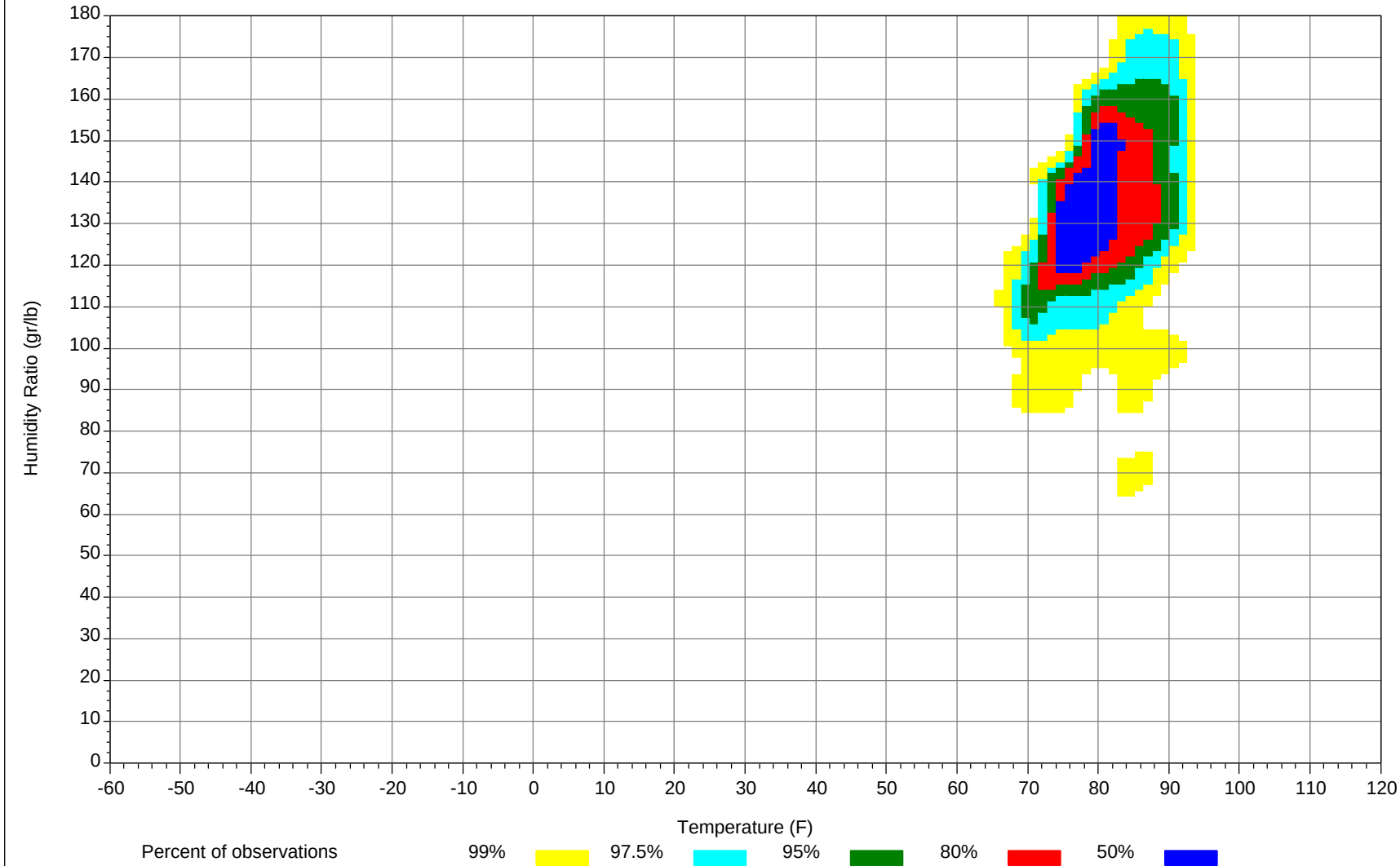
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.



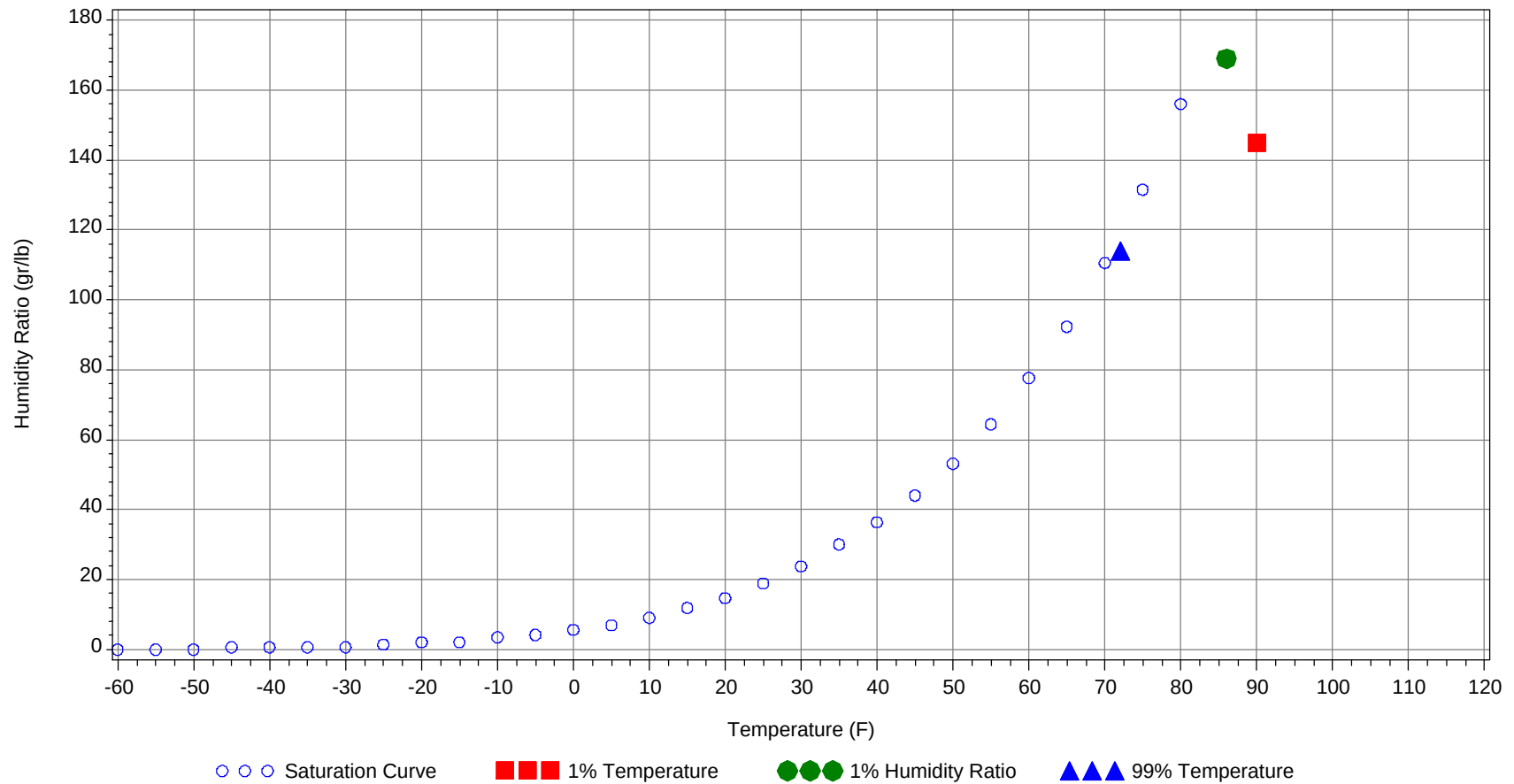
Average Annual Climate



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		81		145.0	44.4
99.0% Dry Bulb	72.0				114.0	34.8
1.0% Humidity Ratio	169.0	86.0	83.4	82.4		47.3

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)
95/ 99		0	0	0	68.3		0		0	76		0		0	84.2
90/ 94		18	0	18	76.8		36	2	38	81.1		44	1	45	81.7
85/ 89	0	131	15	146	78.4	0	134	28	162	80.1	1	152	40	193	80.5
80/ 84	62	80	144	286	78.2	116	46	154	316	79.3	143	43	177	363	79.4
75/ 79	130	17	74	221	75.9	94	7	37	138	76.5	95	7	28	130	76.2
70/ 74	45	3	14	62	69.9	12	0	3	15	71.7	9	1	2	12	72.4
65/ 69	11	0	1	12	65.9	1	0	0	1	66.8					
60/ 64	1		0	1	62.8	0	0		0	63.6					

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)
95/ 99							0		0	79					
90/ 94		43	1	44	81.8	0	18	0	18	81.5		1		1	81.4
85/ 89	4	146	45	195	80.5	2	139	25	166	80.3	0	43	2	45	79.6
80/ 84	139	40	161	340	79.3	125	73	179	377	78.9	48	146	116	310	77.7
75/ 79	87	9	30	126	76.2	111	17	40	168	76.5	178	48	116	342	76
70/ 74	10	2	3	15	72.6	10	2	4	16	72.6	15	3	6	24	72.5
65/ 69			0	0	68.5								0	0	68
60/ 64															

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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)
95/ 99															
90/ 94															
85/ 89		6	0	6	78.7		1		1	78.6		5	0	5	78.9
80/ 84	2	158	30	190	76.5	0	104	8	112	76	1	152	18	171	76.7
75/ 79	192	80	193	465	75	106	135	170	411	74.5	168	80	193	441	75.1
70/ 74	54	4	25	83	72.3	140	8	71	219	72.3	71	3	29	103	72.8
65/ 69	0	0		0	68.3	1		0	1	68.1		0		0	68
60/ 64															

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)
95/ 99												0		0	
90/ 94		1		1	80.8		9	0	9	81.2		16	0	16	80
85/ 89	0	53	0	53	79.3	0	140	6	146	79.7	0	142	15	157	79.3
80/ 84	31	165	105	301	77.8	92	85	184	361	78.3	90	80	178	348	78.6
75/ 79	197	27	137	361	76.1	141	6	48	195	76.3	135	10	51	196	76.2
70/ 74	20	1	5	26	72.6	7	0	2	9	72.6	22	1	5	28	71.1
65/ 69											1		0	1	66.6
60/ 64											0			0	64

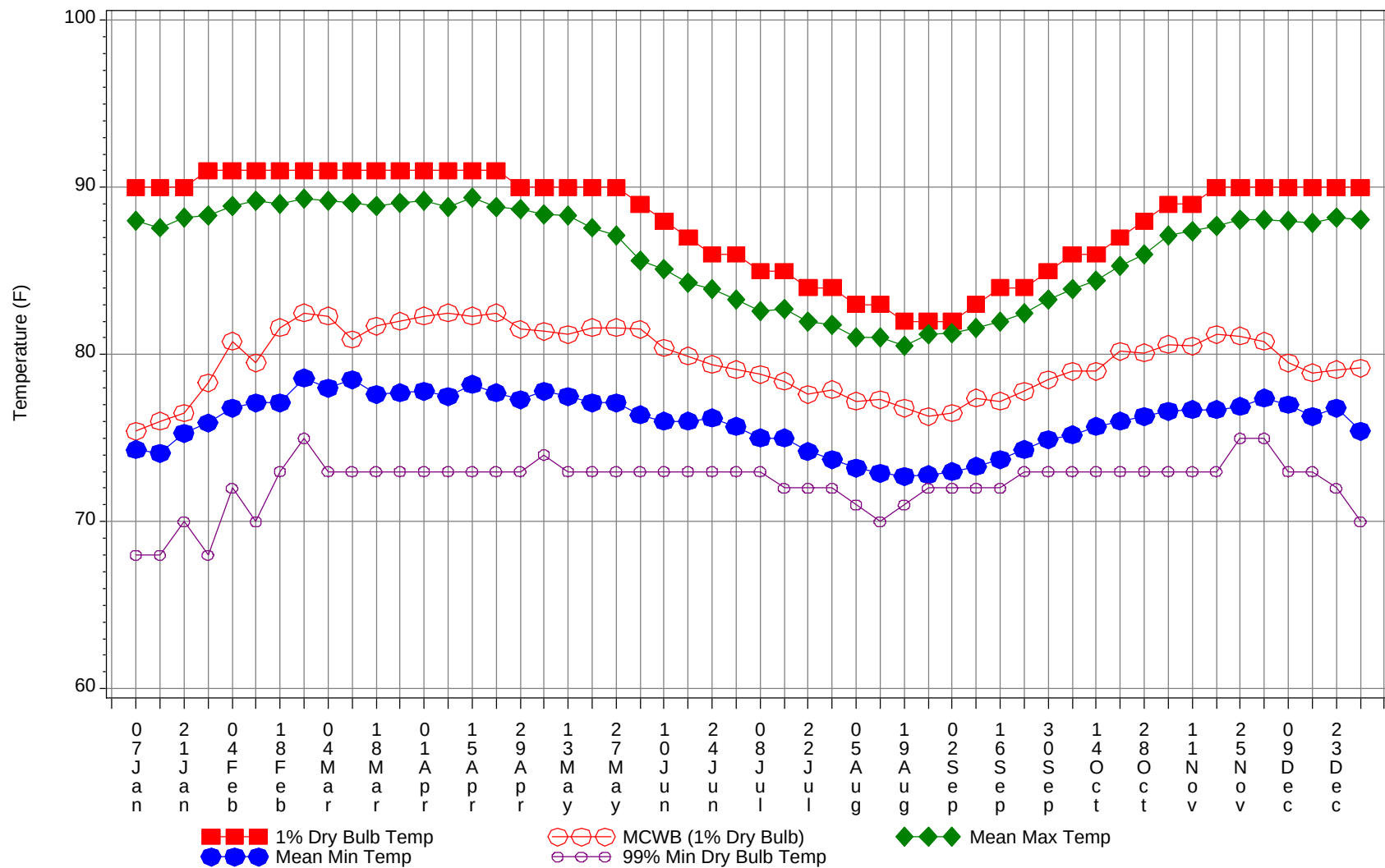
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary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

Dry-Bulb Temperature Hours For An Average Year

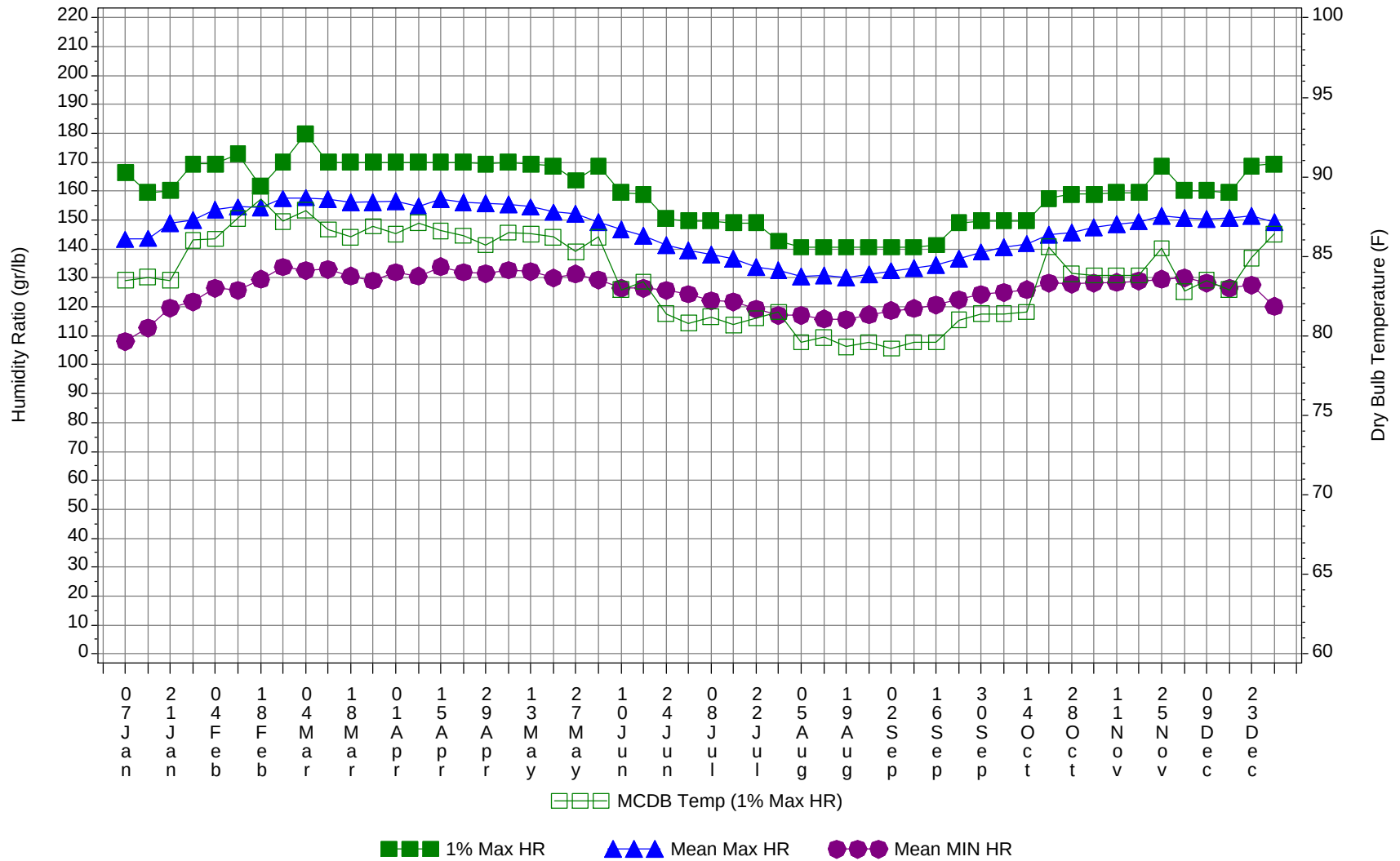
	Annual				
Temperature Range (°F)	01 To 08 LST	09 To 16 LST	17 to 00 LST	Total Obs	M C W B (°F)
95/ 99		0	0	0	75.9
90/ 94	0	186	4	190	80.9
85/ 89	7	1093	177	1277	79.9
80/ 84	850	1172	1452	3474	78.3
75/ 79	1633	441	1116	3190	75.6
70/ 74	414	26	170	610	72.1
65/ 69	14	0	2	16	66.2
60/ 64	1	0	0	1	63.2

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



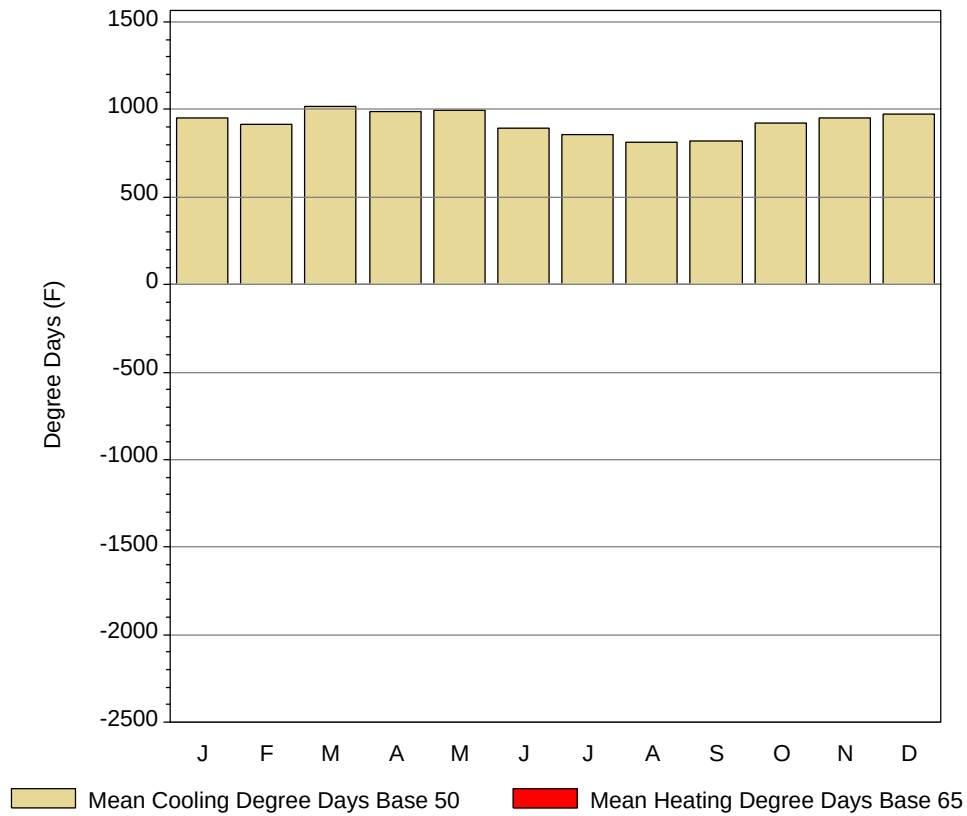
Long Term Humidity and Dry Bulb Temperature Summary



Long Term Humidity and Dry Bulb Temperature Summary

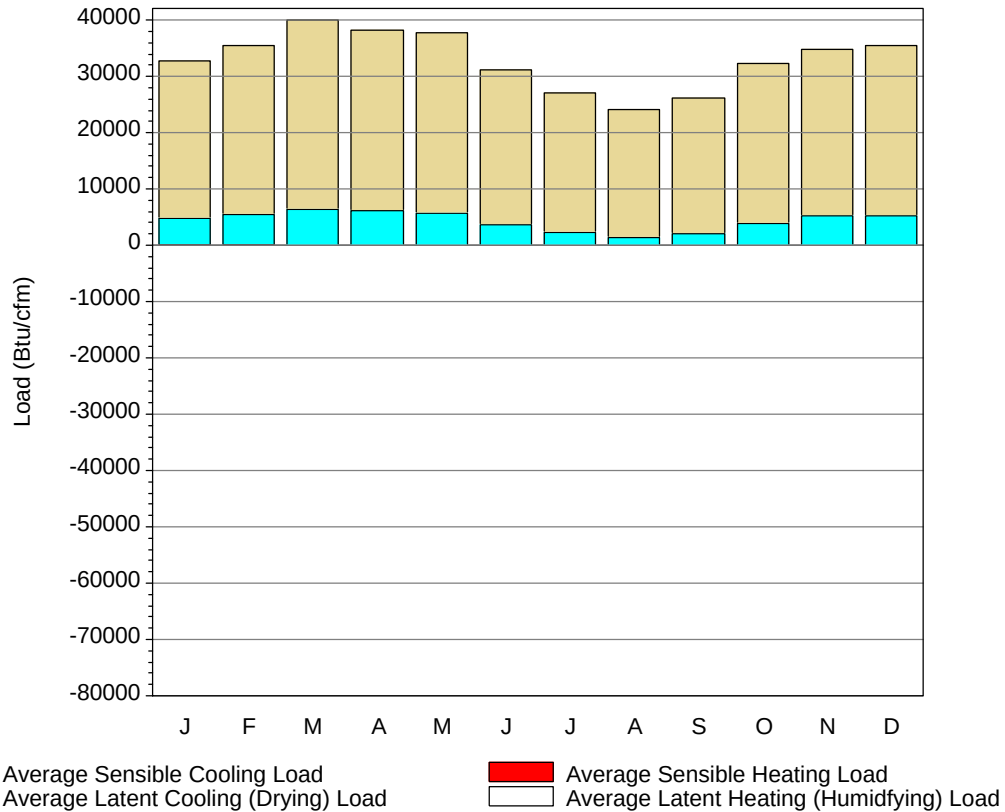
Week Ending	1.0% Temp (° F)	MCWB@ 1% Temp (° F)	Mean Max Temp (° F)	Mean Min Temp (° F)	99% Temp (° F)	1.0% HR (gr/lb)	MCDB@ 1% HR (° F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	90	75.4	88	74.3	68	166.6	83.5	143.4	108
14-Jan	90	76	87.6	74.1	68	159.6	83.7	143.7	112.7
21-Jan	90	76.5	88.2	75.3	70	160.3	83.5	148.9	119.6
28-Jan	91	78.3	88.3	75.9	68	169.4	86	150.2	121.8
4-Feb	91	80.8	88.9	76.8	72	169.4	86.1	153.7	126.5
11-Feb	91	79.5	89.2	77.1	70	172.9	87.4	154.6	125.7
18-Feb	91	81.6	89	77.1	73	161.7	88.6	154.4	129.6
25-Feb	91	82.5	89.3	78.6	75	170.1	87.2	157.5	133.8
4-Mar	91	82.3	89.2	78	73	179.9	87.9	157.8	132.6
11-Mar	91	80.9	89.1	78.5	73	170.1	86.7	157.3	132.9
18-Mar	91	81.7	88.9	77.6	73	170.1	86.2	156.1	130.6
25-Mar	91	82	89.1	77.7	73	170.1	86.9	156.3	129.1
1-Apr	91	82.3	89.2	77.8	73	170.1	86.4	156.5	132
8-Apr	91	82.5	88.8	77.5	73	170.1	87.1	154.9	130.6
15-Apr	91	82.3	89.4	78.2	73	170.1	86.6	157.2	133.9
22-Apr	91	82.5	88.8	77.7	73	170.1	86.3	156.3	132
29-Apr	90	81.5	88.7	77.3	73	169.4	85.7	155.8	131.6
6-May	90	81.4	88.4	77.8	74	170.1	86.5	155.6	132.7
13-May	90	81.2	88.3	77.5	73	169.4	86.4	154.6	132.2
20-May	90	81.6	87.6	77.1	73	168.7	86.2	152.8	130
27-May	90	81.6	87.1	77.1	73	163.8	85.3	152.2	131.3
4-Jun	89	81.5	85.6	76.4	73	168.7	86.2	149.2	129.3
10-Jun	88	80.4	85.1	76	73	159.6	82.9	146.9	126.5
17-Jun	87	79.9	84.3	76	73	158.9	83.4	144.5	126.5
24-Jun	86	79.4	83.9	76.2	73	150.5	81.4	141.5	125.8
1-Jul	86	79.1	83.3	75.7	73	149.8	80.8	139.7	124.4
8-Jul	85	78.8	82.6	75	73	149.8	81.2	138	122.2
15-Jul	85	78.4	82.7	75	72	149.1	80.7	136.7	121.7
22-Jul	84	77.6	82	74.2	72	149.1	81.1	133.8	119.3
29-Jul	84	77.9	81.8	73.7	72	142.8	81.5	132.8	117.1
5-Aug	83	77.2	81	73.2	71	140.7	79.6	130.6	117
12-Aug	83	77.3	81	72.9	70	140.7	79.9	130.8	115.8
19-Aug	82	76.8	80.5	72.7	71	140.7	79.3	130.2	115.7
26-Aug	82	76.3	81.2	72.8	72	140.7	79.6	131.3	117.3
2-Sep	82	76.5	81.3	73	72	140.7	79.2	132.5	118.7
9-Sep	83	77.4	81.6	73.3	72	140.7	79.6	133.4	119.4
16-Sep	84	77.2	82	73.7	72	141.4	79.6	134.5	120.7
23-Sep	84	77.8	82.5	74.3	73	149.1	81	136.7	122.5
30-Sep	85	78.5	83.3	74.9	73	149.8	81.4	139	124.3
7-Oct	86	79	83.9	75.2	73	149.8	81.4	140.6	125
14-Oct	86	79	84.4	75.7	73	149.8	81.5	141.9	125.9
21-Oct	87	80.2	85.3	76	73	157.5	85.6	145.1	128.2
28-Oct	88	80.1	86	76.3	73	158.9	83.9	145.7	128
4-Nov	89	80.6	87.1	76.6	73	158.9	83.8	147.6	128.3
11-Nov	89	80.5	87.4	76.7	73	159.6	83.8	148.6	128.5
18-Nov	90	81.2	87.7	76.7	73	159.6	83.8	149.5	129
25-Nov	90	81.1	88.1	76.9	75	168.7	85.5	151.5	129.5
2-Dec	90	80.8	88.1	77.4	75	160.3	82.8	150.9	130.1
9-Dec	90	79.5	88	77	73	160.3	83.5	150.5	128.3
16-Dec	90	78.9	87.9	76.3	73	159.6	82.9	150.9	126.4
23-Dec	90	79.1	88.2	76.8	72	168.7	84.9	151.5	127.5
31-Dec	90	79.2	88.1	75.4	70	169.4	86.4	149.2	120.1

Degree Days, Heating and Cooling (Base 65 F) & Cooling (Base 50F)



	Mean Cooling Degree Days (°F) Base 50	Mean Cooling Degree Days (°F) Base 65	Mean Heating Degree Days (°F) Base 65
Month			
JAN	951.2	486.2	0
FEB	919.3	495.3	0
MAR	1020.9	555.9	0
APR	987.4	537.4	0
MAY	994.7	529.7	0
JUN	892.4	442.4	0
JUL	859.4	394.4	0
AUG	811.3	346.3	0
SEP	819.7	369.7	0
OCT	922.2	457.2	0
NOV	950.1	500.1	0
DEC	976.3	511.3	0
ANN	11104.9	5625.9	0

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	4853	-7	27807	0
FEB	5565	-3	29924	0
MAR	6398	0	33548	0
APR	6185	0	31917	0
MAY	5725	0	32131	0
JUN	3737	0	27470	0
JUL	2357	0	24619	0
AUG	1421	0	22760	0
SEP	1999	0	24207	0
OCT	3868	0	28397	0
NOV	5205	0	29514	0
DEC	5304	0	30163	0
ANN	52617	-10	342457	0

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													

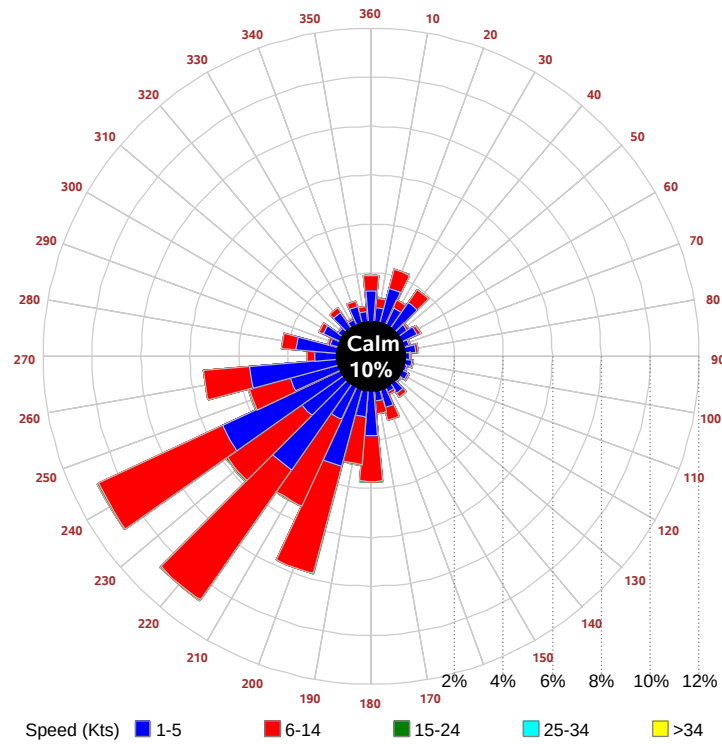
Average Annual Solar Radiation - Nearest Available Site Source: National Renewable Energy Laboratory, Golden CO, 1995

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													

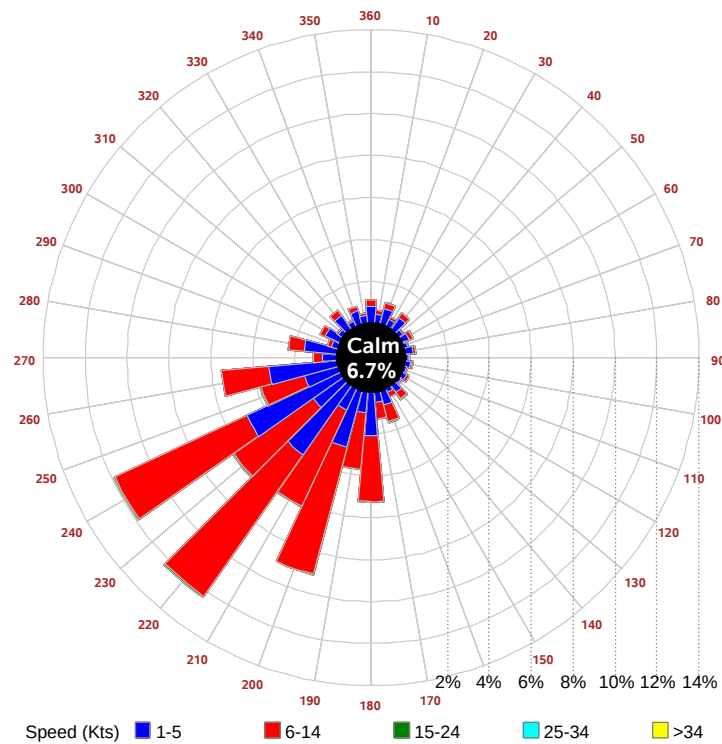
AVERAGE INCIDENT ILLUMINANCE (klux-hr) FOR MOSTLY CLEAR AND MOSTLY CLOUDY CONDITIONS, Percentage Uncertainty = 9												
				March						June		
		9am	11am	1pm	3pm	5pm	9am	11am	1pm	3pm	5pm	
HORIZ.	M.Clear											
	M.Cloudy											
NORTH	M.Clear											
	M.Cloudy											
EAST	M.Clear			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

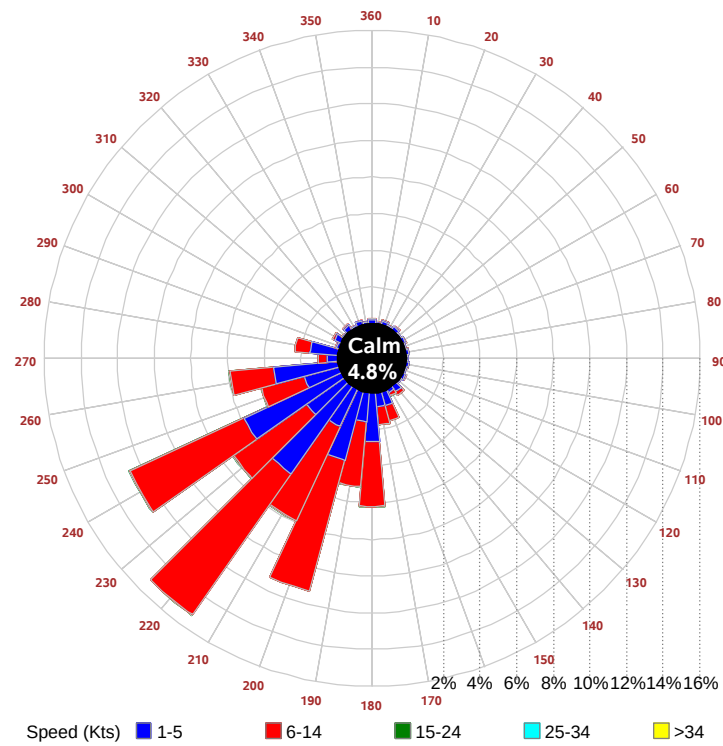
Wind Summary - December, January, and February



Wind Summary - March, April, and May



Wind Summary - June, July, and August



Wind Summary - September, October, and November

